

**A CRITICAL INVESTIGATION OF DEAF COMPREHENSION OF
SIGNED TV NEWS INTERPRETATION**

by

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Declaration:

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I declare that

A CRITICAL INVESTIGATION OF DEAF COMPREHENSION OF SIGNED TV NEWS
INTERPRETATION

is my own work, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

SIGNATURE

(Mrs) JE Wehrmeyer

DATE

PREFACE AND ACKNOWLEDGEMENTS

This is the story of how Deaf South Africans understand the signed interpretations on the TV news channels in South Africa. In a very real sense, therefore, this is their contribution as much as it is mine. Thank you to all Deaf South Africans who participated in some way in this study, especially the local Pretoria Deaf community, for your patience, insight, wisdom and enthusiasm.

It is fitting to give special acknowledgement to those individuals without whom the study would not have been possible. My biggest debt of thanks is to the Deaf researcher at Unisa, Mrs Karina van Aarde, who patiently assisted in compiling the questionnaires, translating them into Afrikaans, distributing and explaining them to the Deaf respondents, collecting them and explaining the answers to me and helping me to refine (and re-ask!) the questions; in short, acting as coordinator and diplomatic mediator between myself and the Deaf community. Mrs van Aarde was also instrumental in transcribing and checking transcriptions. Similarly, I would like to thank Mrs Ayesha Ramjugernath, who also helped with the transcriptions, my honorary son and mentee Lebogang Kungwane, who transcribed the questionnaire data onto Excel and my son Wolfgang Wehrmeyer, who exported the eye-tracking data to Excel and helped produce the Tobii visualisations. Your contributions are invaluable.

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misunderstandings, for introducing me to research on sign language interpreting and for being an example of excellence and innovation in teaching and research. Without your encouragement, I would have probably completed a doctorate in another topic in half the time. However, I doubt whether that doctorate would have been half as interesting or rewarding.

Finally, as is usual in academic discourse, it is necessary for me to state my biases and conventions. Firstly, I have adopted the convention that interpreters are generally referred to as *she*, and every other type of person as *he*. This is solely a matter of convenience and has nothing to do with perceptions of gender roles. Secondly, I use the term *Deaf* to refer to those deaf individuals who choose sign language as their main language. The word *deaf* is inclusively used in all other cases. Thirdly, in support of the local Deaf community's efforts to obtain official recognition of SASL as a national language, I have ignored the current academic convention of referring to *signed* instead of *sign* language, except for those instances where I wanted to include sign-supported languages.

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ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this study.

ALEA: Atlas Editor for Annotation

AOI(s): Area(s) of interest

ASL: American Sign Language

ASLIA: Australian Sign Language Interpreters Association

ATIS: Air Travel Information System

Auslan: Australian Sign Language

ASL: American Sign Language

BANZSL: British/Australian/New Zealand Sign Language

BBA: Bilingual Bimodal Acquisition

BSL: British Sign Language

BSLA: Berkeley Sign Language Acquisition

BTS: Berkeley Transcription System

CACDP: Council for the Advancement of Communication with Deaf People

CIT: Conference of Interpreter Trainers

COCA: Corpus of Contemporary American English

CODA: Children of Deaf Adults

CTS: Corpus Translation Studies

DeafSA: Deaf Federation of South Africa

DGS: German Sign Language (Deutsche Gebärdensprache)

DSGS: Swiss German Sign Language (Deutschschweizer Gebärdensprache)

DSL: Danish Sign Language

DTS: Descriptive Translation Studies

DTV: Deaf TV television program on Sundays at 12:30

E5: ETV news bulletin on weekends at 18:00

E6: ETV news bulletin on weekdays at 18:00

E10: ETV news bulletin on weekdays at 22:00

ECHO: European Cultural Heritage Online

EFSLI: European Forum of Sign Language Interpreters

ELAN: European Distributed Corpus Linguistic Annotator

ESL: Estonian Sign Language

EUDICO: European Distributed Corpus Linguistic Annotator

GDE: Gauteng Department of Education

GSL: Greek Sign Language
HamNoSys: Hamburg notation system
IMDI: ISLE metadata initiative
ISLE: International Standard for Language Engineering project
IP: Interpreted Product
IS: Interpreting Studies
ISL: Irish Sign Language
IT: Interpreted Text
JSL: Japanese Sign Language
LIS: Italian Sign Language (Lingua Italiana dei Segni)
LS-COLIN: Langues des Signes – Cognition, Linguistique et Informatique
LSE: Spanish Sign Language (La Langue des Signes Espagnole)
LSF: French Sign Language (La Langue des Signes Française)
NAATI: National Authority for the Accreditation of Translators and Interpreters
NCI: National Council on Interpreting
NGK: Dutch Reformed Church (Nederlandse Gereformeerde Kerk)
NGT: Sign Language of the Netherlands (Nederlandse Gebaartaal)
NMF: Non-manual feature
NRF: National Research Foundation
NZSL: New Zealand Sign Language
PMG: Parliamentary Monitoring Group
POS: Parts-of-speech
PIP: Picture in Picture
RID: Registry of Interpreters for the Deaf
SABC: South African Broadcasting Company
SADA: South African Disability Alliance
SASL: South African Sign Language
SASLI: South African Sign Language Interpreters (South Africa) OR Scottish Association of
Sign Language Interpreters (UK)
SASLINC: South African Sign Language Interpreters National Centre
SATI: South African Translators' Institute
Simcom: Simultaneous communication
SLED: Sign Language Education and Development
SOI: Signs of Ireland
ST: Source Text

STS: Swedish Sign Language (Svenskt teckenspråk)

T1: SABC 1 news bulletin at 17:30

T2: SABC 2 news bulletin at 20:30

T3: SABC 3 news bulletin at 20:00

TC: Tertium comparationis

TEC: Translational English Corpus

TL: Target Language

TS: Translation Studies

TT: Target Text

TWE: Test of Written English

WASLI: World Association of Sign Language Interpreters

WFD: World Federation of the Deaf

ABSTRACT

This study investigates factors hampering comprehension of sign language interpretations rendered on South African TV news bulletins in terms of Deaf viewers' expectancy norms and corpus analysis of authentic interpretations. The research fills a gap in the emerging discipline of Sign Language Interpreting Studies, specifically with reference to corpus studies. The study presents a new model for translation/interpretation evaluation based on the introduction of Grounded Theory (GT) into a reception-oriented model. The research question is addressed holistically in terms of target audience competencies and expectations, aspects of the physical setting, interpreters' use of language and interpreting choices. The South African Deaf community are incorporated as experts into the assessment process, thereby empirically grounding the research within the socio-dynamic context of the target audience. Triangulation in data collection and analysis was provided by applying multiple mixed data collection methods, namely questionnaires, interviews, eye-tracking and corpus tools. The primary variables identified by the study are the small picture size and use of dialect. Secondary variables identified include inconsistent or inadequate use of non-manual features, incoherent or non-simultaneous mouthing, careless or incorrect sign execution, too fast signing, loss of visibility against skin or clothing, omission of vital elements of sentence structure, adherence to source language structures, meaningless additions, incorrect referencing, oversimplification and violations of Deaf norms of restructuring, information transfer, gatekeeping and third person interpreting. The identification of these factors allows the construction of a series of testable hypotheses, thereby providing a broad platform for further research. Apart from pioneering corpus-driven sign language interpreting research, the study makes significant contributions to present knowledge of evaluative models, interpreting strategies and norms and systems of transcription and annotation.

KEY TERMS

Interpreting Studies, Grounded Theory, Descriptive Translation Studies, reception-oriented translation evaluation, *tertium comparationis*, qualitative analysis, sign language interpreting, comprehension of sign language, Interpreting Studies, South African Sign Language, Sign Language Interpreting Studies, language variation, mouthing, interpreter signing skills, interpreter visibility, corpus-driven research, interpreting strategies, corpus design, corpus annotation, sign language transcription, Deaf Studies, questionnaire research, triangulation, eye-tracking, norms.

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CHAPTER 1: INTRODUCTION

Over the past ten years, news bulletins on South African television have boasted the addition of a sign language interpreter to make the bulletin accessible to the Deaf community. However, conversation with members of the Pretoria and Johannesburg Deaf communities revealed that very few understood the signed news broadcasts. From preliminary inquiries, it became apparent that there was a contradiction between the interpreting quality presently offered on television and audience expectations. It was therefore decided to assess the needs and expectations of the target audience regarding factors relevant to comprehension of interpreted news broadcasts and compare these with features of a corpus of transcriptions derived from the interpretations on the television news broadcasts.

This inquiry led to the formulation of the main research question:

- What factors contribute to Deaf South Africans' lack of comprehension of signed interpretations of television news bulletins?

This research, therefore, is grounded in Interpreting Studies and specifically in Signed Language Interpreting Studies.

The background and research questions that follow provide the foundations and motivations for the research.

1.1 Context of research problem

The research problem needs to be viewed in the context of the dynamics of the South African Deaf community as well as of Interpreting Studies and sign language research. According to Gile (1995:21), professional interpreting is defined as

A service activity with a communicative function, performed in a professional setting with a professional aim in mind and constrained by this setting.

This definition provides several facets applicable to the research question. Firstly, professional interpreting is a service to a particular target audience. Secondly, it conveys a message. Thirdly, it requires a suitable setting. Fourthly, it is carried out according to certain professional standards. These aspects are discussed in the sections below.

1.1.1 A service to a particular target audience

Firstly, the interpreting done on television is a **service** rendered to a particular target audience, namely the South African Deaf community. Hence, if the service is to be rendered properly, the needs and expectations of this audience should be identified.

Pöchhacker and Schlesinger (2002:3) define interpreting as

Interlingual, intercultural oral or signed mediation, enabling communication between individuals or groups who do not share, or who do not choose to use, the same language(s).

This definition draws attention to the fact that there is a group of South Africans who do not or cannot communicate in the official languages of South Africa and for whom mediation is necessary using another language, namely South African Sign Language (SASL). It forces the acknowledgement that deaf people who sign form a linguistic and cultural minority group (termed the *Deaf community*) with its own language (SASL) and conventions (termed *Deaf culture*). Members of the Deaf community refer to themselves as *the Deaf* (capitals) as opposed to *deaf* (lower case) people. They usually belong to closed, close-knit local communities linked to schools or churches. The processes of industrialization and globalization have led to interaction between Deaf communities and the formation of national and international organisations that advocate and protect Deaf interests, e.g. DeafSA and WFD (World Federation of the Deaf). It is only fairly recently that the rights of the Deaf community have obtained international recognition, and, concomitantly, that sign language interpreting has been recognised as a profession.

In South Africa, the Deaf community is well-established. Population estimates of hearing-impaired persons vary from 400 000 (SA Yearbook 2009:213; StatsSA 2009) to 4 million (Berke 2009), with an estimated 12 000 (Lewis 2009) to 2 million profoundly deaf SASL signers (Olivier 2007). DeafSA's estimate of 600 000 profoundly deaf signers (SADA 2012:9; cf. Berke 2009; Siggenius 2009; Olivier 2007) and one million hearing-impaired persons is generally accepted as accurate (DeafSA 2009:5; PMG 2007); however, preliminary results from the recent 2011 census indicate a profoundly deaf population of 0.1% of the South African population (StatsSA 2012), i.e. only about 52 000 people.

Schools and churches for deaf people form the nuclei around which Deaf communities are based (Aarons & Akach 2002:130; cf. Stone 2010:1). There are approximately 43 deaf schools in South Africa (Hi Hopes 2012; Selzer 2010:9), of which eight are in Gauteng (GDE 2012). Some of the better-known schools include *De la Bat School* run by the *National Institute for the Deaf* in Worcester, *Transoranje Skool vir Dowes* in Pretoria, *Fulton School for the Deaf* in Durban; *Kutlwanong* in Rustenburg; *Kwa Thintwa School for Hearing Impaired* in Durban, *St. Vincent's* in Johannesburg and *Dominican Grimley* in Hout Bay (Berke 2009). Some South African schools for blind children also educate deaf-blind children, e.g. *Vuleka School for the Blind and Deaf* (GDE 2012). Post-secondary education is only offered by *Deaf College South Africa*, which is run by the *National Institute for the Deaf* in Worcester (Berke 2009).

The primary advocacy organisation, DeafSA (formerly *South African National Council for the Deaf*) was established in 1929 and has nine provincial chapters throughout South Africa (cf. DeafSA 2008; SADA 2012). Other service organizations include the nonprofit *Institute for the Deaf* in Worcester, the *Deaf Child Centre* at the University of Cape Town, the *Carel du Toit Center* in Cape Town, the *Centre for Deaf Studies* at the University of the Witwatersrand in Johannesburg and its related NGO *HiHopes*, *Deafblind South Africa* and *SHHH South Africa* which caters for the hard of hearing (Berke 2009; Hi Hopes 2012). Deaf people's interests are also protected by the national disability organization NCPPDSA (National Council for Persons with Physical Disabilities in South Africa) (Berke 2009; NCPPDSA 2011; Newhoudt-Druchen 2006:9). Organizations that promote SASL include *Sign Language Education and Development* (SLED) and *Signsational Kids* (Berke 2009). Prominent Deaf South Africans include Olympic athlete Terrence Parkin and Wilma Newhoudt-Druchen, the first deaf female MP (Berke 2009; Newhoudt-Druchen 2006:9).

In the next section, the communicative function of the interpreting service is discussed.

1.1.2 Communication of a message

The second requirement of an interpreting service is **communicative**, i.e. a message or information is transmitted to the audience in an understandable form. According to Wallmach & Kruger (2005:48),

The interpreter must therefore remember to interpret in such a way that her interpreted message is fully understood... [that is] the reason for [her] existence.

The sign language interpreter acts as interlingual mediator, (re)creating a message from one language called the *source language* (SL) into a message in another language called the *target language* (TL).

A number of cognitive models attempt to explain the process of hearing a text in one language and producing related communication in another language. Some explain cognitive processes in terms of *decoding* and *recoding* a message (cf. Seleskovitch 1975). Others regard the process as a *(re)construction* of meaning based on certain clues found in the source text (cf. Wilcox & Shaffer 2002:45). In this study, the interpreter is accepted as an active participant in the construction of TL meaning. Therefore, the use of terminology such as *decoding* and *recoding* does not imply adherence to *conduit* models of meaning construction. Instead, the interpreter is regarded as a mediator between the SL *sender* and the TL *audience*, who transforms the original message, called the *source text* (ST) into a message in the TL called

the interpretation or, borrowing a term from Translation Studies, the *target text* (TT). These concepts are discussed below.

Firstly, the **source language (SL)** (also called the *working* or *floor* languages) refers to the spoken language used. In the news broadcasts offering SASL interpretation, the spoken languages are mainly English, Ndebele, Zulu, Sesotho, SiSwati and Setswana. Subtitles and other written forms of information appearing on the broadcasts are presented in the same language as the spoken message.

Secondly, the SL is spoken by the **SL sender**, who, in the context of television news broadcasts, is chiefly the studio presenter, but also includes interviewees and anchormen (journalists in the field), i.e. anyone on the news broadcast that communicates in spoken language. The presenter and anchormen control the pace of the discourse but also operate under certain constraints such as time limits, the fact that they are reading prepared texts and their relationships as employees of the television station. They are expected to deliver the message quickly, clearly and professionally. Although the presenter operates from the studio, the anchormen may operate in less than ideal physical settings. At other times, the SL senders are interviewees who may not be accomplished speakers and who may find themselves in non-ideal physical settings such as bad weather conditions, poor acoustics or loud background noises. They do not experience the same constraints (e.g. time, relationship to the initiator) as the presenter, but may be under other constraints which affect their communicative intentions.

Thirdly, the actual words spoken by any of the SL senders, i.e. the message or information being communicated, is called the **source text (ST)**. This term has been adopted by Interpreting Studies despite the fact that the message in interpreting is not in written form. In news broadcasts, the ST is composed of both non-spontaneous (e.g. from the presenter or prepared interviews) and spontaneous speech (e.g. when eliciting opinions from the general public) (cf. Bell 1991:189-191). However, apart from the verbal messages, news broadcasts also offer their audiences written information (i.e. subtitles), which further complicates the definition of a ST. Since the television interpreters only interpret the message that the hearing audience *hears*, the definition of ST in this study is restricted to the *verbal message which the hearing audience receives* and does not include subtitle information.

This raises the point that although the signed interpretation is offered as the primary source of information to a Deaf viewer, it is not their only source. Deaf people who lip-read well could access information by reading the lips of presenters or people being interviewed. Secondly, they could read the on-screen text. Thirdly, the events portrayed in the main picture also provide information. However, according to Pashler (1989:478), divided attention between

two complex visual tasks significantly reduces speed and accuracy in performing visual processing for both tasks (cf. Duncan 1980; Miller 1982:252), whereas divided attention between a primary aural task and a secondary visual task does not. This suggests that extra effort is required by Deaf viewers who have to utilise the same sense (vision) to obtain information from the interpreter (primary stimulus) and other visual (secondary) stimuli such as the picture or subtitles. On the other hand, hearing viewers utilise two different senses (hearing and vision) to obtain information from the audible message (primary stimulus) and visual (secondary) stimuli of picture or subtitles, thus requiring less effort to do both tasks.

This leads to the secondary research question:

- To what extent does the target audience rely on the service of the interpreter as information source compared to other available sources?

Fourthly, the **target language (TL)** of the interpreted news is SASL. Language use on news interpreting is unidirectional, i.e. the interpreter only interprets from spoken language into SASL and not the other way round. According to Prinetto et al. (2011:134), a sign language is a visual-gestural language with signs as lexical units instead of words. Sign language is a living, dynamic language which develops naturally within Deaf communities (cf. Baker-Shenk & Cokely 1981:83-100). According to Bidoli (2009:135), dialects are persistent in signing communities, even within established national sign languages. In South Africa, efforts are being made to standardise SASL through a language planning board (Reagan 2002:419). However, since these efforts are relatively recent, it may mean that interpreters still use local dialects instead of more standard signs. TV interpreters have also been accused of not using natural sign but a derivative of sign-supported speech termed *Simcom* (*simultaneous communication*) or *contact signing* (Reagan 2012). These considerations about the nature of SASL lead to the following secondary research question:

- To what extent do the interpreters use standardised forms of SASL?

Fifthly, the signed message or *interpretation* is termed the **target text (TT)**, *interpreted text* or *interpreted product*. The notion of a face-to-face visual message as a text type is due to the influence of Translation Studies on Interpreting Studies (Pöchhacker 2008:41). According to Riccardi (2002:21), this was mainly because German theorists saw interpreting as a subcategory of translation. Researchers discovered that interpretations used different cohesive and intonation patterns when compared to original production and also evidenced distortions caused by the influence of the SL on the TL (Shlesinger 2000).

These considerations about the nature of the signed message lead to the following secondary research question:

- Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters?

In the next section, the third requirement, namely the interpreting setting, is discussed.

1.1.3 A professional setting

A third aspect to be considered in professional interpreting is that it should be done in a professional setting. The **interpreting setting**¹ incorporates the **participants** as well as the **physical and social environment** in which the interpreting takes place. The **participants** of an interpreting event include the initiator of the broadcast (i.e. the broadcasting corporation), the ST senders, the interpreter, the SL audience and the TL audience (Gile 1991:189). The **environment** includes all factors that may either impede or facilitate the interpreted message. The *social environment* includes the mode and type of interpreting, the existence of some form of interpreting brief, vertical and horizontal relationships between participants, peculiarities of the languages involved and the purpose, theme, genre, form of speech and content of the ST and TT (cf. Chernov 2004:73-77; Hymes 1974:45-60). The *physical environment* includes elements such as background noise, sound quality, lighting, technical equipment, the colour of the background or the interpreter's clothing and the size and quality of the television picture (Bidoli 2002:174-175; Hymes 1974:45-48). In media interpreting, equipment and technical facilities are usually of a high standard (Bros-Brann 2002:2-3).

In signed interpreting, interpreter visibility is extremely important (cf. Bidoli 2002:176). The background should be a plain light colour (the DeafSA guidelines recommend a light blue), the interpreter's clothing should contrast with her skin colour and the face should be well lit from the front and not obstructed by hair (cf. DeafSA 2009). Picture size and clarity of television reception also affect the visibility of the interpreter (cf. DeafSA 2009). In some countries, e.g. Norway, the interpreter is on a separate channel or adjustable PIP (picture in picture) (Antonsen 2006). However, in most countries, including South Africa, the interpreter is inserted into the main picture. The area occupied by the interpreter varies from half of the screen (in New Zealand) to about one sixth of the screen (in South Africa).

This leads to the secondary research question:

¹ This definition combines Gile's (1991:188) notion of *communicative configuration* (which simply included the human participants), Hymes' (1974:45-65) categorizations of *situation*, *participants* and *instrumentalities* and Chernov's (2004:73-77) *factors of the communicative situation*.

- Are there physical elements of the interpreting setting (e.g. background, clothing, picture size, etc.) that hamper interpreter visibility and thus audience comprehension?

In the next section, the fourth requirement, namely professionalism, is discussed.

1.1.4 The interpreter as a professional

Fourthly, the service provided should be **professional**, i.e. the interpreter should be able to deliver a product of quality through experience and training. She should thus be able to make qualified decisions on the optimal choice of TL material during the interpreting process. The specification of “professional constraints” also indicates that the interpreter adheres to professional ethics and standards, collectively termed *norms*.

1.1.4.1 The state of the profession

The profession of sign language interpreting developed as Deaf rights to sign language interpreting were recognised. As can be expected from such a relatively new discipline, the need for proficient signers far outweighs their availability (DeafSA 2009:5). Sign language interpreters are usually children of deaf adults (CODAs) or other hearing individuals related to the Deaf community (cf. Napier 2006:13). Although interpreting is primarily perceived as a hearing activity, Deaf interpreters, who initially only interpreted between different sign languages or for the deaf-blind (Bidoli 2009:137), are increasingly taking on other assignments, e.g. media interpreting (Stone 2009).

Because the profession is still relatively new, not every country has infrastructure in place for the registration, training, assessment and accreditation of sign language interpreters. Italy was one of the first countries to introduce sign language interpreting at schools (in 1992) and universities (in 1997) (Bidoli 2009:136). Britain, Sweden, Italy, Ireland, Germany, Denmark, Norway and Finland have instituted interpreter training programmes, e.g. the prestigious European Masters in Sign Language Interpreting (EUMASLI) and also have national registers for sign language interpreters (Bidoli 2009:136; Erlenkamp et al. 2011:15-16; Leeson 2005a:281; Leeson et al. 2011:5; Napier 2006:22). For example, the *European Forum of Sign Language Interpreters* (EFSLI) and the *World Association of Sign Language Interpreters* (WASLI) has member associations throughout the EU which provide support and a framework of standards to interpreters (Bidoli 2009:136; Napier 2006:22). However, other European countries, for example Greece and Luxembourg, have no formal training programmes or accreditation structures (Leeson 2005a:282; Savvalidou 2011:106).

In Australia, sign language interpreters are accredited by the *National Authority for the Accreditation of Translators and Interpreters* (NAATI) since 1982 (Napier 2006:13) and the Australian Sign Language Interpreters Association (ASLIA) instituted in 1991 provides professional development and standards (Napier 2006:12; Napier & Barker 2004:228-238). Although NAATI accreditation does not yet require a university degree, Macquarie University in Sydney offers a postgraduate interpreting diploma (Napier 2006:14).

In the USA, sign language interpreters are trained, registered and assessed with the *Registry of Interpreters for the Deaf*, established in 1964 (Napier 2006:17). Certification is also provided by the *National Association of the Deaf* and the *National Council on Interpreting*. The USA boasts approximately 150 interpreter training programmes which are controlled by the *Conference of Interpreter Trainers* established in 1979 (Napier 2006:18).

The British Association of Sign Language Interpreters was established in 1988 (Napier 2006:16). Interpreters are accredited by the NRCPD (formerly the *Council for the Advancement of Communication with Deaf People*) established in 1980 or the *Scottish Association of Sign Language Interpreters* established in 1981 (Napier 2006:14-15). Herriot-Watt University offers a newly-established undergraduate degree as well as the EUMASLI programme (Turner 2011b; Leeson et al. 2011:5). Vocational qualifications are also offered by the NRCPD (Napier 2006:14-15).

In contrast, Asian countries such as Indonesia, Japan, Thailand, Cambodia, Nepal and Hong Kong only have two or three interpreters in the whole country and no accrediting or professional bodies (Takagi 2006:27).

In South Africa, the universities of the Witwatersrand (Wits) and Free State (UFS) offer courses in sign language interpreting at post-graduate levels (from postgraduate diplomas up to PhD). Certificate or short courses in SASL interpreting are also offered by Wits and NWU. Wits also offers an undergraduate Diploma in Legal Interpreting with SASL as a language combination. SASL is offered as a major for the Bachelor of Arts degree at Wits, UFS and North West University (NWU) (UFS 2012; NWU 2012; Wallmach 2012; Wits 2012) as well as at Honours level at Wits and UFS (Wallmach 2013). Certificate or short courses in SASL language acquisition are also offered by Wits. Similar to the British and Australian systems, the interpreting courses focus on interpreting skills and assume an existing knowledge of sign language. However, there is no compulsory national accreditation system, control of interpreting standards, oversight of university course standards or licensing or maintenance system for interpreters. In order to meet these needs, the South African Translators' Institute (SATI) has in recent years introduced an accreditation exam for simultaneous SASL

interpreters (SATI 2012) and DeafSA has set up a register, policy document, code of ethics, fee scale and mediation protocol (DeafSA 2009). At this stage, membership and adherence to DeafSA's codes of practice and ethics is voluntary. That sign language interpreting is a young, growing profession in South Africa is highlighted by the fact that, of the 151 interpreters registered with DeafSA in 2009², while sixty had some form of professional training, only seven are SATI accredited (DeafSA 2009:5). Apart from media interpreting, simultaneous SASL interpreters are also used at public meetings, conferences, schools, universities and parliament³ (DeafSA 2009:6; cf. Selzer 2010). South African news interpreters are hired on a freelance basis either directly by the broadcasters or through the SASLINC (*South African Sign Language Interpreting National Centre*) agency established in 2006 (SASLINC 2012).

1.1.4.2 Sign language TV interpreters

The profession of signed media interpreting follows the pattern of spoken language media interpreting which originated in the 1960s in France (Bros-Brann 2002:1), in which a permanent head interpreter and a number of part-time interpreters are usually employed. These usually interpret "live" (with prior preparation) into their mother tongue or *A language* using special interpreter booths and high standard equipment (Antonsen 2006, Bros-Brann 2002:2-3). Besides South Africa, Norway, Britain, Ireland, Greece, France, Holland, China and New Zealand also have sign language interpreting for television news bulletins (Antonsen 2006; Ladd 2002:39, Savvalidou 2011; Stone 2009; Xiao & Yu 2009).

In South Africa, sign language interpreting is offered on the following news bulletins:

- ETV news at 10 pm (E10) is presented in English at least three days of the week (depending on movie and sports schedules) with interpreters A⁴ and B, both CODAs from Afrikaans backgrounds.
- ETV news at 6 pm on weekends (E5) is presented in English using interpreters A and B.
- ETV news at 6pm on weekdays (E6) is presented in two 15 minute slots in Ndebele and Sesotho respectively, using interpreter C, a CODA of Sesotho background for both slots. The slots share the same main story, but differ in other items featured.
- SABC 1 news at 5:30 pm on weekdays (T1) is presented alternatively in SiSwati or Ndebele, using interpreters S1 (from a Venda background) and S2 (from Xhosa/Zulu background) respectively.

² More recent statistics are not available.

³ Parliamentary interpreters interpret both for Deaf MPs (such as Ms Newhoudt-Druchen) as well as for members of the public in open sessions.

⁴ For ethical reasons interpreter anonymity is preserved as far as possible in the study.

- The multilingual 8:30 pm news on SABC 2 (T2) utilises a number of SASLINC and parliamentary interpreters. Most are CODAs from different ethnic backgrounds and two hold university interpreting qualifications (SASLINC 2012).
- SABC 3 news at 8:30 pm on weekdays (T3) was initially presented in English with interpreter B. Interpreting was temporarily discontinued during the second half of 2009, before resuming in 2010 as a multilingual broadcast using SASLINC interpreters⁵.

ETV is a semi-private channel, whereas SABC 1-3 are government channels. It is evident that the interpreters come from different ethnic, academic and signing backgrounds.

In the next section, the challenges experienced in simultaneous interpreting are discussed.

1.1.4.3 The challenges of simultaneous interpreting

A media interpreter must interpret simultaneously. This implies, firstly, that she must be an active listener, decoding the whole source message and not selective portions as would a passive listener. Secondly, she must re-encode the message into SASL and produce it for the target audience. Conducting both tasks effectively at the same time places extremely high demands on the interpreter in terms of processing complexity and working memory (cf. Gile 1995; Shlesinger 2000). The sign language interpreter at least utilises different modalities for decoding and recoding and therefore does not have to speak and listen at the same time.

According to Gile (1995:170), an interpreter has a limited amount of cognitive capacity available for the tasks required. For simultaneous interpreting, Gile (1995) identified four tasks, namely listening-and-analysis, memory, production and co-ordination, which he related to cognitive *efforts*. The *listening and analysis effort* is the cognitive capacity required by the interpreter to listen to the source message and extract from it the information or meaning. This includes the physical act of hearing the sounds that enter the ear, as well as mental processes in decoding or configuring meaning. The *memory effort* describes the mental capacity required to store and retrieve information in the brain. The *production effort* describes the capacity required to reconstruct communication in the TL, including decisions to omit, add, transpose or change information segments, as well as decisions regarding the selection of TL lexis, syntax and discourse devices. Finally, the *coordination or concentration effort* describes the cognitive monitoring required to effectively manage all these processes simultaneously. Because she is multi-tasking, the interpreter cannot focus exclusively on any particular task. If the interpreter's individual cognitive capacity is insufficient either with respect to the overall

⁵ Since April 2013, SABC 2 and 3 currently offer an hour of interpreted news broadcasts from 18:30-19:30 daily using SASLINC interpreters.

effort required (i.e. the interpreter encounters *saturation*) or with respect to the effort required for a particular task (i.e. the interpreter encounters *individual deficit*), the interpreting process can break down (Gile 1995:140). Simultaneous interpreters therefore rely on strategies to manage the interpreting process effectively in order to produce a coherent, continuous message.

Various models (beyond the scope of this study) have been proposed to account for the mental processes involved in each of these stages (cf. Setton 1999; Chernov 2004; Seleskovitch 1978b). It has been shown that the interpreter uses both cerebral hemispheres simultaneously and separately, decoding the source message and producing the target message in the left, while taking cognizance of implicit meaning and prosodic features with the right (Gran & Fabbro 1988:26, 1991:39; Riccardi 2002:19; Paradis 1994). This divided attention between input and production places great stress on concentration which cannot be kept up indefinitely (cf. Jones 1998:1; Lambert 1988:386; Moser 1978:354; Moser-Mercer et al. 1998). In contrast, empirical evidence indicates that dividing attention between two different simultaneous tasks in non-interpreting situations results in pooling of cerebral resources (Nebel et al. 2005:770).

Since she does not control the pace of the discourse, the simultaneous interpreter is also under considerable time pressure, which makes simultaneous interpreting far more challenging than consecutive interpreting (Jones 1998:1; Hatim & Mason 1997:62; Napier & Barker 2004:369). Moreover, simultaneous interpreters are expected to give a continuous performance without access to the full meaning of an utterance. Steiner (1998) showed that Deaf audiences judge television interpreting in terms of aesthetic criteria and are therefore more likely to be unimpressed with the “fumbles, corrections and coping strategies” (Steiner 1998:131) of live broadcasting. Interpreters are thus forced to anticipate discourse or add fillers during speaker hesitations in order to appear professional to their audiences (Pym 2008:99). The interpreter is also isolated from the SL speaker and on-screen text and therefore has to guess nonverbal or written information (cf. Anderson 1994:102; Bidoli 2002:177; Tommola & Lindholm 1995). In some countries, including South Africa, the interpreter has (limited) prior access to the ST in order to prepare in terms of background knowledge and terminology (cf. Antonsen 2006:102). The television interpreter is also separated from her audience spatially and sometimes also temporally, precluding audience feedback (cf. Mack 2002:206-207; Russell 2005:137). Moreover, the awareness that one is exposed to a vast audience, the physical environment and odd working hours are also very stressful (cf. Kurz 2002:195; Pöchhacker 2007:125).

These problems are exacerbated when the original message is very fast, has high information density or incorporates technical terms, especially when the information is non-contextualised (Gile 1995:172-174). All these problem triggers are present in news interpreting. The prepared text read by presenters usually contains high information density, a highly organised structure and complicated vocabulary (i.e. high *text technicality*) (cf. Bell 1991:190; Gile 1995:173; Wallmach 2005:59). It is also fast, with few hesitations, pauses, false starts or repetitions to slow the pace and allow the interpreter time to catch up. On the other hand, in interviews involving spontaneous speech, according to Shlesinger (2000:123), too slow rates of speaker input place strain on the interpreter's working memory and thereby her ability to reproduce information faithfully. Although the interpreter is not under time pressure, the pauses, hesitations, false starts, repetitions and lack of organised structure in spontaneous speech make it difficult for the simultaneous interpreter to grasp the gist of the communication in order to produce a coherent interpretation (cf. Shlesinger 2000:123). Alternatively, unstructured speech may lead to periods of non-signing as the interpreter waits for meaning at sentence level or, if the ST has a high level of redundancy, has already provided an interpretation and chooses not to repeat elements (cf. Ilg & Lambert 1996:74).

Interpreters manage semantic flow by reorganising the ST into manageable portions of information or *chunks*. *Chunking*, as this technique is known (cf. Gile 1995:198-201), enables the interpreter to focus on meaning in context rather than on individual words and thereby facilitates understanding of the incoming source message. The interpreter is then able to remember more efficiently and even anticipate discourse. Other coping strategies include adjusting the lag time (i.e. the time difference between an original and interpreted chunk of information), referring to on-screen information (e.g. pictures, graphs, weather data) or omitting non-vital information (Garzone 2002:114). According to Liu (2008:165), experienced interpreters become adept at chunking large information units and producing them more concisely than novices by omitting superfluous information and by shortening sentences. They also learn to pay less attention to their own output, thereby freeing concentration for analysing incoming information (Liu 2008:166-171; Shlesinger 2000). With experience, they also build up a lexicon of pre-processed equivalents which they can retrieve with minimum effort. They also grasp the overall structure of the ST quickly and are therefore better able to predict future information (Liu 2008: 174).

1.1.4.4 Specific problems in simultaneous sign language interpreting

According to Gile (1995:238), the ease or difficulty in interpreting is also language specific. Problems experienced in translating from spoken into sign language include limitations in

language proficiency, time delays in having to finger-spell names and terms, register mismatches, syntactic mismatches and different levels of linguistic redundancy (cf. Bidoli 2002:177).

These considerations provoke the secondary question:

- Do the choices in selection of TL material employed by the interpreter adequately convey a coherent message?

In the next section, the research questions and objectives of the study are formalised.

1.2 Research questions and objectives

On the basis of the interpreting and target audience contexts described above, the primary research question is formulated as follows:

- What factors contribute to Deaf South Africans' lack of comprehension of signed interpretations of television news bulletins?

The main objective of the study therefore is to identify barriers to comprehension of interpreted broadcasts in order to draw up research-based guidelines and thereby contribute to the implementation of a better quality service to the Deaf community.

The secondary research questions addressed in this study, arising from the background context discussed in Section 1.1, are presented in Table 1.1, together with their objectives.

Table 1.1 Research questions and objectives

Research question	Objective
To what extent does the target audience rely on the service of the interpreter as information source compared to other available sources? (RQ1)	To determine the relevance of the interpreter as information source.
Are there elements of the physical setting that hamper interpreter visibility and thus audience comprehension? (RQ2)	To determine barriers to comprehension caused by poor visibility.
To what extent do the interpreters use standardised forms of SASL? (RQ3)	To determine comprehension barriers caused by language variation.
Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters? (RQ4)	To determine barriers to comprehension caused by the interpreter's incorrect SASL use.
Do the choices in selection of TL material employed by the interpreter adequately convey a coherent message? (RQ5)	To determine barriers to comprehension caused by poor interpreting choices.

From the secondary research questions, it is evident that RQ3-5 address the interpreter, whereas RQ1 addresses the target audience and RQ2 the physical setting. The *focus area* of the research is sign language interpreting, while the *application area* is sign language

interpreting on television news broadcasts. Research into sign language interpretation is a recent field of interest, developing as part of Interpreting Studies. Because of the demands of the new profession of sign language interpreting, the bulk of signed language Interpreting Studies focuses on interpreter training and very little research has been done in describing interpreting processes and products (cf. Leeson et al. 2011).

There is a need for localised research on sign language interpreting, particularly on the development of an integrated approach that views sign language interpretation not only from the perspective of the interpreter, but also from the perspective of the expectations of Deaf recipients of the interpreting services.

In the next section, the research framework for the present study is addressed in terms of the research questions and their context described above.

1.3 Research framework

In this section, the rationale and underlying paradigms and models of the study are discussed. This is followed by a discussion of the research procedures chosen for the study. Finally, the research variables are defined and their relation to the study outlined.

1.3.1 Research methodology

In selecting the research paradigms and methodologies for the present study, a top-down procedure was followed with specific criteria in mind. Firstly, an overall research approach was selected that was compatible with both the multidisciplinary approach needed in Interpreting Studies and established research methodologies and paradigms in Translation Studies. Secondly, the exploratory approach needed to be robust enough to contribute to the rather undeveloped field of SASL research. Thirdly, it had to incorporate advocacy research principles in involving the local Deaf community in the research and addressing key issues raised by the community regarding the interpreters. Finally, it had to be compatible with the researcher's own analytical and systematic research background.

After examining various paradigms, Grounded Theory (GT) was adopted as the approach most compatible with the targets identified above. This paradigm was optimal because a study of sign language interpreting attempts to sail in relatively uncharted waters. GT advocates the development and refinement of a set of variables that account for a particular research question according to an iterative approach of questioning grounded in empirical observation of real-life situations, resulting in the construction of conclusions, guidelines or hypotheses which form the basis for further research (cf. Corbin & Strauss 2008:42). Validity is defined

in terms of fit and relevance rather than in terms of statistical representativeness, i.e. whether the concepts discovered through the process of iterative categorization and coding adequately express the patterns found in the data (Glaser 1998:18). The GT model allowed the researcher to set up a few initial questions as basis and to draw on the Deaf community's expertise. Its emphasis on triangulation allowed the integration of a number of research procedures into the study and its acceptance of a mixed-method approach enabled the study to comprise both qualitative as well as quantitative aspects. Qualitative approaches were used to identify areas of interest, which were then categorised and analysed using descriptive statistics.

In order to contextualise the study in Interpreting Studies, the GT model was laid within the framework of a discipline-specific reception-oriented model derived from Descriptive Translation Studies (DTS), which was adapted for the purpose of describing interpretations in relation to target audience expectations. A reception-oriented DTS model entails a descriptive rather than prescriptive analysis of translations or interpretations (cf. Hermans 1999a) and emphasises the role of the target audience as primary evaluators. All translation research involves the examination and comparison of source and target texts, or of a number of related target texts, but only reception-oriented models prioritise the perspectives of the target audience. Hence it was regarded as the intra-disciplinary framework most compatible with the advocacy requirement. In this sense, the research also broke away from a common tendency among hearing researchers to use deaf people merely as objects of investigation according to imposed research paradigms. In a reception-oriented framework aligned within GT, the Deaf participants in this study could actively participate as co-researchers and field experts.

DTS theorists recognise that translation entails the confrontation of source and target language systems, as well as of the translator's personal norms with those of the target audience. This study, in extending the DTS model to Interpreting Studies, proposes similar confrontations of languages, cultures and systems, with the interpreter at the interface. This confrontation is made evident in the strategies adopted by the translator/interpreter (for simplicity henceforth collectively referred to as the T/I), from which the set of norms or standards influencing the product can be deduced. Adopting and extending terminology from DTS (cf. Toury 1995), this study proposes that these norms include *preliminary norms* which incorporate established policies on what is considered acceptable interpreting practice and language use, *initial norms* which include standards of practice regarding the particular type of interpreting event and *operational norms* which include the value systems that influence the decisions made by the interpreter during the interpreting event.

In a DTS approach, norms are deduced from analysing shifts or non-correspondences between ST(s) and TT(s), which are categorised according to predetermined parameters. T/I evaluation therefore consists in categorizing and describing shifts in terms of preliminary, initial and operational norms. Following Toury (1980, 1995), equivalence is therefore regarded as a *fait accompli* relationship between ST and TT. The ST is thus no longer regarded as the norm by which the TT is to be evaluated; instead, ST(s) and TT(s) are compared using a set of parameters termed the *tertium comparationis* (TC), a concept that is borrowed from Contrastive Analysis theory (James 1980:169). In interpreting terms, this means that a reception-oriented model does not necessarily impose a conduit role on the interpreter as the standard of good practice. The TC is therefore defined as that constant of similarity against which differences between the texts may be compared and contrasted (Wehrmeyer 2001:13). The TC therefore provides a frame of reference which allows a definite, measurable qualification of the differences between ST and TT(s) (Lambert & Van Gorp 1985:48).

In the next section, the variables generated for the study are outlined and explained.

1.3.2 Research variables

In line with an iterative GT model, the research questions, grounded in the empirical reality of the interpreting event, give rise to five initial **categories** of variables, namely:

- Target audience communication means;
- Physical environment factors;
- Interpreter's use of dialect;
- Interpreter's use of SASL features;
- Factors of the interpreting process.

These factors correspond to the four main factors of the interpreting setting described in this chapter, namely that there must be a Deaf audience, a sign language, an interpreter and a television screen. These five evaluative categories form the basis for comparison across research procedures. In line with GT principles, these categories are regarded as dynamic and are further refined in the course of the study.

Because this study is holistic in its approach, the notion of evaluative variables in this study differs from that used in other DTS studies in that not all variables reflect a relationship between ST and TT. It is evident that the first two variables (and related research questions) are independent of the interpretations. Therefore they are explored only from the perspective of the target audience. Moreover, the next two variables address features of SASL usage, which in a reception-oriented model are compared with norms of the TL system (or, as in this

study, with target audience expectancy norms) rather than ST features, notwithstanding the possibility that they may be influenced by the latter (cf. Even-Zohar 1990). Thus, in terms of the reception-oriented model adopted for the study, only the final variable involves a comparison of TT with ST. This comparison is done on the basis of *shifts* (cf. Toury 1995), i.e. an examination of (skewed) substitutions, omissions, additions and paraphrase (cf. Shlesinger 2000).

In view of the above, the study is constructed in two parts. The first part seeks to explore the research variables from the perspective of the target audience, whereas the second part is devoted to an examination of authentic interpretations of news broadcasts.

In the following section, the research procedures used in the study are outlined.

1.3.3 Research procedures

The research procedures selected were regarded as optimal vehicles for answering the research question within the general and discipline-specific paradigms. The establishment of a corpus⁶ of transcriptions of signed interpretation was one of the prerequisites of the grant that partially funded the research. This method required Deaf people as transcribers, but did not provide a space in which their own grievances could be heard. In other words, textual analysis could only unearth the interpreter's performance, but not the target audience's expectations. For this purpose, a pilot survey was undertaken, followed by a more detailed questionnaire study in order to elicit the opinions of as many Deaf people as possible.

In the initial pilot study conducted in June 2009, 100 members of the Deaf community were contacted by email and asked to indicate which of the interpreted news bulletins they understood and to offer reasons if they did not. The 42 responses received allowed the first cycle of categorization and coding of data. The variables derived from this data were then incorporated into a questionnaire for refinement, together with open-ended questions that maximised respondent feedback, allowing for the capture of further variables related to the research questions.

The questionnaire was distributed via email and by hand to Deaf communities throughout South Africa from June 2009 to November 2011. Although the 314 questionnaires received allowed for quantification of data, the primary aim of the questionnaires was exploratory. The information derived from the questionnaires allowed further refinement of the research

⁶ Prinetto et al. (2011:12) define a corpus as "a collection of pieces of language that are selected and ordered according to explicit linguistic criteria in order to be used as a sample of the language". The construction of corpora in general is discussed in detail in Chapter Three and of the SASL corpus in particular in Chapter Four.

variables. To correlate the questionnaire results with real audience behaviour, eye-tracking analysis and a discussion in SASL were conducted with a group of thirteen Deaf participants viewing excerpts from actual news bulletins in March 2011.

In the corpus part of the research, transcripts of the signed interpretations of two interpreters of similar backgrounds were annotated and analysed in terms of SASL features in order to evaluate the quality of sign language used by the interpreters and to identify and qualify shifts between STs and TTs. Transcription work on the corpus began in November 2010, with transcription, annotation and checking continuing as overlapping processes until May 2012. Qualitative manual analysis was conducted as part of the annotation process by identifying categories using GT instead of imposing predefined categories. Once annotated, the data were quantitatively analysed using concordance software and descriptive statistics.

Because GT advocates a progressive acquisition of knowledge, the researcher has tried to reflect this progression in the presentation of the study. Hence, evidence is presented in this document in the order as it was presented to the researcher, and then interpreted. For example, when the pilot study was conducted, it was supposed that SASL was a single language used without mouthing by all Deaf South Africans, as reported in the literature. Later, as questionnaire data started to come in, it was apparent that Deaf respondents thought that sign languages in South Africa differ and that many respondents were mouthing as part of their sign language. It was only during the discussion, however, that these notions were corroborated by the group themselves, not only in what was said, but also through their evidenced signing behaviours and need for Deaf-to-Deaf interpretation as part of the discussion.

In the following section, contributions of the study are outlined.

1.4 Contributions of the study

The study incorporates four main aims which serve as contributions to the wider research and Deaf community. Firstly, the primary academic aim is to build up an open-source corpus of SASL interpretation at the University of South Africa. Although there are many sign language corpora used for linguistic research, to the best of my knowledge, this study possibly constitutes the first sign language *interpreting* corpus. It therefore presents a significant contribution in terms of corpus research.

Secondly, empirical research on interpreter strategies in signed language interpretation is scarce. Hence, the study contributes to this body of knowledge by identifying numerous strategy-related shifts in the interpretations, thereby creating a platform for further research.

Moreover, research on sign language interpreting in South Africa is limited to a handful of masters' studies, namely Lombard's (2006) translation and testing of selected Biblical passages on Deaf audiences, Selzer's (2010) study on dialectal variation in interpreting terms used in parliament and Swift's (2012) study on the role of the sign language interpreter in educational contexts. To the best of the researcher's knowledge, this is therefore the first study to examine user expectations, viewer behaviours and authentic interpretations into sign language in the South African context.

Thirdly, this study functions as an advocacy vehicle for the Deaf community in that it contributes to a better understanding of the needs and expectations of Deaf viewers and thereby results in the construction of recommendations to improve the quality of signed interpretation on news broadcasts.

Fourthly, the reception-oriented model developed in this study contributes to our knowledge of T/I evaluative models, especially in regard to their application to Interpreting Studies. The study builds upon previous DTS models, but is the first to place DTS in the context of Grounded Theory and to extend a reception-oriented model to translation production as well as evaluation, thereby correcting a weakness of previous models. The study also extends our current understanding of the types of textual comparisons in terms of product-versus-audience orientation and ST-dependency variables. To the best of the researcher's knowledge, this study is also the first empirical application of DTS theory to interpretations and thus paves the way for new theoretical developments in Interpreting Studies.

In the next section, the scope and limitations of the study are examined.

1.5 Scope and limitations of the study

Although the study is broad in outlook, its scope lies essentially in the collection of factors related to target audience incomprehension of the interpreters. As such, the study is subject to a number of limitations.

Firstly, although the study investigates interpreting shifts, it is not designed to explore cognitive processes in order to derive mental models of interpreting. Secondly, although the study does suggest the existence of language variation, it is not designed to accomplish sociolinguistic mappings of SASL variations. Thirdly, although various aspects of language usage have been identified as possible factors hampering comprehension, the scope of the work is primarily set in Interpreting Studies and therefore a full linguistic description and evaluation of SASL lexis, syntax and discourse devices used by the interpreters is beyond its scope. Fourthly, although a large number of respondents contributed to the survey, it is

premature to claim population representativeness for the greater South African Deaf population since the researcher is aware of Deaf communities that refused to participate in the study. Similarly, for the eye-tracking experiment, the researcher relied on volunteer participants who came exclusively from Gauteng (Pretoria and Johannesburg). The voluntary nature and small sample size therefore also preclude statistical representativeness. Instead, in line with GT principles, the study aims to provide a comprehensive set of concepts or variables that fit patterns in the data and account for the phenomenon of incomprehension. Finally, because of the enormous effort and time required to transcribe and annotate sign language interpretations (cf. Wehrmeyer 2004), the corpus evaluation part of the study and subsequent derived recommendations are based on a comparison of two interpreters only. This study is part of an on-going research project and it is hoped that data will also be available on other television interpreters in the near future.

In a very real sense, therefore, the main purpose of this study is exploratory. As Graham Turner (2011a:v) so aptly notes, Socrates' advice is pertinent for researchers seeking to lay some sort of foundation on the virgin land of Signed Language Interpreting Studies:

It is our duty to do one of two things: either to ascertain the facts, whether by seeking instruction or by personal discovery; or, if this is impossible, to select the best and most dependable theory which human intelligence can supply, and use it as a raft to ride the seas of life (Plato 1969:139).

By grounding factors leading to incomprehension of the SASL interpreters empirically in the interpreting setting, this study offers itself as a theoretical raft for future research. In particular, the study identifies the need for further research of SASL interpreting norms. However, it also highlights the need for research into linguistic features of SASL and sociological mapping of SASL dialects based on corpora of original SASL discourse.

1.6 Ethical considerations

Since this study relied on the co-operation of members of local Deaf communities, care was taken to treat the information given by these participants in an ethical way. Although names were solicited on the questionnaires to prevent duplication, respondents' anonymity is preserved in the study. The questionnaire also contained a brief paragraph explaining the nature and purpose of the research, the intended manner of distribution of results and an assurance of confidentiality. Participation in the survey was voluntary.

For the eye-tracking part of the study, participants signed a form indicating their voluntary participation, stating their awareness that they were being recorded and giving consent to use of the video footage and accompanying results for the purposes of research. A copy of the consent form is included in Appendix A.

For the corpus part of the study, the interpretations were done on national television and therefore belong to the public domain, thereby precluding the need to ask for permission to record or analyse them. However, the broadcasting channels were contacted and informed of the nature of the research. Since the Deaf community of South Africa is close-knit, the interpreters and their Deaf parents are known to respondents and therefore their anonymity is preserved by referring to them as A, B, C, etc.

1.7 Organization of the research

The research in this study is organised into eight chapters.

In Chapter 1, the research questions were placed in the context of the interpreting setting and Signed Language Interpreting Studies. The research frameworks of GT and DTS-based reception-oriented models of product evaluation were introduced and the research variables and instruments described. Finally, the aims, scope and limitations of the study and its organization are discussed.

In Chapter 2, the research questions are contextualised in terms of the Deaf community, features of sign language and characteristics of interpreting. An overview of Deaf culture, the South African Deaf community and sign language proficiencies is followed by a discussion of other means of communication used by the Deaf audience. Lexical, syntactic and discourse features of sign languages are then described. The chapter concludes with an overview of interpreting norms, strategies, shifts and error categories.

In Chapter 3, an overview of sign language corpus research is given in order to provide a framework for the construction of a SASLI corpus. General discussions on corpus definitions, typologies, design criteria and analytical techniques are followed by an exploration of the applications and challenges of corpus research. Thereafter, an overview of existing sign language corpora is given and transcription, annotation and metadata conventions described.

In Chapter 4, the research methodology used in this study is outlined. The application of GT principles and the development of a reception-oriented model are discussed. This is followed by a description of the triangulated research procedures. A detailed explanation of the initial pilot study and resulting compilation of the questionnaire is given, together with a discussion of its analysis using qualitative and quantitative assessment instruments. Thereafter, theoretical and practical aspects of the design, execution and analysis of the eye-tracking experiment and SASL group discussion are outlined. Finally, the construction of the SASL interpreting corpus is described in terms of theoretical considerations, selection, recording, transcription, annotation and alignment of the material and methods of data analysis.

Chapter 5 explores target audience expectancy norms derived from the analysis of data from the pilot study, questionnaire, eye-tracking experiment and SASL discussion in terms of the research questions. From analysis of the questionnaire data, a profile of the respondents' sociological variables, linguistic competencies and viewing norms is constructed and their perceptions of the interpreters' sign language, signing skills and visibility are described. Secondly, differences in viewing patterns of deaf and hearing participants observed during eye-tracking are compared for different interpreters and scenes. Finally, analysis of a group discussion in SASL provides qualitative data in terms of participants' opinions regarding sign and spoken languages used by South African Deaf communities, difficulties in understanding interpreters, the role of Deaf culture, the use of subtitles, difficulties in picture size and the possibility of Deaf interpreters. The chapter concludes with a comparison of the findings derived from the different procedures in terms of the research variables.

Chapter 6 presents the results derived from the analysis of the corpus of transcribed interpretations in terms of the clarity of the signs used, the quality and nature of the interpreters' sign language, interpreting shifts and the types of errors committed by the interpreters. For each aspect, a discussion of the factors derived through qualitative manual analysis is followed by a comparison of interpreters using descriptive statistics. The chapter concludes with a summary of the main factors related to the research questions.

In Chapter 7, the findings of the study are summarised and the research questions answered. From the findings, a list of recommendations is drawn up. This is followed by a critical assessment of the contributions, reliability, validity and limitations of the study. Finally, suggestions for future research based on the study's findings are proposed and the study is concluded.

Chapter 8 presents a list of the sources used in the study.

Research assessment tools and summaries of data are included in the addenda.

CHAPTER 2: BACKGROUND TO RESEARCH PROBLEM

The purpose of this chapter is to investigate whether the research questions have been addressed previously in the literature, in order to refine and/or expand the research variables accordingly. The chapter therefore addresses the main research question, namely:

- What factors contribute to Deaf South Africans' lack of comprehension of signed interpretations of TV news bulletins?

The research problem is viewed in the context of the dynamics of the South African Deaf community, the nature of sign language and research into sign language interpreting.

2.1 Introduction

Since this is the first study to address comprehension of South African Sign Language interpreters by Deaf audiences, the researcher was obliged to investigate how Deaf audiences of other countries understood sign language interpreters in general and TV sign language interpreters in particular. Research reported in international literature indicates that Deaf audiences struggle to comprehend interpreters. As early as 1977, when sign language interpreters first began to be used at schools and universities, Jacobs (1977:10-14) showed that Deaf students did not understand their interpreters. This observation was confirmed twenty years later by Jackson et al. (1997:172-184). Both researchers ascribe this lack of comprehension to students' perceived weak metacognitive and metalinguistic processing skills, as well as to their lack of education, experience and general knowledge. In the following decade, Marschark et al. (2005) ascribed similar observations of student incomprehension to students' lack of metacognitive skills or inadequate signing skills. According to Bidoli (2009:134), divided attention between other visual materials and an interpreter also hampers comprehension of the interpreter.

The first test of Deaf audiences' comprehension of TV sign language interpreters was undertaken by Woll (1991), who found that British Deaf viewers experienced difficulty in understanding British Sign Language (BSL) interpreters on TV and wanted subtitles or Deaf signers instead. Poor comprehension was confirmed by Steiner (1998) for both BSL and signed-English user groups. More recently, Kyle's (2007) extensive investigation of six surveys in the UK conducted between 1992 and 2005 revealed that Deaf viewers do not like or comprehend hearing TV interpreters and want original signed programmes instead. Similarly, Xiao and Yu (2009:155), testing comprehension of Chinese Sign Language on

(mainland) Chinese TV as part of a larger survey, find that viewers are dissatisfied with the interpreters.

Cokely (1992) and Bidoli (2009:134) ascribe lack of comprehension to interpreter “errors” and lack of professionalism. However, the respondents interviewed by Kyle (2007) in Britain and Xiao and Yu (2009:155) in China expressed dissatisfaction instead with the type of sign language used by the interpreters. According to Kyle (2007), Deaf viewers regarded the interpreters’ sign language as different from their own, regarded interpreters as having poor signing skills and also expressed dissatisfaction with the small size of the interpreter picture.

The frustration a Deaf audience experiences when watching sign language interpretation has been succinctly expressed by the Deaf researcher and interpreter, Angela Stratiy (2005:244):

I abhor simultaneous interpretation. Its effect on the deaf consumer, quite honestly, is often much like a deer in the headlights – it knows something is coming at it (at high speed) but is unable to make sense out of what it might be. So often when I am faced with a barrage of information during simultaneous interpreting, I know that there is information there, but in my effort to sort it through, I lose the message.

According to Stratiy (2005), the Deaf recipient has to expend great effort in unraveling a message high in information content that is not immediately coherent in structure¹. This indicates that audience signing proficiency alone cannot account for lack of comprehension of an interpreted broadcast and that the interpreter’s professional and linguistic skills (or lack thereof) also appear to be factors leading to incomprehension.

Moreover, comparisons of Deaf students’ comprehension of signed language interpreting with other types of communication could not conclusively show superior comprehension of sign language interpreting. Marschark et al. (2004) finds no significant difference in students’ comprehension of a lecture interpreted into American Sign Language (ASL) with one interpreted into signed English (cf. Marschark et al. 2005), indicating that the type of signing is not the main factor hampering comprehension. Similarly, Jackson et al. (1997:172-184) could not conclusively show that Deaf students who watched a signed interpretation understood the lecture better than students who lip-read the presenter. Napier et al. (2006) even find that, despite low literacy levels, Deaf students gain more information from reading

¹ Although Stratiy’s comments may be construed as her projections as an interpreter onto an audience, it must be remembered that deaf interpreters do not engage in live SI of a verbal message and instead translate from a prepared text. The reader is referred to Stone (2009) for a detailed description of the differences between deaf and hearing interpreters. In her publication, Stratiy (2005) is describing her experience as a deaf *recipient* of services provided by hearing SI interpreters.

online text than from watching a signed presentation. Kyle's (2007) survey similarly finds that Deaf viewers want subtitles as well as an interpreter on TV broadcasts, despite tested low comprehension of subtitles (cf. Woll 1991). This suggests that Deaf viewers may prefer to obtain information from other sources such as lip-reading or on-screen text rather than watch an interpreter, regardless of signing proficiency. Bidoli's (2009) observation of the effort required to divide attention between the interpreter and the main picture suggests that Deaf viewers may prefer to simply look at the picture and ignore the interpreter.

Another possible factor affecting comprehension of an interpreter brought to the researcher's attention is the amount of experience that a Deaf person has had in using interpreters (Leeson 2013). While increased experience in using interpreters may indeed result in increased comprehension of an interpreted message, no empirical data is available in the literature and thus is posited as an avenue for future research. In the present context, it is argued that to restrict a Deaf person's access to information on national TV by imposing prerequisites of experience with interpreters not only implies that interpreted signing is necessarily different to original signing but also significantly disempowers Deaf people in terms of access to national information. In contrast, the researcher argues that this access is a constitutional right (cf. Constitution 1996a) which should not therefore depend on the Deaf person's experience in using interpreters. It is also argued that most ordinary Deaf South Africans cannot afford access to a professional interpreter and have to rely on non-professionals from their circle of hearing friends and family with whose signing they are familiar. Moreover, even those who do make use of professionals (e.g. at the workplace) usually use the same interpreter and therefore do not build up experience in working with other interpreters.

In summary, therefore, the literature confirms comprehension problems for all five initial variables described in Chapter 1.3.2 as follows:

- Target audience communication factors: signing skills, use of other means of communication;
- Physical environment factors: small picture size, difficulty of divided attention;
- Language variation factors: a different sign language;
- Language use factors: poor interpreter signing skills;
- Interpreting quality factors: poor interpreting skills, errors.

The remainder of this chapter, therefore, provides an overview of the literature for these variables. In the first part, communication factors for the South African Deaf community are explored in the context of the role and nature of sign language in the community, the

prevalence of lip-reading and the state of Deaf literacy. Secondly, features of the physical environment are briefly discussed. Thirdly, the possibility of dialectal variation is addressed. Fourthly, the main syntactic and discourse components of sign language and their relevance to interpreting are explored in order to understand what language requirements need to be met by the sign language interpreter. Finally, standards of interpreting quality and strategies used by interpreters are investigated.

In the next section, target audience communicative factors are explored.

2.2 Target audience communicative factors

In this section, an overview is given of the Deaf community and its relation to spoken and signed means of communication.

2.2.1 A signing community

From a medical perspective, most *profoundly deaf* people (i.e. characterised by a hearing loss of 91dB or more) are born deaf or become deaf before acquiring language (i.e. *pre-lingual* or *congenital deafness*) (Napier et al. 2006:146) either through defects or obstructions of the eardrum and middle ear (*conductive deafness*) or by defects of the cochlea and auditory nerves (*sensory neural deafness*) (Lombard 2006: 6-10; Marschark 1997:28; NIDCD 2003). The latter is often the result of illnesses (e.g. German measles), genetic defects (e.g. Down's syndrome) or complications during (premature) birth (e.g. hyperbilirubemia and hypoxia). Because most profoundly deaf people become deaf at an early age before acquiring a spoken language, they rely on sign language to communicate (Lombard 2006:11-13; Erlenkamp et al. 2011; Napier et al. 2006:146).

The perception of deafness as a disability that is held by most hearing people is called the *pathological* view of deafness (cf. Akach & Lubbe 2003:105; Bidoli 2009:133; Lombard 2006:22). However, profoundly deaf people who sign do not view themselves as disabled, but rather as a linguistic and cultural minority community bound together by a common language. This view is called the *sociocultural* view of deafness (SADA 2012). As noted in Chapter 1.1.1, members of this community refer to themselves as Deaf. Deaf children of Deaf parents are considered members from birth. For Deaf people born to hearing parents, however, membership begins when they enter a deaf school and learn to sign (cf. Lawson 2002:32; Morgan 2008:215-217). Sign language functions within the community as a symbol of identity, medium of interaction and basis of cultural knowledge (Baker-Shenk & Cokely

1981:55; Lane et al. 1996:124-130,148-9; Lombard 2006:14-15,27-29; Lawson 2002:32). As noted in Chapter One, community identity is strengthened through participation in Deaf clubs and organisations (cf. Bidoli 2009:132; Humphrey & Alcorn 1996:79). There are local Deaf communities in most towns and also national Deaf organisations such as DeafSA that represent Deaf interests. At international level, the Deaf community is supported by conferences and the World Federation of the Deaf (WFD), a recognised body within the United Nations.

Baker-Shenk and Cokely (1981:54) define four membership criteria for the Deaf community, namely *audiological* (i.e. hearing loss), *political* (i.e. the ability to exert influence on matters that affect the Deaf community), *linguistic* (i.e. the ability to communicate in sign language) and *social* (i.e. participation in and invitation to Deaf social events, identification with the Deaf world and socialising with Deaf friends) (cf. Higgins 2002:23). It is not the degree of deafness, but the extent of identification that defines membership (cf. Akach & Lubbe 2003:106). In this sense, Baker-Shenk and Cokely (1981:55) distinguish between *attitudinal* and *audiometric* deafness. Membership is also extended to hearing children, parents, professionals and interpreters who sign (Akach & Lubbe 2003:106; Ladd 2002:35; Lombard 2006:17; Baker-Shenk & Cokely 1981:54). However, as Higgins (2002:25) points out, this acceptance is limited since hearing people cannot share in the experience of being deaf. Likewise, non-signing deaf people are usually not part of the Deaf community (Akach & Lubbe 2003:106; Gregory & Hartley 2002:21; Lawson 2002:32). Because of the close relationship between language and identity, some Deaf communities are reluctant to share sign language with hearing people, fearing that this may destroy the sense of community (Baker-Shenk & Cokely 1981:5). So strong is the sense of community that Deaf people often prefer the Deaf community to their ethnic group or family and therefore often intermarry (Lawson 2002:30; Morgan 2008:225; Stone 2010:1).

An essential element of the Deaf community is the understanding of its unwritten norms and conventions, commonly termed *Deaf culture*, acquired through association (Akach 1997:10; Lombard 2006:15-16; Selzer 2010:13; Van Herreweghe & Vermeerbergen 1998:141). There are two types of norms, namely those defining communicative interaction and those that consolidate cultural or group identity (cf. Stratiy 2005). Norms of conversational behaviour include tapping on the shoulder or waving to get attention, considering lighting, communication distance, eye contact and turn-taking, keeping the face clear and showing interest and attentiveness by nodding during conversation (NCPDSDA 2011; Stratiy 2005).

Speech and sign-supported speech are usually regarded as inappropriate means of communication between Deaf persons (Baker-Shenk & Cokely 1981:63-78; Lombard 2006:15-16). An expression of in-group identity is the use of group-appointed *sign names* which usually describe a particular trait or are composed of specific letters of the finger-spelled alphabet (Akach & Lubbe 2003; Stratiy 2005:234). Deaf culture is also expressed in the traditional sense through signed poetry, drama, story-telling and song (Ladd 2002:36). However, because sign language is not always passed on naturally from generation to generation, these forms of figurative language and artistic expression are vulnerable. One of the aims of sign language corpora (discussed in Chapter Three of this study) is to provide a repository of this culture (Johnston 2010:107).

The Deaf community recognises three levels of signing proficiency, namely native signers, early signers and late signers. These are discussed in the next section.

2.2.2 Signing proficiency

A *native signer* is defined as someone who has acquired sign language from birth as first language from signing deaf parent(s) or older deaf siblings. (Johnston 2010:107). Approximately ten percent of congenitally deaf persons are native signers (Akach & Lubbe 2003:107; DeafSA 2012; Marschark 1997:47-49; Stone 2010:2). Although some researchers (cf. Neidle et al. 2000; Selzer 2000) also recognise hearing CODAs as native signers, the term is usually reserved for Deaf CODAs. Deaf children of hearing parents are referred to as *early* or *late signers* depending on whether they learn to sign before or after entering school (Johnston 2010:107). Since they are usually only exposed to sign language on entering a deaf school or deaf community, sign language is not a native language (Aarons 1994:4; Akach 1997:10). Late acquisition has serious implications for both signing and linguistic competencies and it has been shown that the earlier the age at which sign language skills are acquired, the greater the degree of success in acquiring linguistic structure (Brennan 1975:46; Emmorey 1993:153; Mayberry & Lock 2003). In many cases in South Africa and elsewhere, profoundly deaf children born to hearing parents have no early exposure to any language, signed or spoken, until they are placed in schools (Heap & Morgans 2006:137; Mayberry & Lock 2003; Morgan 2008).

In the next section, types of signed languages used are explored.

2.2.3 Sign systems

Although the emergence of formal national sign languages is a new phenomenon, research shows that Deaf communities have used sign language for at least as long as written records have existed. For example, according to Stone (2010), the use of sign language in English courtrooms and civil life has been documented since the 16th century (cf. Stone & Woll 2008; Hay 2008). Likewise, Carty et al. (2009) describe the use of signed language in Massachusetts, New England around 1680. This form of signing is called *home sign* and develops dynamically wherever there are deaf people that need to communicate with (deaf or hearing) relatives or acquaintances. That these systems occasionally develop into fully fledged signed languages used by whole Deaf communities is attested by the Martha's Vineyard community in the United States which had been signing for at least a century before any formal sign language education began (Aarons 1994:5; Groce 2002). These dynamically developing sign languages are termed *natural sign* because they developed naturally and spontaneously as Deaf communities developed.

The first documented formal sign language system was developed in 1750, when Abbot Charles-Michel de l'Épée (1712-1789) taught two young deaf-mute sisters in Paris using a combination of natural sign and a signed metalanguage which he invented to teach French grammar (i.e. what would now be termed *signed French*) (Stokoe 1960:5; Bidoli 2009:133). The system was further developed by his successor, Abbot Sicard, who published the dictionary begun by De l'Épée in 1808 under the title *Signes des mots* in Paris (Stokoe 1960:5; Lane et al. 1996:51-54; Lombard 2006:23; Deaf and HOH Culture Information 2010). The French system spread first to Rome, where, together with natural sign systems, it formed the basis for Italian Sign Language (LIS) and in 1815, was brought to America by Thomas Gallaudet and one of Sicard's pupils, Clerc. The school founded by them eventually developed into the present-day Gallaudet University and also led to the establishment of other deaf schools as well as initiating American sign language studies, which in turn led to the establishment of the journal, *Sign Language Studies* (Stokoe 1960:6; Baker-Shenk & Cokely 1981:48-52), Integration of the imported French system with natural sign systems already in use by American Deaf communities laid the foundation for the development of American Sign Language (ASL).

By 1845, French Sign Language (LSF) also reached Ireland, resulting in the development of Irish Sign Language (ISL) (Lucas 2001:28; Matthews 1996:5) and from there it spread to the British colonies. Irish Dominican nuns introduced sign language to South Africa in 1863,

thereby laying the foundation for South African Sign Language (SASL) (Aarons & Akach 2002:132). However, as noted by Leeson and Saeed (2012:40), a strong BSL presence also developed in Britain and Ireland before the arrival of LSF, which also spread to the colonies (cf. Parks & Parks 2012). The link with BSL has been documented for Australian (cf. Johnston & Schembri 2007; Johnston 1998) and New Zealand (cf. McKee & McKee 2011) sign languages, and stated without corroborating evidence for South Africa by Lewis (2009). The tenuous nature of this piece of oral history is reflected in Morgans (1999): “Since there is little historical influence, it is *presumed* that SASL has a mixture of the Irish influence from the Dominican Irish nuns, and British influence as well as American influence” (my italics). More will be said of SASL in the next section.

Sign language was dealt a major blow all over the world in 1880 when an international congress of teachers from deaf schools (from which Deaf people were excluded) held in Milan banned the teaching of sign language in deaf education in favour of teaching through spoken language (Aarons 1994:5; Akach & Lubbe 2003:123; Bidoli 2009:133). Training deaf people to communicate using spoken language, i.e. through speech training, lip reading and hearing aids is known as *oralism* (Aarons & Akach 2002:131; Gregory & Hartley 2002:79; Lombard 2006:18; Neidle et al. 2000:10). Originating in the 16th century when a French monk, Ponce de Leon (1520-1584), educated deaf children of the Spanish nobility, oralism spread to Germany (Deaf and HOH Culture Information 2010; Stokoe 1960:3) – its success there earning it the appellation *the German method* (Gregory & Hartley 2002:79; Bauman 2002) – and from Germany throughout Europe and America.

Proponents of oralism discourage signing because they believe it hampers speech development (cf. Stokoe 1960; Baker-Shenk & Cokely 1981:54; Humphrey & Alcorn 1996:56-60; Lombard 2006:13). Arguably, deaf people who only sign are ostracised by hearing communities. However, deaf people who only lip-read are disadvantaged in group communication where they cannot see everybody’s lips simultaneously. Moreover, according to Fromkin et al. (2007:53), only about 25% of information transferred can be absorbed by lip-reading (cf. Marschark 1997:47-49). However, the biggest disadvantage of an oralist approach is that it effectively denies profoundly deaf people linguistic skills (Napier et al. 2006:146; cf. Marschark 1997:47-49).

After Milan, sign language was reduced to informal use in homes and gatherings (Akach 1997:8; Deaf and HOH Culture Information 2010:2). However, in 1942, despite Milan, the intrepid Irish Dominican nuns introduced sign language to schools in New South Wales,

Australia, thereby laying the foundation of Auslan (Johnston & Schembri 2007:65; Stokoe 1960:6).

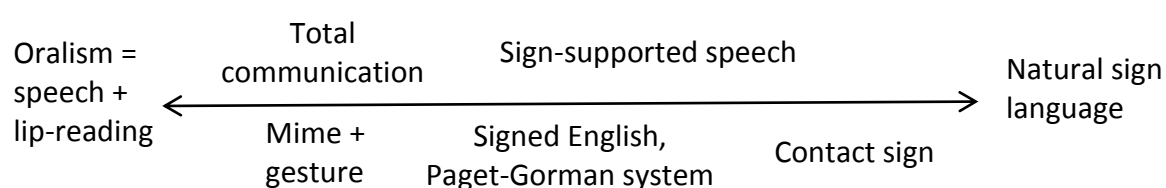
The effects of Milan were attenuated in 1960 when William Stokoe published his groundbreaking article showing that ASL was a true language (Stokoe 1960). Although unwilling to acknowledge signed languages as the natural languages of deaf people, proponents of oralism compromised by introducing a form of communication called *total communication* that used every available source of linguistic communication – e.g. gestures, pantomime, drawings, finger-spelling and manual signs (but not natural sign language syntax and discourse structures!) as a complement to spoken language (Akach 1997:9; Lane et al. 1996:268,271-276; Leeson & Saeed 2012:41). Developed in 1967 by Roy Holcomb for hearing teachers at deaf schools, its primary aim was to teach deaf children spoken languages (Aarons & Akach 2002:133; Ganiso 2012:55; Lombaard 2006). However, the need for total communication was in itself an admission of the failure of oralism. From it developed what is presently called *sign-supported speech*, of which there are two types (cf. Marschark 1997:47-49). *Simultaneous communication* (Simcom) or *contact sign* is a combination of speech and natural sign language which follows the spoken word order (Reagan 2012), whereas *manual coded English* or *signed English* uses a pidgin form of spoken language together with artificial signs invented to teach deaf children the morphemes and grammar of spoken language (Akach 1997:9; Erlenkamp et al. 2011).

Sign language was only formally recognised after the Milan resolution was overturned at the NATO Symposium of Language, Interpretation and Communication in Venice in 1977, where researchers affirmed the rights of minority languages, including sign languages (Bidoli 2009:134). The Milan resolution was finally revoked with a formal apology to all Deaf people at the International Congress on the Education of the Deaf (ICED) held in Vancouver, Canada in 2010 (WFD 2010). Since then, national sign languages have been recognised as the primary language of Deaf people and as official languages in the USA, Britain, Australia, Sweden and New Zealand (cf. Bidoli 2009:135; Ladd 2002:37; Lane et al. 1996:55; Napier et al. 2006:6-7,168-172).

Currently, although the use of sign-supported systems that rely on spoken languages are disparaged by purists, a more balanced approach to signing is presently being followed globally which realises the need for sign-supported systems to cater for post-lingually

deafened² persons who usually prefer to communicate in spoken language, relying on hearing aids and mime as back-up strategies (Erlenkamp et al. 2011:27). This is reflected in recent literature by the use of the term *sign(ed) language* rather than *sign language* (cf. Janzen 2005:19; Leeson et al. 2011). Sign-supported speech is a useful communication medium for hard of hearing or deafened people because the spoken language is still prioritised. As Erlenkamp et al. (2011:27) note, “learning a new language [i.e. sign language] in addition to handling the loss of hearing can be experienced as overwhelming”. The different modes of signed communication can thus be perceived as nodes along a continuum between oralism and natural sign. This is illustrated in Figure 2.1 below:

Figure 2.1: Modes of communication for deaf persons



On one end of the spectrum, signing is avoided, whereas the other end represents signed languages that exist as independent languages in their own right. Between these two poles, manual signs vary from gestures to metalanguage to natural signs, whereas speech varies from pure spoken language to mouthing key words to mouth gestures that are considered integral features of the signed language.

In the next section, the development of signed languages in South Africa is addressed in the context of the international development described above.

2.2.4 Signed language in South Africa

Very little research on the development of signed language in South Africa has been undertaken and therefore the history detailed below still contains many lacuna. In South Africa, the development of signed languages is tied to the development of deaf education. This was affected by the dominant *apartheid* ideology of the 20th century, the religious affiliation of the school as well as the dominant international poetics regarding sign languages described above. These factors are inextricably linked.

² *Hard of hearing* is defined as having a hearing loss of between 26-70 dB, whereas *deafened* is defined as incurring a hearing loss of between 70-90 dB subsequent to acquiring spoken language (Marschark 1997:47).

2.2.4.1 The effect of apartheid

Sign language development in South Africa is complicated by the imposition of apartheid policies which separated all South Africans on the basis of ethnicity and controlled where each ethnic group could live. In 1948, Malan and Hertzog's National Party came to power and immediately initiated strict policies of ethnic segregation. However, even before this date, segregation on the basis of race had insinuated itself into South African life. By the time South Africa was declared a Republic in 1961, the legislation-backed state-imposed influx policy of the ruling *apartheid regime* had come into effect (cf. Aarons & Akach 2002:132). This policy, defined by a series of laws and their amendments known collectively as the *Group Areas Act* (1950-1984) restricted the movement of non-whites (mainly Black South Africans) outside designated territories set aside as "homelands" (cf. Aarons & Akach 2002:132; DISA 2009; Morgan 2008:43). Non-whites were not allowed to travel outside these territories without special documentation, colloquially dubbed the "dom-pass" (lit. translation = "stupid pass") and were not considered South African citizens, but citizens of their respective homelands instead. Besides instigating forced removals of entire communities, the influx policy meant that deaf children were obliged to travel hundreds of kilometres to their designated school, which made residential boarding at these schools a necessity (Aarons & Akach 2002:135; Morgan 2008:43).

Initially the apartheid government instituted a policy of mother tongue instruction at Black schools. However, after 1980, English or Afrikaans became the prescribed spoken languages, which, as Aarons and Akach note (2002:133), rendered the strict ethnic segregation of Black students linguistically meaningless. Not being taught African languages further alienated deaf children from their clans. According to Aarons and Akach (2002), in reality the standard of education at Black deaf schools was so low that these children effectively received no instruction in a spoken language and were generally left to their own devices.

2.2.4.2 School affiliation

In South Africa, the education of deaf children was originally left to churches (Lombard 2006:24). The two main church groups involved in deaf education were the Catholic Dominican order and the Protestant Dutch Reformed Church (NGK) (Aarons & Akach 2002:131).

Dominican Catholic schools for deaf children trace their signing roots to ISL (and thereby indirectly to LSF), primarily due to the efforts of Irish Dominican nuns who in 1863, with the

blessing of the local Bishop Grimley, started teaching deaf children by means of sign language, leading to the establishment of the first school for deaf children, *Grimley Institute for the Deaf and Dumb* in Cape Town in 1874 by a deaf woman, Bridget Lynne (Leeson & Saeed 2012:44; Aarons & Akach 2002:131; Penn 1992). This racially mixed school used sign language (which was probably ISL, although this has not yet been rigorously researched) as the medium of instruction and English as the written language until 1920, when an oralist policy was adopted (Aarons & Akach 2002:132; Penn et al. 1992:600). (However, according to Leeson and Saeed (2012), oralism was not strictly enforced until 1960.) When the school became designated for Whites only, the nuns established a school for non-white children at Wittebome in Cape Town in 1937, which initially used sign language but also had to convert to oralism in 1960 (Lombard 2006:24). When the apartheid government declared Wittebome³ for Coloured children only, the nuns opened a new school at Hammanskraal (near Pretoria) for Black Sotho pupils in 1962.

In 1888, Sister Stephanie Hanshuber, a **German Dominican** nun, established an oralist school in King Williamstown for White deaf children which later moved to Johannesburg where it evolved into the present St Vincent's school (St Vincent 2009) and was instrumental in promoting an oralist policy in South African deaf schools. German Dominicans went on to establish St Thomas's at Stutterheim for Xhosa pupils in 1962, KwaVulindlebe in 1979, KwaThintwa in 1983 and St Martin de Porres in 1991 for Zulu learners (Aarons & Akach 2002:133-4). Although Catholic, these schools were influenced by the German oralist method and do not therefore trace their signing to Irish roots.

Almost nothing is known about the signing roots of **NGK schools**. The first deaf school established by the NGK was *De La Bat School for the Deaf* in Worcester (near Cape Town) in 1881 for White children, which used a local indigenous sign language as medium of instruction (Aarons & Akach 2002:133-4; Penn et al. 1992:600) and taught Afrikaans as spoken language. The first NGK Coloured school, Nuwe Hoop, was established in 1933 in the Cape and it is claimed that they used sign-supported Afrikaans as communication means (Lombard 2006:24). Thus it appears that NGK schools trace their signing roots to a combination of local natural signs and an (unknown) form of sign-supported Afrikaans. Although the subject has yet to be rigorously researched, it has been suggested that French,

³ Indian children from Johannesburg were initially also sent to Wittebome until the establishment of M.C. Karbai school in Lenasia (about 100 km south of Johannesburg) (Morgan 2008:267).

Flemish and Dutch influences (from periods of colonisation of the Cape) may also be present in this signing tradition (Van Aarde 2012).

The first NGK Black deaf school, Khutlwanoong, was opened in 1941 near Roodepoort (in the greater Johannesburg area) initially under the auspices of the *Johannesburg Deaf and Dumb Society*, but was taken under the NGK wing in 1954 and moved to Rustenburg (about 60 km west of Pretoria), where it served children of Setswana, Sesotho and Northern Sotho ethnic roots (Aarons & Akach 2002:133). The NGK went on to establish *Transoranje Skool vir Dowes* in Pretoria⁴ and a school in the Free State for White Afrikaans children (Aarons & Akach 2002:134) in the 1950s, *Efata* in the Transkei for Xhosa learners in 1959, *Bartimea School* at Thaba'nchu (near Bloemfontein in the Free State) for Tswana and Sesotho pupils in 1962 and Vuleka School at Nkandla (near Durban) for Zulu learners in 1965 (Aarons & Akach 2002:134). In 1986, after the influx policy was revoked (and Black workers migrated back to the large cities), the NGK established a school in Khayelitsha (a township outside Cape Town) for deaf Black pupils (Aarons & Akach 2002:135).

Other deaf schools in South Africa that do not belong to the Catholic or NGK tradition include *Fulton* (established by the Anglican Church in 1958 for White English students), *V.N Naik* in Durban and *M.C. Karbai* in Lenasia for Indian students, *Indaleni* near Richmond (established by the Methodist church in 1986) for Zulu students, *Tsilidzini School* at Shayadima for Venda and Tsonga students, *Thiboloha School* at Witsieshoek (near Phuthaditjhaba) for Sesotho students and *Yingisani* (by the Department of Works in 1989) for Tsonga students (Aarons & Akach 2002:134; Morgans 1999:57; Penn et al. 1992:600). Signing in these schools varied from home signs on the playground in a strictly oralist learning environment, e.g. at Thiboloha (cf. Morgan 2008:67) to instruction in ASL at V.N. Naik (c.f. Mariani 2011).

2.2.4.3 Influence of international trends

In South Africa, the oralist approach triggered by Milan was implemented from the 1920s and was strictly enforced during the apartheid era in schools for White and Indian deaf children (Van Herreweghe & Vermeerbergen 2010). From 1960 to 1994, White and Indian deaf children were banned under threat of corporal punishment from using natural/home signed

⁴ According to Morgan (2008:267), Transoranje Skool used a form of sign-supported Afrikaans under apartheid (see Section 2.2.4.3); however the exact nature of this system is unknown.

languages and were taught speech and lip-reading instead, assisted by the use of hearing aids and total communication (Aarons & Akach 2002). However, on the other side of the political spectrum, oralism was not strictly enforced in Black and Coloured schools. The lack of attention given to Black and Coloured children's education during the apartheid era ironically meant that natural sign language flourished in the school playgrounds (Aarons & Akach 2002:134; Prinsloo 2003:14; Morgan 2008:67). In the classroom, the hearing teachers used a form of sign-supported speech developed in Britain called the Paget-Gorman system (Aarons & Akach 2002:133; Lotriet 2011) to communicate with the children. This system was later combined with common local signs by Nieder-Heitmann (1980) into a lexicon entitled *Talking to the deaf/Praat met die dowes* which became a textbook reference for that era (cf. Lotriet 2011).

The international return to sign languages after the 1977 NATO symposium was reflected in South Africa in 1983 by a conference held by the Human Sciences Research Council (HSRC) in Pretoria to discuss the role of signed languages in deaf education (HSRC 1983). This led to the establishment of the South African Sign Language Research Program under the auspices of what was then the South African National Council for the Deaf (now DeafSA) that was commissioned to document the sign languages used by deaf South African adults (Penn & Reagan 1994; Penn et al. 1992; Penn 1992). Under the new multiracial democracy that began in 1994 with the election of Nelson Mandela and the ANC to power, sign language was formally recognised in South Africa in the 1996 constitution, the 1996 South African Schools Act, the 1997 Language in Education Policy and the 2002 National Language Policy Framework (Heap & Morgans 2006:143; Magongwa 2012; Reagan 2008; SA Schools Act 1996; Constitution 1996a,b; Ganiso 2012). In 2001, a National Language Unit was instituted for the development of SASL, and the South African Qualifications Authority established its Standards Generating Body for SASL and SASL interpreting (Heap & Morgans 2006; Reagan 2008). Deaf organisations are also lobbying for SASL to be included in the new language policy bill currently being compiled (Reagan 2012), but is not yet recognised as an official language (PMG 2009).

In the next section, other means of communication are discussed in relationship to the Deaf community.

2.2.5 Other means of communication

Other means that deaf people can use to communicate and thereby also glean information from a TV program include lip-reading and reading subtitles. Both these forms of communication rely on knowledge of a spoken language.

2.2.5.1 Lip-reading

Deaf people who can lip-read have learnt to communicate using spoken language, i.e. through speech training, lip reading and hearing aids. As noted above, in South Africa, the oralist approach triggered by Milan was implemented from the 1920s and was strictly enforced during the apartheid era in schools for White and Indian deaf children (Van Herreweghe & Vermeerbergen 2010). Conversely, the lack of resources (such as speech therapists) invested in the education of non-whites meant that Black and Coloured deaf children were not taught lip-reading skills and their ability to communicate in a spoken language was largely neglected. Currently, according to Morgan (2008:186,191), many South African deaf schools are understaffed and lack facilities and services such as hearing aids and speech therapists. Morgan's younger Deaf contributors also reveal that current attention given to teaching oral skills differs from school to school (cf. Morgan 2008:24-25,31).

Thus the literature research indicates that White and Indian deaf adults could rely on lip-reading rather than sign language, whereas Black and Coloured deaf adults probably have very weak spoken language proficiency and minimal or no lip-reading skills. There are also indications that deaf children are currently exposed to varying degrees of oral education.

2.2.5.2 Literacy challenges

The second means of obtaining information from the TV news broadcasts is by reading on-screen text. Captioning (or "subtitles" as it is called by the South African Deaf community) is defined by Lewis and Jackson (2001:43) as "the typewritten version of the audio component of television that provides a visual display of the dialogue, narration, and audio effects for those who cannot hear". Subtitles assume a literate audience (Lewis & Jackson 2001). Since no empirical research has been undertaken to find out how literate one must be to read news subtitles, for the purposes of this study it is suggested that a minimum of grade nine is required to cope with the reading speed, background knowledge and jargon.

Most educators agree that literacy levels of deaf individuals worldwide are very low (Rydberg et al. 2009:313; Stone 2010:2) and it is well documented that deaf children find reading

difficult (Allen 1986; Lewis 1996; Morgans 2008:26). As early as 1960, Dr Andres Lunde, in his pioneer article *The sociology of the deaf*, bemoaned the lack of education and resulting gradual social differentiation of deaf people (Stokoe 1960:3). According to Marschark (1997:68,137), at least 30% of deaf American learners leave school functionally illiterate (cf. Jackson et al. 1997; Lewis and Jackson 2001). Napier et al. (2006) also confirmed low literacy levels for Australian deaf students.

High illiteracy figures are also reported for South Africa's deaf population (Berke 2009; Ganiso 2012; Parkin 2009). In 1999, Storbeck (1999) reported that 60% of deaf South Africans were functionally illiterate. In 2009, DeafSA reported a 75% illiteracy rate. More recently, DeafSA (2012) reported that no deaf learner passed matric in the Limpopo province in 2011. According to Ganiso (2012), apart from the University of South Africa which reported an enrollment of 113 deaf students in correspondence-based undergraduate degrees, “the number of deaf or hearing-impaired students at mainstream universities is negligible”. Moreover, low literacy levels are compounded by the fact that South African deaf learners are seldom given the opportunity of secondary education (Ganiso 2012; Morgan 2008:88; Magongwa 2012; Parkin 2009). According to DeafSA (2009), only 12 deaf schools offer Grade 12 and only approximately 6600 hearing-impaired children in total attend school. Most of Morgan’s (2008) eighteen contributors report that they left school without acquiring literacy skills. Indeed, apart from qualitative data supplied by the Deaf community, extremely little empirical data on the levels of literacy at the different deaf schools exists and is recommended as an area of future research. A pilot study by Mariani (2011) of Grade Nine pupils at V.N. Naik school revealed that since 2004, English language class averages have been consistently under 40%.

Lewis and Jackson (2001:43) note three requirements for reading, namely “an applicable knowledge base, memory processes and linguistic adequacy with a word-based language”. Banks et al. (1990:192-206) showed that deaf children use a bottom-up approach when learning to read a phonological language (i.e. focussing on the individual words and phrases) and neglect top-down (i.e. whole passage analysis and schema-driven) strategies, indicating that lower-level processing is too demanding to give attention to higher-order processing (cf. Kelly 1990; Marshark & Harris 1996; Webster 1998). Poor reading ability in deaf children has been found to correlate with poor language skills (Lewis & Jackson 2001; Rodda & Grove 1987), poor short-term memory processing (Garrison et al. 1997; Rodda & Grove 1987), inadequate general knowledge (Garrison et al. 1997), inadequate vocabulary (Garrison et al.

1997; Harris & Beech 1998; Izzo 2002; Kelly 1990,1996; Kyle & Harris 2006) and poor lip-reading skills (Harris & Moreno 2004; Kyle & Harris 2006).

According to Stone (2010:2), poor language skills are the result of limited bilingualism, i.e. the spoken language is a second or even third language for a profoundly deaf person, with accompanying reduced levels of literacy and proficiency. The problem is further compounded if language acquisition (whether spoken or signed) is delayed (Mayberry & Lock 2003). This indicates that the neglected oral skills of Black deaf children described above compound the literacy problem. Poor language skills have also been ascribed to the different grammatical and discourse structures between spoken and signed languages (Baker-Shenk & Cokely 1981:64-65; Lombard 2006:28-29). It was also previously thought that Deaf people process and store data as visual concepts and not verbally (Akach 1997:11; Emmorey et al. 1998; Marschark 1997:136-7). For example, McEvoy et al. (1999:312-320) concluded that deaf adults' organisation of verbal concepts was less systematic than that of hearing adults and that deaf people rely more on memory retrieval than problem-solving strategies to access verbal knowledge. However, recent research (cf. Hall et al. 2012) indicates that early acquirers (i.e. from birth) of a first language (spoken or signed) show similar phonological processing patterns. Their results show that late language acquisition disrupts subsequent language acquisition and therefore suggest that poor language skills are due to late language acquisition and not to intrinsic differences between sign and spoken language processing.

Poor reading skills could also be due to bad teaching methods that reinforce passive learning structures. According to Baker-Shenk & Cokely (1981:63-78), Deaf schools prioritise teaching grammar, neglecting other subjects and even language development skills. According to Brennan (1975:463-479), the explicit focus on language teaching may actually inhibit the deaf child's natural acquisition of grammar. Thus, according to Marschark (1997:12,88-89,135), the deaf child increasingly lags in language acquisition skills, general knowledge and reading ability compared to his hearing counterpart (cf. Allen 1986; Banks et al. 1990; Harris & Moreno 2004; Jackson et al. 1997; Kyle & Harris 2006). Lombard (2006:63) confirms the focus on grammar at the expense of other subjects at South African deaf schools as well. In fact, according to Aarons and Akach (2002:134), the only thing of benefit to emerge from some deaf schools is a robust signing system among the children!

In summary, the literature suggests that many deaf South Africans may not be able to read subtitles on TV and that since poor literacy skills are accompanied by poor general

knowledge, they may also lack the general knowledge of local institutions, places, people, acronyms and jargon required to comprehend a news broadcast (cf. Pöchhacker 2007:133).

On the other hand, studies have also shown that captions do significantly increase comprehension for deaf viewers when compared to television programs without captions (Boyd & Vader 1972; Lewis & Jackson 2001; NCI 1983). In other words, even though comprehension of subtitles is inadequate, they provide better comprehension than the picture alone because they limit misinterpretations of the action and meaning in the program. In discussing options regarding subtitling, Lewis & Jackson (2001:51) note that simplification of the language to accommodate lower reading abilities is resisted by Deaf audiences. They also note that suggestions to accommodate both a signer and subtitles are economically unfeasible (Lewis & Jackson 2001:51).

In the next section, the influence of factors of the physical environment on audience comprehension is explored.

2.3 Physical environment factors

As noted in Chapter 1.1.3, physical environment factors, especially in terms of interpreter visibility, affect comprehension and therefore, as discussed in Section 2.2.1, are contextualised as Deaf norms. These include correct lighting, i.e. from the front on the face, adequate contrast of interpreter's hands against skin and clothing and freedom of obstruction of the face, e.g. by hair, as well as of the hands (SADA 2012). Moreover, as discussed in Section 2.1 above, the small size of the interpreter picture was found to hinder comprehension of signed news interpretation (Kyle 2007).

Marschark et al. (2004:350) shows that comprehension is further compromised by the fact that a Deaf viewer's attention is divided between the interpreter and competing sources of information. According to Stone (2009:103), hearing interpreters tend to compete with the main picture (on TV) for attention, whereas Deaf interpreters utilise the picture by referencing relevant information in it.

In the next section, the issue of sociological variation in SASL is discussed.

2.4 Sociological variation

According to McEnery and Wilson (2001:5,89), the term "dialect" is defined as a "sub-national linguistic variation which is geographically motivated". Because Deaf communities

were initially isolated from each other, sociolects specific to small groups such as schools or households developed. Variation due to geographical distribution, social class, gender differentiation, sexual orientation, ethnicity, religious affiliation and age group have been identified in the literature (cf. Leeson 2005b:254; Leeson & Saeed 2012:50; McKee & McKee 2011; Quinn- 2010; Sutton-Spence & Woll 2005:170). Variants also arise when two sign languages mix in the same community, as is the case in Northern Ireland (Lawson 2002:32; Leeson 2005b:265; Parks & Parks 2012). Interest in sociological variation now spearheads much contemporary corpus research (cf. Crasborn & Hanke 2010; Johnston 2010:106).

According to Contreras (2002:12), standard forms of sign language coexist with regional dialects. Bidoli (2009:135) affirms the existence of dialects in national sign languages:

*Standard national sign languages based on a common set of rules for all Deaf people in each country, as in the case of most spoken languages, did not develop and cultural and linguistic differences still abound among different Deaf communities...**The norm in all countries was the development of numerous signed dialects.***

That national sign languages are comprised of dialects is also being corroborated in sign language corpus research (see Chapter Three). Some dialects may eventually develop into the standardised national form, as Bidoli (2009:135) reports the Roman dialect is becoming in Italy.

As Aarons and Akach (2002:135) state, the question of how many sign languages or dialects there are in South Africa can only be resolved by proper sociolinguistic research. However, the literature indicates that there are grounds for proposing linguistic variation in SASL and thus provides a strong argument for dialectal variation as a factor of incomprehension of signed broadcasts. From the discussion above in Section 2.2.4, it is evident that South African Deaf communities differ on the basis of religion, region, ethnicity and spoken language culture (cf. Selzer 2010:25-6). Besides the three main influences identified, namely the Dominican ISL, the Dominican German (oralist) and the NGK local (and possible Afrikaans/Dutch/French) sign Languages, BSL and ASL influences have also been noted (cf. Mariani 2011; Morgans 1999:54).

The fact that these Deaf communities were largely isolated from each other until recently provides a strong argument for dialectal variation, as does the fact that the Pan South African Language Board (PanSALB) was given a constitutional mandate to develop a standardised form of SASL (Newhoudt-Druchen 2006:8-9), which implies that this did not exist. The existence of language variation in SASL was mooted originally by Penn (1992) and was also supported by Morgan and Aarons (1999:356). The HSRC-funded *Dictionary of Southern*

African Signs compiled by Penn et al. (1992) stands as a testimony of at least 11 sign systems at that time. Similarly, Newhoudt-Druchen (2006:8-9) reported that at least five sign language interpreters were needed at national South African Deaf meetings. She attributed the different “dialects” to racially segregated schools during the apartheid era. Lewis (2009) also reports nine sign language systems in South Africa, which he claims are derived from BSL, Auslan and ASL. Moreover, despite its limitations in both scope and methodology, Selzer’s (2010) thesis shows that, even in the narrow field of parliamentary lexis, interpreters from different backgrounds use different signs for the same English source term and that these variants are understood differently (and incorrectly) by Deaf individuals from different backgrounds. This strongly suggests the presence of dialects, if not separate languages, as well as the need for standardisation at national level. In particular, the Afrikaans Deaf community is adamant that their sign language is a separate language (Aarons & Akach 2002:135; Van Aarde 2012). The existence of dialects is also acknowledged by Bruno Druchen, the national director of DeafSA (PMG 2009:3, 2007:4; cf. DeafSA 2009:6). Similarly, Morgan’s (2008) Deaf participants indicated that the spoken and signed languages of fellow South Africans differed, making communication at Deaf meetings difficult (cf. Morgan 2008:107). Leeson and Saeed (2012:45) also observe that the signing of the Wittebome Deaf community contains handshapes and lexical items characteristic of ISL that do not appear in other SASL forms.

However, although they acknowledge the existence of dialects, the existence of different sign *languages* is disputed by Aarons and Akach (2002:143), Newhoudt-Druchen (2006:8-9) and Reagan (2008). Akach (1997:11) concedes regional dialects, but claims that the same grammatical structure is adhered to countrywide and that there are also shared features with other national sign languages (Akach 1997:11), whereas Reagan (2008) declares unequivocally that “SASL is the language typically utilised in Deaf-Deaf communicative interactions in South Africa”. Proponents of the single language claim assert that although lexis may differ, the same grammatical constructions are used by all South African Deaf signers, “irrespective of age, ethnicity or geographical region” (Morgan 2001; cf. Heap & Morgans 2006:143; Penn & Reagan 1994). Aarons and Akach (2002:135) further argue that claims of many South African sign languages or dialects are directed by hearing rather than Deaf persons and that these claims are based on mistaken notions of a relationship between sign language and spoken languages (Aarons & Akach 2002:136). They propose instead that, since Deaf signers around South Africa can mutually understand each other, this indicates that there is one sign language (Aarons & Akach 2002:143).

However, their arguments are shaky on a number of counts. Firstly, mutual intelligibility is not a sufficient criterion for language differentiation. If so, this would imply that Xhosa and Zulu (Nguni family), for example, were the same language since they are mutually intelligible. Similarly, speakers of other related language groups, such as Afrikaans and German (Germanic family), or Russian, Bulgarian and Serbian (Slavonic family), can understand each other's languages. Hence, mutual intelligibility is at best an indication of related families of languages (cf. Woll et al. 2001:16). Secondly, mutual intelligibility is not always achieved in SASL. Morgan's (2008:214) native signer interviewees reported that the sign language that they used with their friends at their respective residential schools was unintelligible to their Deaf families. Similarly, the researcher has been in a number of meetings where the SASL used by one group of Deaf participants was not understood by other groups, notably those who identified themselves as members of the Afrikaans Deaf community. Thirdly, the authors ignore their own statement that it is not hearing, but Deaf people that believe that there are many sign languages (Aarons & Akach 2002:135,145). Fourthly, the assertion that others claim that SASL variants are based (due to ethnic or linguistic reasons) on spoken languages (Aarons & Akach 2002:137) is not backed by any empirical research. That sign languages borrow from spoken language is, however, attested (cf. Leeson & Saeed 2012:127; Leeson 2005a:263; Stone 2010:2). Similarly, South Africans have very strong ethnic ties, thus the assertion of an "Afrikaans sign language" or a "Venda sign language" does not imply that the sign language is based on the spoken language (Afrikaans or Venda), but that these particular sign language users identify strongly with a particular ethnic clan. Finally, Vermeerbergen et al. (2007) observed different grammatical constructions over a number of simple sentences performed by only four signers, thereby bringing into question the notion of a universal SASL grammar.

An alternative explanation to the above is that, in 1996, SASL as a single, standardised national language, ironically, did not exist. Instead, due to the Milan ban being imposed on South African Deaf communities and the isolating effects of the apartheid regime which discouraged mixing of communities on ethnic grounds (Deaf or otherwise), what existed were numerous isolated pockets of home sign systems with a number of natural sign languages developing at regional levels in areas where Deaf communities could come into contact with each other. However, it appears that the lack of a single sign language is the greatest obstacle to official recognition of sign language and therefore drives the quest for standardisation of SASL. Faced with the proffered carrot of official recognition, Deaf organisations and pro-Deaf hearing researchers scrambled (and still do) to assert the existence of SASL as a real,

single language, relegate conflicting sign systems to the status of mutually intelligible dialects and push for the standardisation of sign language in South Africa (cf. Aarons & Akach 2002; Heap & Morgans 2006; PMG 2007, 2009; Reagan et al. 2006). Thus, together with the new democratic South African Constitution, SASL was born. Not surprisingly, therefore, SASL is therefore only recently being formally introduced into South African deaf education (cf. Morgan 2008:265). As Ganiso (2012) notes, SASL school curricula are still in developmental phase and most teachers at deaf schools do not know sign language (Heap & Morgans 2006; Lotriet 2011).

SASL is being developed through active language planning, thereby following the path of Finnish and Dutch sign languages (cf. Schermer 2012:467; Kielitoimisto 2013). Language planning and standardisation of languages due to ideological or political agendas are not new to South Africans. As Reagan (2002) notes, during the apartheid regime, in order to promote the homeland concept foisted onto the local populations, rural dialects of spoken African languages were selected as standardised forms of the languages concerned and propagated through the publication of textbooks, resulting in the suppression and disappearance of other forms of the languages and even of other minority languages. Moreover, certain languages (e.g. Xhosa, Zulu, Tswana) were promoted at the expense of other languages (e.g. Venda, Ndebele) to the extent that the latter speakers remain functionally illiterate in their mother tongue. Although the current ANC government has made some effort to rectify this, many South African speakers of minority languages still have no access to education in their mother tongue. Without official status, SASL is even more disadvantaged in terms of funding and priority than these other minority languages (cf. Morgan 2001). Ironically, the very forces that recognise multilingualism in African communities seem to be instrumental in suppressing the multilingualism of Deaf communities.

The co-existence of numerous dialects or even signed languages presents problems in interpreting for a national audience, as is the case for TV interpreters. One strategy of coping with mixed dialects is to use more than one sign for a particular concept to increase comprehension (Leeson 2005b:272). However, as Leeson points out, this is done at the expense of interpreting the next chunk of the incoming message, increasing stress on listening and memory efforts.

In the next section, lexical, syntactic and discourse features of sign language and their use by interpreters are explored.

2.5 Linguistic characteristics of sign languages

In this section, certain linguistic features of sign languages are discussed. The purpose of this section is to equip the reader with key terms, concepts and issues regarding features of signed languages in order to provide a framework for examining the interpreters' signing and for constructing the annotations described in Chapter Four. Since the focus area of this study is Interpreting Studies, a full linguistic description of SASL is beyond its scope; hence, lexical, syntactic and discourse aspects of sign languages are therefore explored primarily in view of challenges that they might present to interpreters.

To date, no empirical corpus-driven study of SASL features used in authentic discourse exists (although Rhodes University (2013) is in the process of setting up a corpus of original SASL discourse). The few SASL instruction manuals or DVDs that exist focus almost entirely on lexis and word order alone to the neglect of other linguistic features. In fact, Akach's (1997) pioneering article on SASL grammar is an almost verbatim rendering of sections of Baker-Shenk and Cokely's (1981) ASL guide. Because of the paucity of linguistic research into SASL, this section is supplemented by research done on other sign languages.

2.5.1 Phonology

Fromkin and Rodman (1998:20) define sign language as "a visual-gestural system with its own rules and regulations where hand and body movements form words". The hands, arms, face, upper body, facial expressions, eye gaze, blinking patterns and head movements can all be used as syntax and discourse markers (Holcomb 1994:57; Liddell 2003:5-8; Segouat & Braffort 2009:1; Stone 2009). Linguistic inquiry into the phonology of sign languages was initiated by Stokoe (1960), who coined the terms *chereme* and *allocher* to describe the respective equivalents of *phoneme* and *allophone* in visual languages. However, these terms were not adopted and the terms *phoneme* and *allophone* are used instead (cf. Leeson & Saeed 2012:62). Stokoe (1960) defined three components of a sign, namely *position* (tab); *hand configuration* (dez) and *movement* (sig). and noted the semantic relevance of movement as a phoneme in his observation that fixed symbols (e.g. alphabet, numerals, etc.) tend to be static, whereas relationships between concepts are represented using motion. He also recognised non-manual markers, which he termed *attitude*.

Based on Stokoe's work, a sign is now characterised by five phonological parameters, namely handshape, palm and finger orientation, location, movement and non-manual features (NMFs) (cf. Johnston & Schembri 2007:79; Koizumi et al. 2002). These five parameters are also

recognised as the phonological components of SASL (Akach 1997:14-20; Prinsloo 2003:18). Variations in any one parameter produce differences in semantic meaning (Akach 1997:15; Neidle et al. 2000:28).

2.5.1.1 Handshapes

Each sign language has a finite set of *handshapes*. Some are common to other sign languages, where others are unique to a particular sign language. Handshapes for SASL were identified by Penn et al. (1992) and are described using the ASL alphabet, with borrowings from ISL and BSL. The hand used primarily to express one-handed signs, objects of interest in a referential situation or finger-spell is referred to as the dominant hand (Leeson & Saeed 2012). The other (non-dominant) hand also performs a range of functions, e.g. grounding referential objects in discourse. One or both hands can be used in the formation of a sign. Rules (called *production constraints*) govern the handshapes permitted for the non-dominant hand (Leeson & Saeed 2012:86-88), namely *symmetry* (i.e. mirroring of the dominant hand), *dominance* (which limits the handshapes to those compatible with the dominant hand's handshape) and *sequence* (i.e. the sequence of bodily contacts) (cf. McDonnell 1996; Wilbur 1987). According to Joseph (2008), both rules of dominance and symmetry apply in SASL

2.5.1.2 Orientation, location and movement

Although *finger orientation* is usually inherent to a particular handshape, different palm orientations of the same handshape serve to create different meanings. Likewise, handshapes made at different locations or using (different) movement(s) also create different meanings, e.g. in SASL, the signs YOUR and BRAVE differ only in location (Akach 1997:15). Brennan (1984) identified five spatial locations for BSL, namely the head, trunk, arms, hands and area in front and to the side of the signer. These locations are used in SASL as well. In SASL as in other sign languages, e.g. ISL (cf. Leeson & Saeed 2012), movement is used to describe relative locations, manner and sequential ordering of events (Akach 1997:18; Prinsloo 2003).

2.5.1.3 Non-manual features

Non-manual features (NMFs) are defined as linguistically significant elements which are expressed by any articulator other than the hands (Pfau & Quer 2007). These include use of the eyes, mouth, cheeks, head, shoulders and torso. According to Sandler and Lillo-Martin (2006), they can be subdivided into grammatical NMFs (which express grammar and prosody, and also function as adverbial and adjectival modifiers) and affective NMFs (which express

emotive content). Sign language corpora constructed in various countries around the world constitute the main sources of recent research on NMFs. Similar characteristics and functions of NMFs as found in ASL (cf. Aarons 1994; Baker-Shenk & Cokely 1981) have been asserted for SASL as well (Aarons 1994; Akach 1997:28; Prinsloo 2003).

Eye gaze is a directional expression using the eyes. According to Sutton-Spence and Woll (2006), apart from acting as obligatory phonological elements in certain signs, eye gaze is used to show the directions and locations of referents in signing space, to signal role shift, to mark time and to contrast between genuine and rhetorical questions. It is also used to express verb agreement and distinguish pronouns (Pfau & Quer 2007),

Prillwitz (1985:63) identified five elements of *facial expression*, namely:

- a) inclination and positioning of the head, torso and shoulders;
- b) raised or furrowed (i.e. frowning) eyebrows,
- c) eyes (open, squint or blinking);
- d) eye gaze direction (ahead, upwards, downwards, sideways);
- e) mouth actions (open, closed, lips pressed, corners up/down/pucker, lower lip, tongue).

A sixth element, namely the cheeks (sucked in, puffed out) has also been identified (cf. Pfau & Quer 2007). The simultaneous co-functioning of these six elements is called superarticulation and mirrors the function of intonation in signed languages (Sandler & Lillo-Martin 2006).

The following functions of facial expressions have been identified:

- Emotive qualifiers inherent to certain signs, (Bellugi & Klima 1991:137; Pfau & Quer 2007; Sutton-Spence & Woll 2006);
- Independent (i.e. as free morphemes) dimensional adjectives or adverbial intensifiers (Pfau & Quer 2007);
- Grammatical and modal markers in ASL (Bellugi and Klima (1991:137; cf. Baker-Shenk & Cokely 1981:179-188; Liddell 2003:7; Neidle et al. 2000);
- Volition markers in ISL (Leeson & Saeed 2012);
- Intonation markers in ASL (Sandler & Lillo-Martin 2006; Wilbur 1991).

In South African publications, features of ASL facial expression have been assigned to SASL (cf. Akach 1997; Penn & Reagan 1994; Prinsloo 2003) on the basis of isolated sentences rather than samples of authentic discourse.

According to Rainò (2001), there are two types of *mouth actions* that convey linguistically meaningful information in sign languages, namely mouth gestures and mouthing. Firstly,

mouth gesture defines idiomatic mouth patterns that are part of facial expression and not derived from spoken languages (Sutton-Spence 2007), although some are described using spoken language phonemes, e.g. mm, th, ee, cs in ISL (Leeson & Saeed 2012:85) or th, pow, pah, cs, sta-sta in ASL (Baker-Shenk & Cokely 1981:21; Neidle et al. 2000:39). Other mouth gestures are described by physical features, e.g. puffed cheeks, grimace, open mouth, tight lips (see Baker-Shenk & Cokely 1981:21; Neidle et al. 2000:39 for ASL and Leeson & Saeed 2012:80 for ISL). Some mouth gestures are constant over the duration of a sign, whereas others change (Pfau & Quer 2007).

In a seminal article, Woll (2001) identified a category of mouth gesture (called *echo phonology*) that imitated (echoed) the sign's manual movements using inhalation/exhalation and vocalic/consonantal patterns. Woll's (2001) work was further refined by Crasborn et al. (2008), who identified four kinds of mouth gestures, namely: *adverbial* (i.e. that function as adverbs of manner and intensity); *semantically empty* (that do not contribute semantic meaning but parallel the sign's movements – i.e. echo phonology), *enacting* (i.e. that perform the action of the sign, e.g. chewing, biting etc.) and those that combined as part of *overall facial expression*, especially in expressing affective meaning (cf. Bickford & Fraychineaud 2008; Mohr 2012; Sutton-Spence & Woll 2006:86). Bickford and Fraychineaud (2008:32) argue instead that echo phonology should be classified according to whether it functions as a bound morpheme (i.e. inherently associated with particular manual signs) or a free morpheme (i.e. independent of the particular manual sign), with dependence on spoken language used as a sub-category. They also point out that mouth gestures seldom occur on their own, but often involve other NMFs, especially the head and shoulders (Bickford & Fraychineaud 2008:34).

Secondly, *mouthing* refers to words (or parts of words) of a spoken language that are mouthed during signing and are generally regarded as evidence of contact between signed and spoken languages (cf. Leeson and Saeed 2012:81; Stone 2010:2). Although Bickford & Fraychineaud (2008:36) claim that for Dutch Sign Language (NGT) mouth gestures may combine with mouthing, Leeson & Saeed (2012) note that in ISL mouthing inhibits mouth gestures. Leeson & Saeed (2012) demonstrated mouthing as a phonological element by showing that it affects meaning in minimal pairs (i.e. two lexical items that differ only in one phonological element (cf. Leeson & Saeed 2012:71)). According to Sutton-Spence and Day (2001), the amount of mouthing also depends on the discourse genre, with more informative genres containing high amounts of mouthing (cf. Nadolske & Rosenstock 2007). Three main categories of mouthing were identified in the ISL corpus, namely mouthing identical to the sign, mouthing related by

form or meaning to the sign (e.g. JOB and “work”) and mouthings that supplied additional meaning not available in the sign (e.g. SHOES and “brown”) or appeared unrelated to the sign (Mohr 2012). Mohr (2012) found different degrees of the second category, including mouthings that reflected super-ordinate or hyper-ordinate semantic classes related to the sign. Mouthings may also be classified as full (i.e. the word is expressed in full) or reduced (i.e. the word is partially pronounced) (Mohr 2012; Sutton-Spence & Day 2001). Unlike mouth gestures, however, there is no one-to-one mapping of mouthing onto signs; hence a particular sign may feature with many different mouthing combinations (Mohr 2012; Vogt-Svendson 2001). Hence mouthings may function both as bound and free morphemes, sometimes reflecting the meaning of the sign and sometimes contributing additional semantic meaning.

As Mohr (2012:95) notes, the phenomenon of mouthing is under-researched, especially in languages like ASL where it is categorically denied. In SASL, as in ASL (cf. Sutton 2012), mouthing is strongly discouraged (cf. Akach 1997) and to date no scholarly investigation of the phenomenon exists. Those who disparage mouthing claim that it leads to mixing of the spoken language with sign language (i.e. *code mixing*, sometimes called *nonce bouncing*), contamination of the sign language and eventually to bad grammatical habits in both languages (cf. Akach 1997:9; Crasborn 2009). Notwithstanding, mouthing is a common feature of sign languages. Mouthing has been recorded in BSL (Stone 2010:2), ISL (Leeson & Saeed 2012; Militzer 2009; Mohr 2012), LSF (Websourd 2012), NGT (Crasborn 2009) and German Sign Language (DSG) (Monschein 2009). In ISL, it seems to be gender- and age-related (Leeson & Saeed 2012; Militzer 2009; Mohr 2012), whereas in NGT the degree of mouthing depends on the discourse register as well as the age of the signer (Crasborn 2009).

No study of SASL mouth gestures based on authentic data exists as yet. NMFs generally are classified as “grammatical markings” (cf. Akach 1997:28; Prinsloo 2003:25) because of their syntactic function and the few existing works on the subject are devoted to confirming ASL (grammatical) features in SASL. (The question begs whether ASL NMF categories were imposed on SASL as part of the standardisation process.) These include *negation* (= frown + head-shake), *topic* (=raised eyebrows + head tilt), *wh-questions* (= frown + head-forward) (cf. Prinsloo 2003; Penn & Reagan 1994; Akach 1997).

Head movements (tilts, nods and shakes) can be used with or independently of signs. According to Sutton-Spence and Woll (2006:93), nods are used to express agreement, first person, affirmation of the truth of an utterance and completeness of an utterance, whereas head shakes express negation as well as emotional responses to informants (e.g. disbelief).

In terms of SASL interpreting, it is evident that since variation in any one of the five phonological elements produces different semantic meanings, phonological errors committed by an interpreter have significant consequences regarding accuracy and comprehension of a signed message. Moreover, although the phenomenon of mouthing has received no attention in Interpreting Studies, DSG corpus-driven findings indicate that hearing interpreters use mouthing primarily to confirm the meaning of a sign or to provide semantic information not evident in the sign, whereas Deaf signers use mouthing more as an inherent phonological marker (Monschein 2009). To the best of the researcher's knowledge, this study is the first to address the subject of mouthing in SASL and as used by interpreters in particular.

In the next section, the morphology of sign languages are discussed.

2.5.2 Morphology

Stokoe (1960) regarded sign language as a *graphemic* system which allowed for *allographs* (i.e. variations) such as the difference between men and women's signing. Stokoe's (1960) article constituted the first research on the study of signs as linguistic units and first identification of signs as morphemes (cf. Akach 1997:21; Liddell 2003:19; Johnston & Schembri 2007:117). He distinguished between *natural*, *conventional* (coinages or borrowings), *methodical* signs (meta-language invented to describe grammatical features of spoken languages) and finger-spelling and included a detailed description of the ASL alphabet and common signs. Currently, *conventionalised* signs describe those signs that have entered the established lexicon of the language.

The most common definition of signs found in the literature is that they are arbitrary, rule-governed communicative gestures which function as words (cf. Akach 1997:7; Akach & Brennan 1994; Lubbe 2003:109; Özyürek et al. 2009:1), i.e. as lexical items (cf. Johnston 2011). As Leeson and Saeed (2012) note, the concept of "word" is problematic because it suggests a one-to-one mapping of signs to spoken languages. According to Akach (1997:21-22), sign languages (including SASL) are agglutinating languages since morphemes can be combined to produce complex meanings. For example, in SASL, the complex concept of driving a car up a hill may be represented by a relevant handshape (called a classifier – see below) with appropriate motion, gaze and facial expression (cf. Akach 1997:22). This relaxes strict adherence to McQueen and Cutler's (1998) and Bloomfield's (1933) criterion of "minimum free form" in defining words. Because signs represent concepts, they may require translation above word level into a spoken language (cf. Humphrey & Alcorn 1996:39-50).

In many sign languages, certain handshapes, termed (predicate) *classifiers*, are used to convey exact or complex information regarding the motion, size, shape, location and handling of objects in sign languages (cf. Leeson & Saeed 2012; Schembri 2000; 2003). Aikenvald (2000) defines predicate classifiers as “morphemes associated with verbs that allow speakers to classify the subjects according to semantic features”. These have been categorised for ISL as *whole entity-CL stems* which represent the size, shape, number, distribution or instrumentalities of whole entities (such as a person or a group of people), *extension-CL stems* which trace the size and shapes of objects, *handle entity-CL stems* which depict how objects are handled by agents and *body-CL stems*, which use parts of the body to depict relationship between (animate) entities in much the same way that a handshape would in a two-handed sign (McDonnell 1996; Leeson & Saeed 2012). Classifiers by nature are bound morphemes (Leeson & Saeed 2012:121).

Signs may be single or compound, i.e. the combination of two or more free morphemes (cf. Leeson & Saeed 2012). Compound signs are usually sequential, i.e. the individual signs are articulated one after each other, e.g. OLD-MOTHER = grandmother in SASL (and ISL). According to Leeson and Saeed (2012:116-18), apart from changing the meaning of the individual signs, compounding places restrictions on location parameters in terms of high-to-low and onset/offset constraints, movement parameters (e.g. by suppressing repetition and emphasising holds) and production time. Compounds can also be simultaneous (cf. Brennan 1990,1992); however, as Leeson & Saeed (2012:121) point out, many so-called simultaneous compounds contain classifiers as components and hence are not true compounds.

Apart from the manual signs, the other four phonological parameters may also carry semantic meaning and thereby also function as (bound) morphemes (Leeson & Saeed 2012). For example, **number** is usually expressed in sign languages by repeating the handshape(s), also termed reduplication – i.e. using the motion parameter, (cf. Leeson & Saeed 2012 (ISL); Liddell 2003:43, Neidle et al. 2000:29 (ASL); Johnston 2010:41 (Auslan)). In ISL, reduplication is performed thrice to form a plural, whereas in SASL it is performed twice to indicate a simple plural, e.g. HOUSE++ and thrice to indicate that many items are involved, often with movement to indicate spatial arrangements of the latter, e.g. HOUSE+++ performed with sideways movement indicates ‘a row of houses’ rather than ‘houses’. Moreover, it appears that SASL, ISL, Danish Sign Language and ASL use similar patterns of motion to express **agreement** (e.g. in the formation of agreement verbs) and **aspect** (Akach 1997; Engberg-Pederson 1993; Leeson & Saeed 2012; Liddell 1990). For example, agreement

is expressed by straight line motion between agent and object and extended durational action by using repetitive circular motion. Aspect can also be marked manually, e.g. by COMPLETION in ISL (Leeson & Saeed 2012) or FINISH in SASL.

Facial expressions can also behave as bound morphemes. For example, Bickford and Fraychineaud (2008:32) argue that mouth gestures should be regarded as derivational affixes. Facial expression (especially mouth gesture) is used to modify verbs adverbially to express manner (e.g. intensity, carelessness) as well as aspectually, e.g. to indicate repetitive or habitual action in ASL (Baker-Shenk & Cokely 1981:21; Bickford & Fraychineaud 2008:35-6; cf. Liddell 2003:37-40; Neidle et al. 2000:39), NGT (Crasborn 2009) and ISL (Leeson & Saeed 2012:106,122). These types of mouth gestures are often combined with eyebrow and eye expressions. Eye gaze is also used, e.g. to express agreement between subject and object when using transitive verbs (cf. Leeson & Saeed 2012 (ISL); Neidle et al. 2000:65 (ASL)).

2.5.3 Lexicon

The lexicon of a signed language is divided between established signs, i.e. those that have a “clearly identifiable citation form” and the productive lexicon, which consists of signs “construed using conventional strategies to fit contextual needs” (Leeson & Saeed 2012). The category of iconic signs straddles both categories.

2.5.3.1 *The established lexicon*

Despite the criticisms levelled against it, the most comprehensive lexicon of South African signs is the five-volume *Dictionary of Southern African Signs* produced under the editorship of Claire Penn (Penn et al. 1992) which lists eleven variants of each lexical item with a discussion of the most common variant. According to Leeson & Saeed (2012), the established lexicon consists of signs influenced by the spoken language, borrowings from other sign languages and iconic signs.

Firstly, signs influenced by a spoken language primarily originated during the periods of oralism and total communication, when signs were borrowed, created or adapted to be used in sign-supported speech systems (e.g. signed English) (Leeson & Saeed 2012:130). They include lexical borrowings (i.e. signs incorporated into sign-supported speech that were either borrowed from natural sign language or invented as equivalents for the words of the spoken language), initialised signs (i.e. signs for which the handshape incorporates the finger-spelling alphabet), function words (invented to describe the grammar of the spoken language, e.g.

FOR, IS, WAS), cued speech items (i.e. gestures from speech training) and mouthing (Leeson & Saeed 2012:130). In SASL, initialised signs are often used for place names, e.g. Durban, Worcester. Function and cued-speech signs do exist in regional sign systems, but are not considered legitimate lexical items in the standardised SASL being developed.

Secondly, borrowings from other sign languages arise as a result of historical contact, interaction at international Deaf meetings and relocation of Deaf persons (e.g. to other countries) (Leeson & Saeed 2012:131). Contemporary borrowings of terms from different sign languages to fill lacuna are evident, e.g. the ASL version of COMPUTER has entered the South African lexicon.

Thirdly, iconic signs offer a realistic description of things or events (Koizumi et al. 2002; Leeson & Saeed 2012; Mandel 1977; Metzger et al. 2006). Stokoe (1960) first recognised the development of signs from iconic *natural* gestures to arbitrary symbols (cf. Mandel 1977). Although signed languages were initially believed to be completely iconic (cf. Humphrey & Alcorn 1996:39-50; Lombard 2006:20-21), currently the ability of sign languages to “incorporate iconicity while still maintaining arbitrariness” (Prinetto et al. 2011:134) is now recognised (cf. Erlenkamp et al. 2011:23). Wilcox (2000) led the way in categorising conventionalised iconic signs in her exploration of metaphors, similes and other tropes in ASL using Lakoff and Johnson’s (1980:125) definition that a metaphor possesses a source domain, a target domain and unidirectionality of mapping from source to target. She identified both simple and complex metaphors in sign language related to eighteen distinct classifier handshapes. Taub (2001) developed Wilcox’s work on metaphors into a model for the creation of linguistic iconic forms by identifying nine types of iconic encoding in ASL, including pointing to physical entities, metonymy (i.e. imitating shape, movement, outline, size or number) and temporal ordering. She suggests that the high degree of iconicity in ASL may be due to the lack of generational transfer (cf. Johnston 2010:107). Brennan (2005) similarly notes that BSL has a high degree of iconicity, concluding that this allows sign language to “incorporate information about the visual world in a more automatic and regular manner than spoken languages” at all linguistic levels (phonological, morphological, lexical, syntactic and discursive). Both Wilcox and Brennan argue that sign language incorporates *metaphor sets*, i.e. signs related to each other by an underlying metaphor. Similar metaphor sets exist in ISL (cf. Leeson & Saeed 2012). SASL also exhibits metaphor sets of iconic signs, e.g. THINK, REMEMBER, IDEA cluster around the head, specifically the temple.

2.5.3.2 Non-lexicalised items

In any minority language, certain items are not lexicalised. In sign language, proper nouns (of people, places and organisations) and terms are often not lexicalised or the existing sign is relatively unknown (Bidoli 2002:177; Takagi 2006:29). According to Pöchhacker (2007:133), media broadcasting incorporates a high percentage of proper nouns, as well as abbreviations, acronyms and jargon (political and economic). The interpreter has to either finger-spell these items which takes time, or use a lesser known sign (if it exists) at the risk of not being understood (cf. Bidoli 2002:177-178). Napier (2002:281-301) finds that sign language interpreters resort to fingerspelling or signed English when the *lexical density* (defined as the percentage of words with lexical properties in a sentence) is high or when specialised vocabulary is used. According to Napier and Barker (2004:228-238), Deaf audiences prefer finger-spelling for terminology over natural signs (cf. Napier et al. 2006). However, Erlenkamp et al. (2011) observe that hearing interpreters tend to over-use fingerspelling. On the other hand, Takagi's (2006:29) suggestion of the establishment of a dedicated website to disseminate natural signs for terminology is becoming a reality in the form of online sign banks (cf. Napier 2011).

Two other strategies used to compensate for non-lexicalised items include borrowing from another sign language (e.g. ASL into SASL) or the use of an invented sign, termed a *nonce* sign, which is utilised for the duration of an interpretation by first finger-spelling the item, then producing the sign (Leeson 2005a:271). Occasionally nonce signs become part of the lexicon (Leeson 2005a:272). Both borrowings and nonce signs, however, meet with disapproval from Deaf audiences (Leeson 2005a:276), especially if introduced by hearing interpreters.

2.5.3.3 Productive lexicon

More than the established lexicon, the productive lexicon is grounded in physical representation of events or things. Over time, items in the productive lexicon can become conventionalised (cf. Johnston 2011:33; Leeson & Saeed 2012), e.g. pronouns may have started out as deictic gestures, but became established signs (cf. Liddell 2003). To the best of the researcher's knowledge, the productive lexicon, iconicity and gesture for SASL have not yet been studied; hence, this work represents the first attempt to identify items belonging to these categories.

The productive lexicon consists primarily of the use of classifiers, creative combinations or adaptations of iconic metaphors and gestures. Classifiers are used extensively in descriptive verbs and role-play, whereas creative use of established iconic signs are used to express new technology, e.g. MICROWAVE in ASL, ISL and SASL draws on the EMIT metaphor (cf. Leeson & Saeed 2012:136).

Sign languages also include gestures. Gestures bridge the gap between linguistic units and biological reactions, being able to function as both. Unlike signs, gestures rely on context for comprehension (Johnston 2011:12). According to Segouat & Braffort (2009:66), Deaf people use a more complex gestural structure than hearing people, since the Deaf community has gestures relating to in-group *cultural identification* as well as stylised *gestural actions*. Gesture categories include cultural gestures used in the (Deaf and hearing) communities, dimensional gestures to reflect the size of objects, emphasis gestures that reflect the importance or intensity of an event, gestures that reflect personal viewpoints, creative metaphorical expressions and conversational regulators (e.g. to signify turn-taking) (Liddell & Metzger 1998). NMFs, e.g. head tilts or facial expressions, can also be used as gestural actions (Sandler 1999).

The productive lexicon allows an interpreter to use a single sign or sign sequence to interpret a large amount of spoken discourse, which considerably facilitates production speed. However, the interpreter may then appear to be “doing nothing” at times (Bidoli 2002:177; Liddell & Metzger 1998:696; Wulf & Dudis 2005:330). As Shlesinger (2000a:9) notes, the norm of continuous output is so strong that audiences lose confidence in simultaneous interpreters when there is a gap in the production, so the interpreter therefore has to pace herself carefully. In terms of Gile’s (1995) model, the resulting increased attention to production then limits the capacity of the other efforts.

In the next section, the discourse structure of sign languages is addressed.

2.5.4 Discourse structure

Because SASL syntax is discourse-based, a grasp of the essentials of discourse structure is required in order to understand SASL syntax. Sign language discourse structure is expressed lexically by means of specific signs, non-lexically by means of NMFs and spatially using signing space. Discourse devices include topic marking, register variations, reference and the use of grounded blends for constructed action and dialogues. Apart from topic marking,

discourse structure has not been studied for SASL and therefore this section relies heavily on the work done in other sign languages.

2.5.4.1 Topic marking

SASL follows a theme-rheme structure (cf. Akach 1997:30; Prinsloo 2003), as does ASL (Baker-Shenk & Cokely 1981:156; Liddell 1980), ISL (Leeson & Saeed 2012:170) and BSL (cf. Edwards 2006:42; Stone 2010:6). According to Leeson (2005b:261), topic-marking is also characterised by sociological variation. However, whereas both ISL and ASL have strong SVO patterns at sentence level with topicalisation done at text level (Leeson & Saeed 2012: 168), in SASL topicalisation occurs at both textual and sentence level (cf. Thibologa 2013).

Topic-marking is usually done with the aid of NMFs. Although the actual devices vary from language to language (or even from dialect to dialect as Leeson (2005b) suggests), the most common NMF-based topic markers include head tilts, raised eyebrows and wide-open eyes (cf. Baker-Shenk & Cokely 1981; Neidle et al. 2000; Liddell 2003; Leeson & Saeed 2012). Topics can also be expressed lexically by making prior explicit announcements, e.g. “About my car” = INDEX-me ABOUT MY CAR, CAR (Leeson & Saeed 2012).

Discourse topics are also signalled and controlled using *buoys*, i.e. classifier handshapes held by the non-dominant hand throughout the relevant discourse. According to Liddell (2003:223), buoys guide the discourse by serving as conceptual landmarks, i.e. visible reminders in signing space of the discourse theme. For ASL he lists *fragment buoys*, in which a persistent non-dominant held classifier expresses salient features (i.e. metonymy) related to the discourse topic for succeeding (one-handed) signs on the dominant hand; *theme buoys* in which the non-dominant classifier comprises the INDEX sign as a reminder of the discourse structure, *list buoys* in which the non-dominant classifier performs the function of ordinals (firstly, secondly, etc.) and *pointer buoys* which link the discourse to a conceptual map previously established in the signing space (Liddell 2003; cf. Leeson & Saeed 2012:198-207).

If the interpreter is interpreting from an SVO structure⁵ where the topic may be implied or the object, reorganising discourse into a theme-rheme structure requires considerable effort and prior knowledge of the discourse structure at higher levels than sentence before interpreting

⁵ Some researchers make the erroneous assumption that all spoken languages are SVO. Languages such as English and Mandarin that have limited or no morphological inflection must mark parts of speech syntactically, e.g. using SVO structures, whereas the syntactic structures of inflected languages such as Russian are flexible.

can effectively take place. The interpreter may therefore choose to predict the topic (and possibly have to correct it later), or alternatively to increase her lag time with resulting increasing stress on short-term memory and production time. An interpreter may therefore simply choose to stick to a strictly SVO structure. According to Neidle et al. (2000:150), since ASL is built on hierarchical SVO structure, discourse based on SVO structures should still be comprehensible to American Deaf audiences. However, this contradicts the perceptions of Stone's (2009:107) British BSL Deaf viewers, who complained that great effort was needed to comprehend interpretation that had not been restructured and rephrased. Similarly, SVO structures may produce unnatural constituent ordering in SASL unless the subject is also the topic (cf. Tibologa 2013; Vermeerbergen et al. 2007).

2.5.4.2 Register variations

Initially it was assumed that sign languages only used a fairly informal register. However, the existence of passives in sign languages (see Section 2.5.5 below) allows a continuum of different syntactical constructions, which in turn allows the expression of multiple registers (cf. Janzen et al. 2001:282). Research has also shown that different registers can be expressed in ASL by using different areas of signing space (Deumert 2009:404), different degrees of facial expression (Baker-Shenk & Cokely 1981:94), lexis (Valli & Lucas 2000:440), the use of one or both hands (Sutton-Spence & Woll 2005), closeness of signs to the body and degree of exaggeration (Deumert 2009:404). (However, Leeson (2013) points out that the latter two features may also simply be dictated by pragmatic concerns of the venue setting. Signing size can be compared to voice amplitude in spoken languages, which can be used to express different registers or modalities but may also simply be due to practical necessity.) According to Stone (2010:4-5), register variation in BSL is expressed by using different mouthings or mouth shapes. Register variation in SASL has not yet been studied.

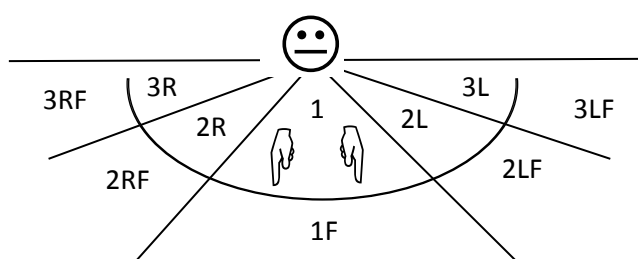
Bidoli's (2002:174) claim that formal register (e.g. in prepared speech) presents a challenge to sign language interpreters is based on outdated notions that sign language has less register variation than spoken language. It is probable that hearing interpreters are simply less aware of the subtle devices used by Deaf signers to signal a range of registers (cf. Deumert 2009:404). Goswell (2011:75) also notes that sign language interpreters tend to restructure higher registers into simpler sentence structures at lower register.

2.5.4.3 A reference system

The area in front and to the sides of the signer, known as the *signing space*, is used as a reference system to indicate grammatical relations, the passage of time and the relative position and significance of objects (cf. Braffort et al. 2010:453; Lombard 2006:26; Neidle et al. 2000:36). The signer introduces a particular person, place or object and then deixically establishes a particular location for it in the signing space. This assigned location in signing space is termed a *locus* (Liddell 1990). Once identity and location is established (termed *placing*), the person, place or object may subsequently be referred to by the signer simply by pointing to and/or looking at the designated area (Neidle et al. 2000:31).

The different areas of signing space are illustrated in Figure 2.2 below:

Figure 2.2: Areas of signing space



As is shown in the figure, there are ten main areas of signing space (my markings, cf. Paabo et al. 2009:421). The signing space is used as a conceptual stage to map events that occur in the real world (Liddell 1990; cf. Leeson & Saeed 2012), in which case the locus is said to have a three-dimensional function (Liddell 1990). Besides the signing space, the signer's body can also serve as locus (Liddell 1990), in which case the locus is said to have an articulatory function (Liddell 1990).

Another means used by sign languages to reference items relative to each other is to use a classifier for the *ground*, i.e. the bigger, background item (Özyürek et al. 2009:1). The classifier handshape (sometimes referred to as the classifier predicate) usually encodes specific semantic features of the entity it represents, e.g. shape. The *figure*, i.e. the smaller entity that is the topic of discussion, is then encoded as a classifier, sign or part of a sign, the relationship between figure and ground expressed by the spatial relationship of the two hands in signing space. The dominant hand is usually used to represent the *figure* and the non-dominant hand, the *ground*. Usually the ground is established first (Özyürek et al. 2009:2). Sign languages also have non-iconic means to express spatial relationships, e.g. NEXT-TO (Özyürek et al. 2009:4).

In order to be understood, an interpreter must establish and use references correctly in signing space. If an interpreter fails to designate a location because of time constraints, any subsequent reference must be re-designated and possibly re-spelt (if non-lexicalised), which is time-consuming (Liddell & Metzger 1998). Sign languages are often also more explicit than spoken language in referencing objects in that they usually require a specific time-place relationship between the sign and locations of people or objects (Koizumi et al. 2002). This can lead to difficulties in interpreting if the ST does not indicate this relationship.

2.5.4.4 Role-shift

The visual modality of sign language allows a signer to role-play more than one character simultaneously by modifying facial expression, body posture and style of signing (Goswell 2011:64; Lombard 2006:27; Prinsloo 2003:10; Vermeerbergen 1997:25). This has been termed role-shift (Padden 1990), role-play (Meier 1990), role-switch (Mandel 1977) and reference-shift (Poulin & Miller 1995) and can involve single signs, brief facial expressions or whole clauses (Goswell 2011:64). Even inanimate referents may be accorded animation (Johnston 2011:49). If role-shift extends over clauses, the non-dominant hand is often held in a classifier *buoy* that defines the theme for the duration of the role-shift (Goswell 2011:80; cf. Johnston 2011). Role-shifting is also used as discourse device in SASL (Aarons & Morgan 2003; Akach 1997:31).

Signers use reference-shifting to express the actions or attitudes of another (cf. Leeson & Saeed 2012). According to Engberg-Pederson (1993), three main reference shifts can occur in Danish Sign Language. Firstly, the signer can represent reported speech by referring to pronouns from another's point of view (termed *shifted reference*). Secondly, the signer can use his/her own face and body to express the attitudes of another (termed *shifted attribution*). Thirdly, the signer can use his/her own locus (situated directly in front of the signer and which is primarily used to reflect the signer's own attitudes or actions) to reflect those of another, while expressing his/her own actions from a non-primary locus, e.g. from the side (termed *shifted locus*). This device accords the signer 'observer status' on an event.

In role-shifting, signers can use *body partitioning* to convey multiple perspectives of a single event and to combine metaphorical and literal elements into a single scene (Liddell 1998; cf. Aarons & Morgan 2003; Wulf & Dudis 2005:317). In body partitioning, the head, facial expression, gaze and torso represent one referent, while the hands represent another (Johnston

2011:49; Leeson 2012:187). Aarons & Morgan (2003) show that SASL users frequently employ body partitioning to create multiple perspectives.

One way to examine role-shift is to base it on the concept of a *grounded blend*. Extending Giles Fauconnier and Mark Turner's (1998) concept of *blended mental space*, Liddell (1998, 2003) defined a *grounded blend* as a blending of elements of *mental space* with elements of the physical environment or *real space*. Setting and time is projected from the conceptual scene onto the current physical setting. Once reference is established in the signing space, the signer may role-play different characters in his narrative by modifying facial expression, body posture and style of signing while pointing or looking at the referential location (Liddell 1998; cf. Lombard 2006:27; Prinsloo 2003:10; Wulf & Dudis 2005:318). Elements of grounded blends include eye gaze, facial expression, body posture, head orientation, mouthing, gestures, body movement and shoulder shifts (Aarons & Morgan 2003:363; Johnston & Schembri 2007; Goswell 2011:64). Grounded blends are included in the Auslan corpus annotations (Johnston 2011:45). Johnston (2011:46-47) also distinguishes between *constructed action* (i.e. the signer selectively re-enacts a character's actions) and *constructed dialogue* (i.e. the signer quotes a character's utterance(s)) (cf. Goswell 2011:62).

According to Goswell (2011:63), interpreters infrequently use role-play, or when they do, they over-exaggerate features, whereas it is used frequently in original signing. Goswell (2011:81) observed interpreters using role-shift for reported speech, clauses with clear agents and active verbs, emotional states, nominalisation of verbal forms, complex concepts or higher register structures and passive clauses, i.e. role-shift was used as a way of unpacking information, possibly influenced by ST triggers. However, Goswell (2011:75) also finds that increased frequency of role-shifting did not correlate with perceived clarity of interpretation. On the other hand, according to Stratiy (2005:245), role-playing can be inappropriate and even insulting to Deaf audiences if it insinuates that there is "no principled linguistic way to convey the same material" or that the interpreter was an eyewitness to the scene.

2.5.4.5 Politeness strategies

As Savvalidou (2011) notes, correct interpretation of politeness strategies is important for correct understanding of political dialogue, which, in the news context, is evident in the speeches of political interviewees. A second consideration of the relevance of politeness strategies is the interpreter-audience relationship. As Stone (2009) observes, the tendency of hearing interpreters to distance themselves in terms of not making eye contact or appropriate

discourse blinking patterns was regarded as a deficit by his BSL Deaf respondents (cf. Leeson & Saeed 2012; Matthews & Foley-Cave 2004 for similar norms in ISL). Grice's (1975) conversational maxims of manner (i.e. coherence), quality (i.e. truthfulness), relation (relevance), quantity (sufficiency) and politeness (sensitivity to cultural norms) are relevant to both signed and spoken discourse (Akach 1997; cf. Savvalidou 2011; Leeson & Saeed 2012).

Discourse structure also includes conversational considerations such as sign names in the Deaf and turn-taking, which are not relevant to the context of TV interpreting. The reader is referred to Leeson & Saeed (2012) for a detailed discussion of these discourse strategies.

In the next section, the syntax of SASL is discussed in relation to other sign languages.

2.5.5 Syntactic structure

In this section, the syntactic structure of SASL and other sign languages is discussed in terms of its constituent components, the types of sentences most likely to be found and the use of NMFs in sentence construction.

2.5.5.1 Components of sign language sentences

Like spoken languages, sign language sentences comprise nouns, pronouns, verbs, adjectives, adverbs and prepositions (cf. Baker-Shenk & Cokely 1981; Leeson & Saeed 2012). Nouns are usually expressed lexically by a single sign (cf. Leeson & Saeed 2012). In SASL, proper nouns may be lexicalised (e.g. sign names and places that feature frequently in the Deaf world such as SPRINGBOKS (the national rugby team), MANDELA, CAPETOWN, JOHANNESBURG), finger-spelled in full (for surnames) or with phonological deletion (e.g. P-M-B for Pietermaritzburg), or expressed using calques (e.g. Grahamstown = GREY-HAM-TOWN) (cf. Leeson & Saeed 2012). Pronouns, used either deictically if the person is present or anaphorically if not, always refer to locations in the signing space (cf. Leeson & Saeed 2012). In SASL, pronouns have an informal form (pointing the index finger) and a polite form (i.e. pointing with the A-classifier), as well as common lexicalised plural forms. Verbs (of which there are three main classes, namely plain verbs, agreement verbs and classifier verbs) can be intransitive (e.g. CRY), transitive (e.g. NOT-BOTHER) or ditransitive (e.g. HELP, GIVE) (cf. Leeson & Saeed 2012) and are also categorized as main or auxiliary (cf. Leeson & Saeed 2012). Adjectives and adverbs are usually modulated by NMFs (cf. Leeson & Saeed 2012). Finally, although relations between nouns are usually expressed using figure-ground pairs

(see below), sign language also contain lexical items for prepositions, e.g. NEXT-TO, ACROSS-FROM.

2.5.5.2 Use of NMFs in sentence construction

Lexis and location are used together with NMFs to explicate sentence structure. For example, raised eyebrows and wide-open eyes are used in a number of sign languages to express topics, relative clauses, conditionals and yes/no questions, whereas frowning and eye narrowing is generally used to express interrogative wh-questions (Pfau & Quer 2007; cf. Johnston & Schembri 2007 for Auslan; Leeson & Saeed 2012 for ISL; Baker-Shenk & Cokely 1981; Neidle et al. 2000 for ASL). Eye gaze has also been shown to mark volition (i.e. modality) in ISL (Leeson 2001; cf. Leeson & Saeed 2012:170).

Head movements and to a lesser extent body movements are also used as grammatical markers. In ASL and ISL subject marking, the head is tilted towards the subject (Leeson & Saeed 2012; Neidle et al. 2000:65), whereas topic marking is often signified with a backwards head tilt (Baker-Shenk & Cokely 1981:157; Johnston & Schembri 2007:209; Leeson 2005a:261). Koizumi et al. (2002:928-9) also confirm that head and upper body movements mark syntactic and adverbial information and express modality in Japanese Sign Language (JSL), as well as being associated with specific signs. Similarly, Stone (2009:169) finds that Deaf BSL signers use head movements as discourse and syntactic cohesive markers, as well as frequent use of nods/shakes to affirm/negate lexical information. No empirical study of head movements exists for SASL, but according to Akach (1997:28), head movements are used in negation (side-to-side head shake), topic-marking (head tilt) and interrogation in SASL (head forward with slight lift).

Correct syntactic structure is vital to interpreting, corresponding to fluency in a spoken language. According to Stratiy (2005:236), hearing interpreters, especially non-CODAs, lack the subtle nuances in NMFs used instinctively by native signers. Moreover, Erlenkamp et al. (2011) found that interpreters who are used to forms of sign-supported speech produce incorrect or over-simplified syntactic structures.

2.5.5.3 Types of sentence constructions in sign languages

Through judicious use of NMFs, sign language express a wide spectrum of different types of sentence. Liddell (1980) and Baker-Shenk and Cokely (1981) laid the foundation for ASL in identifying statements, yes-no questions, interrogative (wh-) questions, rhetorical questions,

commands, conditionals, negation, assertion and relative clauses at sentence level (cf. Aarons & Morgan 2003; Baker-Shenk & Cokely 1981; Brennan 2005; Liddell 2003; Liddell & Metzger 1998; Prinsloo 2003:6-7; Wulf & Dudis 2005). They also categorised NMFs for expressing tense or distinguishing between subject and object. Debra Aarons (1994) consolidated the work of the above researchers by relating the various NMFs in ASL to generative grammar, concluding that the basic syntactic structure of ASL “conforms to the same fundamental pattern as other natural languages” (Aarons 1994:x). However, it must be noted that although there are similarities in the grammars of different sign languages, there is no universal sign language grammar (Johnston et al. 2007; Vermeerbergen et al. 2007).

Baker-Shenk and Cokely’s (1981) seminal textbook for ASL initiated grammars in other sign languages (e.g. Neidle 2000 for ASL, Leeson & Saeed 2012 for ISL). Although a grammar for SASL has yet to be published, their categorisations were used by Akach (1997) and Prinsloo (2003) to categorise SASL syntax (c.f. Penn & Reagan 1994). Since no corpus of authentic SASL discourse exists, these researchers base their correlations at best on isolated sentences. The question also begs whether the standardised version of SASL was constructed to fit ASL grammatical categories. For SASL, Vermeerbergen et al. (2007) found a wide range of syntax constructions. Although the flexible nature of sign language allows some freedom of constituent order, their observation that the constructions produced by their White Afrikaans participant consistently differed from those used by other participants contradicts Penn and Reagan’s (1994) claims of grammatical unity.

As noted above, theme-rheme structure (i.e. topic-comment) is a strong syntactic norm in SASL (Thibologa 2013). In short sentences where the object is the topic, the comment is usually in SV form, e.g. “I like swimming” is rendered as SWIM (topic), I LIKE (comment) (Thibologa 2013). If the subject is the topic, the SVO structure is usually retained, especially if the verb is directional, e.g. BOY (topic) PUSH GIRL (Vermeerbergen et al. 2007:45). Even wh-questions can be regarded as theme-rheme structure, e.g. “How can I help you?” = I HELP YOU (topic), HOW (comment). Additional information is given last, e.g. “I pack my clothes in a bag” = MY CLOTHES (topic) I PACK (comment) BAG (additional information) (cf. Thibologa 2013). This order is confirmed for both reversible and non-reversible simple sentences by Vermeerbergen et al. (2007).

A second type of SASL structure specifies the relative locations or actions between two nouns (e.g. subject-object or figure-ground) as the comment. Vermeerbergen et al. (2007) found that simultaneity in expressing locative constructions is much stronger in SASL than in Flemish

Sign Language. According to Leeson and Saeed (2012), a high level of simultaneity is also evident in ISL constructions. In locative constructions, the ground is introduced first for convenience because it is usually represented by a classifier buoy held on the non-dominant hand in the relationship comment, e.g. “The cat is on the chair” = CHAIR (ground), CAT (figure), vc:cat-on-chair⁶ (cf. Vermeerbergen et al. 2007:37), whereas in subject-object constructions the topic is foregrounded, e.g. “The girl eats the cake” = GIRL (topic), CAKE (non-topic), vc:eat-cake (cf. Vermeerbergen et al. 2007:40). If the signer has to specify the location of the topic/ground in signing space in this type of construction, this is done immediately after introducing it. Likewise, if the signer chooses to specify both relative location and action comments, the location is prioritised, e.g. BOY vc:boy_location GIRL vc:girl_behind_boy vc:comb_hair (Vermeerbergen et al. 2007:47). As Vermeerbergen et al. (2007:40,44) observe, the location may be replaced by a descriptive specifier that serves to distinguish the two nouns, e.g. BOY (topic) SIT (specifier at location a), MOTHER (subject) STAND (specifier at location b), COMB (relative action at location a). Vermeerbergen et al. (2007:37) also observe that a different syntactic structure is used when the preposition is lexicalised, e.g. VASE (topic) NEXT-TO PS (points at location) FLOWER. Apart from the rather unusual topicalisation for this sentence, it is argued that lexicalised prepositions should be considered verbs of existence, i.e. NEXT-TO = IS-EXISTING-NEXT-TO, which would render this sentence SVO⁷.

A third type of sentence evident in sign languages is the passive construction, where the agent is absent or demoted (cf. Janzen et al. 2001:282). In ISL, passive constructions are signalled by simultaneously averting the eye-gaze to show lack of volition (Leeson & Saeed 2012). According to Janzen et al. (2001:282), actives and passives should be regarded as poles of a continuum of energy flow from agent to patient, rather than mutually exclusive categories.

The following section addresses the fifth research question regarding interpreting quality.

2.6 Interpreting quality

In this section, the impact of the interpreting process on the structure and therefore on the coherence of the TT is discussed in terms of four themes characteristic of T/I research,

⁶ Using Vermeerbergen et al. (2007) annotation. In the corpus annotation for the present study this would be represented as CHAIR, CAT, CAT@CHAIR (See Chapter 4.X).

⁷ Similar to Russian, verbs of existence in the present tense are not lexicalised in SASL, although lexical constructions are available for other tenses. For example, “My mother is a teacher” = MY MOTHER – TEACHER.

namely norms, strategies, shifts and common interpreter errors. It also attempts to place sign language interpreting norms, strategies, shifts and errors within the broader context of those in Interpreting Studies in general. To the best of the researcher's knowledge, this study constitutes the first attempt to investigate sign language interpreting quality in South Africa; hence it relies heavily on research undertaken in other parts of the world in order to explore the themes above with respect to sign language interpreting.

2.6.1 Norms: what simultaneous interpreters should do

As Interpreting Studies developed as a separate discipline, norms (i.e. standards) defining interpreting quality began to appear in the literature. The prevalence of interpreting norms can be explained by the fact that audience expectations governing product quality tend to be more prescriptive for interpreting than for translation. Riccardi (2002:23) identifies four general areas of norms relevant to user expectations of interpreting quality, namely delivery, language, content, and professional skill. These norms are considered pertinent to all interpreting settings, not only media interpreting.

Firstly, in **delivery**, the interpreter is expected to maintain a high standard of prosody (Riccardi 2002:23), which for sign language means well-formed signs, correct use of non-manual features to create intonational and phonological units and good contrast of the hands with background clothing and colours (Camayd-Freixas 2011; Lombard 2006; Stone 2009). The interpreter should also pace herself, using smooth, regular rhythm that is neither too fast nor too slow (Riccardi 2002:23), beginning and ending almost at the same time as the source speaker (Dufrou 2007; Fleming 2003). Production of lexical items such as proper names, numbers and acronyms should be clear and pauses (filled or empty), false starts and repetitions kept to a minimum (Camayd-Freixas 2011). The interpreter is expected to assume the role and voice of the speaker, "adopting the delivery, tone and convictions of the speaker and speaking in the first person" (ECDGI 2005; cf. Camayd-Freixas 2011; Dufrou 2007) As Pereira & Fronza (2011:39) note, the term *fluency* is derived from the Latin *fluens*, to flow; thus a regular and confident flow of speech is taken as indication of language and sociocultural skills. Kurz (2001:406) finds that audiences prioritise accent, voice and fluency even over accuracy. In his study of comprehension of BSL sign language interpreters on British TV, Steiner (1998) finds that viewers trust signers who assume an air of confidence and mastery of BSL and perceive them as accurate interpreters. Mack (2002) records a similar trust of the integrity of fluent and confident TV interpreters for spoken languages. One aspect

of the fluency norm is the tendency to smooth or correct ST production problems such as hesitations, stutters or slips (Van Besien & Meuleman 2004:65; Marzocchi 2005:104; Shlesinger 1991). Other delivery norms reported in the literature specifically for signed media interpreting include clear mouthing of key terms and not moving around while interpreting (Antonsen 2006:104-5).

In terms of **language** use, the norm for both spoken and sign language interpreting is native or near-native proficiency at lexical (in terms of standard and technical vocabularies), syntactic (in terms of correct grammatical and syntactic markers such as facial expression, head/body movements and eye gaze) and discourse levels (especially in terms of good referencing techniques using eye gaze and deixis correctly) (Antonsen 2006:104-5; Pereira & Fronza 2011:39; Riccardi 2002:24; Stone 2009:111; cf. Camayd-Freixas 2011; Pöchhacker 2002:97). This norm is reflected in the Sign Language Proficiency Interview (SLPI) which is used as the standard assessment tool in the USA (cf. Caccamise & Newell 2011). Moreover, Kurz (2001:406) shows that although fluency ranks above language variables, logical cohesion, completeness, correct grammar and a broad vocabulary of terms are nevertheless regarded as important by audiences, since poor language skills also hamper fluency. Therefore, SL interferences are considered errors in interpreting if they distort the TL syntax. Pereira and Fronza (2011:38) note that Deaf audiences often conflate language proficiency with interpreting proficiency (cf. Antonsen 2006:104). Thus, *domestication* and equivalent effect (i.e. *dynamic equivalence*) (cf. Nida & Taber 1974:25-32; Venuti 1995) are reflected in terms of language use as a strong *idiomaticity* norm, i.e. using natural TL expression and functional equivalents for culture-specific ST items such as humour, forms of address, idioms and intertextual references (Pöchhacker 1995a:49; Marzocchi 2005:95; cf. Baker 2011:51) for both spoken (Camayd-Freixas 2011; Duflou 2007) and signed SI (Stone 2009:165-174). Hence foreign or invented signs and sign-supported speech should be avoided (Antonsen 2006:105; Leeson 2005a:276; Stratiy 2005:238; Strong & Rudser 1985:351).

In terms of **content**, the *verbatim norm* – i.e. equivalence-based interpreting – from court interpreting also influences SI (Marzocchi 2005:99; Wallmach 2000:218). Thus omissions, additions and changes to the ST are often considered errors in terms of the high priority given to accuracy as an interpreting norm (cf. Barik 1975; Cokely 1992; Moser-Mercer 1996; Riccardi 2002; Ortiz 2011), although *strategic* alterations or reformulations are deemed acceptable provided they do not alter the sense of the message (cf. Riccardi 2002:25; Strong & Rudser 1985). However, according to Kurz (2001:406), users of spoken language

conference interpreters rate sense consistency higher than all other criteria, including accuracy. Hence, a more balanced approach is that of Camayd-Freixas (2011), who defines the SI norm as extracting the meaning of the ST in order to build up a mental model or *schema* rather than focussing on lexical items (but distinguishes the *strategy* of adhering as far as is grammatically possible to the ST syntax as a means of reducing stress and fatigue). He notes that the accuracy norm of translation is replaced in SI for one of communicative adequacy (2011:11). For sign language interpreting, Stone (2009:167) argues that the Deaf norm prioritises restructuring and retelling the ST from a Deaf person's perspective, i.e. that domestication dictates content as well as language (cf. Napier 1998). Thus strategies such as judicious addition of information that is implicit in the ST or visual footage, utilisation of natural sign language implicature and omission of irrelevant information in order to create a coherent, comprehensible message are encouraged (Antonsen 2006:104-5; Stone 2009:86,172). The sign language interpreter, therefore, is expected to act as information and cultural *gate-keeper* (Stone 2009:45, 85). Thus restructuring and gate-keeping norms take priority over norms of accuracy and faithfulness to the message (Stone 2009:85,167-8).

Also in terms of content, the interpreter should also be sensitive to cultural mismatches between source and target cultures and adjust accordingly (Strong & Rudser 1985:350). Pöchhacker (1995b:49) notes that SI interpreters are not always successful in adapting culture-specific ST items to target culture conventions (cf. Marzocchi 2005; Savvalidou 2011). However, Alexieva (2002:230) observes that the wider the assumed audience, the less intrinsically culture-specific the ST, i.e. that source language senders tend to modulate the amount of culture-specific references they incorporate in their speech according to their perceptions of the audience for whom the speech is intended. For example, conference speeches aimed at multinational, multicultural audiences tend to have markedly few culture-specific references. It can thus be expected that references to shared cultural experiences of being South African would be present in the TV broadcasts. Marzocchi (2005:95) proposes that interpreters choose between an initial norm of *documentary* or *instrumental* interpreting (cf. Nord 1997:50), corresponding to Venuti's (1995) norms of *foreignising* versus *domestication* or House's (1981, 2011) norms of *overt* versus *covert* translation, suggesting that interpreters choose a more documentary approach for large audiences where a supranational culture is assumed (cf. Dose 2012).

In terms of **professionalism**, (i.e. aspects of competence and strategies), according to Riccardi (2002:25), the interpreter should be able to anticipate using linguistic or knowledge

assumptions, divide attention between all efforts successfully, maintain good eye-contact and posture and make appropriate use of strategies in order to adequately meet the communicative goal. From a *functionalist* perspective, according to Setton (2002:41), the simplest measure of good interpreting is user satisfaction. If possible, prior preparation is important since the interpreter must be able to build up an adequate mental image of the scene (Stone 2009:169; cf. Antonsen 2006:104-5; Montgomery 2007). Regular self-examination is recommended (Antonsen 2006:104; Camayd-Freixas 2011). Sign language interpreters should also regularly liaise with Deaf advisory groups as part of their professional obligations (Antonsen 2006:105; cf. Leeson 2005a:276; Stratiy 2005:248).

The conduit image (cf. Roy 2000; Swift 2012) and the strong norm of interpreter *neutrality* derived from court interpreting (Roy 2000:101; cf. Jansen & Korpiniski 2005:185) still influence SI. However, according to Camayd-Freixas (2011), the interpreter's delivery should succeed in establishing rapport with the audience and not sound like a soliloquy. *Identification* – i.e. empathetic and non-distant communication with the target audience – is a strong Deaf norm (Stone 2009:85). The Deaf norm advocates a non-neutral onscreen presence, i.e. the interpreter is expected (through head movement, eye gaze and blinking patterns) to establish rapport with her audience and greet or address them directly (Stone 2009:85). The identification norm and the specific use of space in sign languages also mean that the Deaf interpreting norm prefers using the third person and referencing techniques (Stratiy 2005:246) instead of the spoken language norm of using the first person (Harris 1990; cf. Jones 1998:5). According to Stratiy (2005), if a sign language interpreter uses the first person, a Deaf audience assumes she is literally referring to herself. Meaning is then sacrificed in the cognitive effort required to understand the reference. However, since constructed action and dialogue are familiar concepts in signing, it is suggested that what is possibly confusing is not the first-person norm, but the lack or incorrect use of NMFs to indicate constructed action/dialogue.

In the next section, interpreter strategies are discussed.

2.6.2 Strategies: what interpreters think they are doing

Lörscher (1991:76) defines a strategy as “a potentially conscious procedure for the solution of a problem which an individual is faced with when translating a text segment from one language into another”, thereby acknowledging that strategies are sometimes instinctive or subconscious. In contrast, Kalina (1998) regards strategies as deliberate decisions. As

Bartłomiejczyk (2006:166) notes, communicative strategies are mainly problem-oriented (i.e. towards solving an interpretation difficulty) rather than product- (i.e. directed towards language norms) or ST-oriented (i.e. directed towards equivalence norms). Bendazzoli et al. (2011) note that interpreters must process and strategise both vertically in order to produce a fluent message and horizontally to produce equivalents.

In accordance with Gile's notion of efforts, strategies used by SI interpreters are classified either as *comprehension strategies* if they relate to how interpreters manage the incoming message or *production strategies* if they relate to how interpreters manage the outgoing message (Bartłomiejczyk 2006:164; Færch & Kasper 1983; Kalina 1998; Riccardi 2002:26).

Firstly, *comprehension strategies* involve knowledge activation, anticipation and information segmentation. They include:

- *active listening*, i.e. the interpreter follows “the thread of meaning without fixating on words” (Camayd-Freixas 2011) in a top-down approach;
- *visualisation*, i.e. building up a mental image of the scene (Bartłomiejczyk 2006:164; Camayd-Freixas 2011; Seleskovitch 1978);
- *term identification*, i.e. the interpreter identifies key terms which must be translated (Camayd-Freixas 2011);
- *empathetic analysis* or personal involvement, i.e. the interpreter interacts with the information, assuming the speaker's identity (Camayd-Freixas 2011; cf. Bartłomiejczyk 2006:164);
- *inference*, i.e. reconstructing a segment based on context (Gile 1995; cf. Bartłomiejczyk 2006:164; Kalina 1998);
- general knowledge; i.e. reconstructing a segment based on the interpreter's knowledge on a topic (Bartłomiejczyk 2006:164);
- personal association, i.e. the interpreter recalls an event from memory or from the context of previous experience (Bartłomiejczyk 2006:164);
- *anticipation*, i.e. the interpreter predicts (based on context, inference, syntax, discourse genre or prior knowledge) what the speaker will say (Al-Salman & Al-Khanji 2002; Bartłomiejczyk⁸ 2006; Camayd-Freixas 2011; Chernov 2004; Donato 2003; Gile 1995; Kalina 1998; Wallmach 2000);

⁸ Bartłomiejczyk (2006) distinguishes between anticipation as a comprehension strategy and as a product shift (i.e. a TT segment appearing prior to the ST segment) (cf. Jörg 1997; Kalina 1998; Van Besien 1999).

- *segmentation* or *chunking* (Bartłomiejczyk 2006:164; Camayd-Freixas 2011; Kalina 1998; Katan 1999) at the level of sign, phrase (e.g. collocations, proverbs, fixed expressions and idioms), sentence or text (cf. Jones 1998:78);
- varying the lag time (also referred to as *ear-voice span* or *décalage*), i.e. either extending it in order to receive more information (what Camayd-Freixas (2011) refers to as *queuing*), or decreasing it in order to relieve stress on memory efforts (what Camayd-Freixas (2011) refers to as *heeling*) (cf. Bartłomiejczyk 2006; Donato 2003; Gile 1995; Kalina 1998);
- *collaboration*, i.e. informing the audience of interpreting difficulties (Duflou 2007; Gile 1995; Swift 2012).

Secondly, *planning* or *production strategies* involve reformulating the ST message (Riccardi 2002:26). These include:

- *addition* or *expansion*, i.e. the interpreter adds information that she feels is not available to the target audience, e.g. culture-specific items (Bartłomiejczyk 2006:164; Donato 2003; Kalina 1998; Klaudy 2009; Ortiz 2011:54; Stone 2009; Wallmach 2000);
- *explicitation*, i.e. the interpreter adds information that is implicit in the source message (Baker 1995; Gumul 2006; Stone 2009);
- *adequate approximation*, i.e. the interpreter retrieves a synonym instead of an equivalent (Al-Salman & Al-Khanji 2002; Bartłomiejczyk 2006:164; Camayd-Freixas 2011; Kalina 1998; Wallmach 2000);
- *compression*, *condensation* or *filtering*, i.e. the interpreter expresses a longer segment more concisely (Alexieva 1983; Al-Salman & Al-Khanji 2002; Bartłomiejczyk 2006:164; Camayd-Freixas 2011; Shlesinger 2000a,b), including compressing subsequent sentences into clauses to avoid sentence completion (cf. Riccardi 1996, 1998; Wallmach 2000);
- *generalisation* or *chunking up*, i.e. substitution with a superordinate (Bartłomiejczyk 2006; Gile 1995; Kalina 1998; Russo et al. 2006; Sandrelli & Bendazzoli 2005);
- *chunking down*, i.e. substitution with a hypo-ordinate (Gile 1995; Katan 1999);
- *omission* or *skipping*, i.e. the interpreter omits information that she regards as redundant, not transferable or stylistically awkward (Al-Salman & Al-Khanji 2002; Antonsen 2006; Baker 1992; Bartłomiejczyk 2006:161; Camayd-Freixas 2011; Delabastita 1993; Donato 2003; Stone 2009);
- *neutralisation*, i.e. replacing a ST element with a more neutral term or phrase (Bartłomiejczyk 2006:164; Kalina 1998);

- changing the order of elements, e.g. of a list of items (Bartłomiejczyk 2006:164; Gile 1995);
- *paraphrase*, i.e. translating a term using a descriptive phrase (Baker 1992; Bartłomiejczyk 2006; Gile 1995; Wallmach 2000);
- *syntactic reformulation*, i.e. the interpreter rephrases the information in a form dissimilar to the ST syntax (Bartłomiejczyk 2006; Napier 1998; Leeson 2005a; Wallmach 2000);
- *transcoding* or literal interpretation; i.e. the interpreter relies heavily on the ST syntax (Al-Salman & Al-Khanji 2002; Bartłomiejczyk 2006:164; Camayd-Freixas 2011; Donato 2003; Gile 1995; Wallmach 2000);
- *parallel reformulation*, i.e. inventing TL segments on the basis of logic and context when the ST has not been heard or understood (Bartłomiejczyk 2006; Gile 1995; Ortiz 2011);
- *reproduction* or *borrowing* a word or phrase from the SL or ST (Wallmach 2000; Bartłomiejczyk 2006; Gile 1995; Wallmach 2000, 2004);
- transfer, i.e. using TL words that are etymologically or phonetically related to the ST word (Bartłomiejczyk 2006:164);
- *instant naturalisation* (Gile 1995) or *word creation* (Bartłomiejczyk 2006), i.e. creating a neologism or an indigenised loanword (Baker 1992; Delabastita 1993; Wallmach 2000; Wallmach & Kruger 1999);
- resisting transfer, i.e. “suppressing lexical interference” (Gernsbacher & Shlesinger 1997) by choosing a word that dissimilar in form to the ST word (Bartłomiejczyk 2006:164);
- pause distribution (Kalina 1998);
- intonation (Kalina 1998);
- use of non-verbal means of expression (Kalina 1998);
- non-interpretation as an emergency strategy, i.e. switching off the microphone because the ST cannot be heard or understood (Gile 1995).

The fact that interpreters consciously adapt ST material shows that they possess what Napier and Barker (2004:369-393) term “high levels of metalinguistic awareness” or what Shlesinger (2000a:123) describes as “an internalised self-critical commentary” during the interpreting process. This means that interpreters often repair, i.e. the interpreter remedies what she considers is a misinterpretation (Bartłomiejczyk 2006; Bendazzoli et al. 2011; Camayd-Freixas 2011; Ilic 1990; Kalina 1998; Levelt 1983; Petite 2003, 2005; Van Besien & Meuleman 2004). This includes offering second translations of terms or reformulating badly-structured sentences (Camayd-Freixas 2011). The interpreter may also make a conscious decisions not to repair (Bartłomiejczyk 2006:164).

In the next section, interpreter decisions are discussed in terms of shifts, i.e. differences between the ST and the interpretation viewed as a completed product.

2.6.3 Shifts: what interpreters are doing

Research has shown that translations systematically differ from original writing. Referred to as *translation universals* (Baker 1993), *translationese* (Newmark 1991) or a *third code* (Frawley 1984), these phenomena include *ST interference* (Toury 1995), *simplification* (i.e. shortening discourse or using more general words), *explicitation* (i.e. expanding discourse by making explicit information implicit in the ST), *normalisation* (i.e. standardisation of unusual lexical variations, collocations and culture-specific items), *conventionalisation* (i.e. overcompensation of TL features) and *conservatism* (i.e. standardisation and modernisation of grammatical and discourse structures) (Baker 1993; Blum-Kulka 1986; Shlesinger 1989, 1994). Evidence for Toury's (1995:275) law of *growing standardisation* (i.e. conformity to the universals of *normalisation*, *conventionalisation* and *conservatism*) was demonstrated empirically in translations (cf. Dayrell 2008; Kenny 1998; Laviosa-Braithwaite 1995; Malmkjaer 1998; Munday 1998; Overas 1998; Sarma 2008; Vanderauwera 1985). Evidence for Toury's (1995:275) law of *interference* was also demonstrated empirically (cf. Balsakó 2008; Eskola 2004; House 2006; Mauranen 2000, 2004; Nillson 2004; Tirkkonen-Condit 2002, 2004).

Although scant in comparison, empirical research similarly indicates that interpretations also display what Shlesinger (2008:252) terms *interpretese*. Typical features include differences in cohesion and intonation patterns, type and frequency of pauses, plan changes, lexical and morphosyntactic interferences of the source language or ST and the preference for internationalisms (Riccardi 2002:22; Pöchhacker 1994:226; Kurz 1996; Kalina 1998; Setton 1999; Gile 1995; Salevsky 1993; Shlesinger 1994:226; Toury 1995:211). *Normalisation* and *conventionalisation* tendencies were observed by Hale & Gibbons (1999); Henriksen (2007) and Shlesinger (2008), whereas Jekat and Ehrensberger-Dow (2008:93-94) show that *ST interference* was evident in borrowings of lexical items (i.e. loan-words) from the ST (cf. Wallmach 2004) as well as incorrect TL grammatical structures. ST interference in SI is acknowledged as a characteristic feature of simultaneous conference interpreting due to the fast pace. Interference has been observed at phonological, lexical, morphosyntactic, grammatical and discourse levels (the last leading to breakdown in coherence) (Lamberger-Felber & Shneider 2008; Leeson 2005a:264; Riccardi 2002). Shlesinger (2000a:123)

demonstrates that *simplification* also occurs in interpreting, i.e. interpreters routinely opt for shorter word forms and more generic TL lexical items when cognitive overloading occurs (e.g. with fast speeches). Similarly, Leeson (2005a:60) recognises that sign language interpreters strategically simplify the message.

With the emphasis on the vital task of interpreter training, differences between ST and TT, termed *shifts* (cf. Toury 1980), initially regarded as errors, are increasingly viewed as tactical maneuvers – i.e. strategies – to optimise the load of obtaining and delivering information (cf. Bidoli 2009; Gile 1995; Moser-Mercer 1996; Napier & Barker 2004:369-393; Riccardi 2002; Savvalidou 2011:96; Strong & Rudser 1985:350). In his study on SI conference interpreting, Cokely (1992) found that at least one shift occurs per sentence. Shifts are classified as *omissions*, *additions*, *skewed substitutions* and *paraphrase/reformulations* (cf. Cokely 1992; Leeson 2005a:58-63; Savvalidou 2011; Shlesinger 2000a; Wadensjö 1998, 2002). (The term *paraphrase* is sometimes used in Interpreting Studies to indicate syntactic reformulations.)

The first researcher to identify **omissions** in sign language interpretations was Barik (1975:272-297). He identified omissions due to incomprehension, delay (i.e. bypassing to catch up) and compounding of clauses (i.e. contraction), but considered all omissions to be errors rather than strategies. Cokely (1992) defined omissions as *morphological* (e.g. where the singular instead of the plural form is used), *lexical* (where a word or short phrase is omitted) or *cohesive* (where the relationship between ideas is omitted). In both spoken and signed SI, the understanding developed from omissions as miscues (cf. Barik 1994; Galli 1990) to omissions as strategies (Garzone 2002; Gile 1989; Jones 1998; Kurz 1993; Moser 1996; Moser-Mercer 1996; Viaggio 2002; Visson 2005; Pym 2008; Shlesinger 2000). For example, Kurz (1993) found that target audience recipients of interpreting services prioritised target-language norms of coherence, cohesion and fluency above completeness of interpretation. Hence, developing Cokely's (1992) categories, Napier and Barker (2004:369-393) identify five types of omissions, namely:

- *conscious strategic omissions* (information omitted to enhance understanding);
- *conscious intentional omissions* (items omitted because the interpreter did not know the equivalent sign);
- *conscious unintentional omissions* (items omitted due to pace or load of information);
- *conscious receptive omissions* (items omitted due to bad quality of reception);
- *unconscious omissions* (items not noticed by the interpreter).

Only the first category can be considered strategic in terms of gate-keeping information, whereas the rest are coping strategies. Leeson (2005a:59) similarly observes that both strategic omissions and miscues occur and that strategic omission “can be successful only when interpreters deal critically with a text, guided by their knowledge of their audience and the intentions of the source language speaker”.

In SI, strategic omissions occur frequently. In spoken language SI, Shlesinger (2000a:104) observes that, given an input string with more than one noun modifier, interpreters routinely select one modifier and omit the rest. She notes that this was not simple avoidance of cognitive overloading, but norm-based selection of material. Pöchhacker (2007:140) found similar strategies in omissions of culture-specific items in media interpreting. On the basis of such evidence, Pym (2008:92-97) suggests that interpreters routinely omit chunks considered unimportant to the communication aim (= *low risk omissions*), but attempt to preserve those chunks that they consider important (= *high risk omissions*) provided time allows. Shlesinger (2000a:123) also notes that information segments were omitted when interpreters’ error rates increased due to very fast pace; i.e. when fluency requirements took precedence over commitments to maximise information.

Secondly, **addition** is the insertion of information not represented in the ST (cf. Cokely 1992). Barik (1975:272-297) identifies *qualifier additions* (i.e. explicitations), *elaboration addition* (the insertion of more elaborate, less justifiable expansions), *relationship addition* (introducing relationship between sentences) and *closure addition* (rephrasing or even misinterpretation which does not add meaning). Cokely (1992) on the other hand identified *non-manual* additions (where the interpreter creates meaning not present in the TL by the addition of an NMF), *lexical* additions (where a word or phrase is added to contextualise but may also introduce misleading information or unintended changes of meaning) and *cohesive* additions (which relate ideas that were not related in the ST).

According to Leeson (2005a:60), the explicit visual nature of sign language means that interpreters are forced to make decisions about the position, size, shape, movement and direction of motion of items when this information is not available in the ST. Such decisions are problematic since the interpreter’s possibly invented decision is accepted by the audience as true information about the item under discussion (cf. Stratiy 2005:245). Stone’s (2009:86) Deaf interpreters, however, note that they regularly enrich the TT with additional information as part of their communicative obligations. Other additions reported in the literature include

repetition both as a cohesive device (Valli et al. 2005:510) and as a stalling technique (Dose 2010), and the addition of emphasis words (Klaudy 2001).

Thirdly, interpreters also change material in terms of both content and relative position in the TT. Barik (1975:272-297) regards **substitutions** in sign language interpreting as semantic distortions or mistranslations. Cokely (1992) defines substitutions as “information that is at variance with the *intent* of the source language message” and classified them as *expansive* (if they introduce broader meanings than found in the ST), *restrictive* (if they introduce more specific meanings than the ST item) or *unrelated* (e.g. “plumber” becomes ENGINEER). Both regarded substitutions as errors, a view also held by Ortiz (2011:59). In contrast, the restructuring norm reported by Stone (2009) favours strategic change to the ST.

In the next section, common errors made by interpreters are examined.

2.6.4 Errors: what simultaneous interpreters do but shouldn't

Where equivalence between ST and TT is the norm, all shifts are regarded as errors (cf. Barik 1975; Strong & Rudser 1985; Cokely 1992; Setton 2002; Ortiz 2011). However, it is undeniable that simultaneous interpreters do make errors. These errors have been ascribed by researchers to the difficult nature of SI (Russell 2005:151-154), short lag times (Cokely 1992) and inadequacies in listening and analysis, memory, production and coordination efforts (Gile 1995). Cokely (1992) found that SI conference interpreters make serious errors at the rate of at least one in every two sentences.

Phonological errors in spoken language SI include truncations, mispronounced words, semantic and/or phonological blends, incorrect collocations, word exchange errors and morpheme exchange errors (Bendazzoli et al. 2011; Wallmach 2000), whereas in signed interpretation, Ortiz (2011:51) observes that late signers incorrectly produce one of the components of a sign so that it resembles another sign.

At discourse level, Savvalidou (2011:97) shows that interpreters miss implicit pragmatic information and can destroy pragmatic intent by incorrect application of strategies and insufficient attention to the form of the message. Interpreters also tend to overuse TL features (i.e. *conventionalization*). For example, Stone (2009) found that hearing interpreters blink too often, thereby damaging discourse structure. Referencing strategies are also problematic for interpreters. Stratiy (2005:246) observes that SI interpreters forget reference locations (i.e. they set up a referent in one location, e.g. on their right, but then refer to it in another location,

e.g. on their left) and also use locations that differ from those explicated by the source language speaker (e.g. reference a figure behind instead of in front of its ground). Metzger et al. (2006:56) observe that hearing sign language interpreters overuse deixis in referencing, but according to Stone (2009:111) they underutilise referencing visual information in the main picture and also tend to fingerspell names instead of referencing subtitles as Deaf interpreters do (Stone 2009:103; cf. Strong & Rudser 1985:349,351). Other discourse errors include false starts (Camayd-Freixas 2011; Pöchhacker 1995b).

At syntactic level, hearing sign language interpreters tend to underutilise facial expression, eye gaze and head-body movement, expressing grammatical features such as tense, affirmations and negations manually instead of using NMFs (Stone 2009:103-113). Cokely (1992) also identified *intrusions*, i.e. where the ST or SL influences the interpretation, causing an unnatural choice of words (*lexical intrusion*) or ungrammatical TL syntax (*syntactic intrusion*). Similarly, Stone's (2009:101-108) Deaf informants complain that because hearing interpreters chunk, they follow the spoken language structure, resulting in contact signing (Lucas & Valli 1992:105; Reagan 2012; cf. Stratiy 2005:244; Stone 2009:103). This indicates conflict between chunking norms and Deaf restructuring norms. As Stone (2009:107) observes, following the ST at syntactic level leads to ungrammaticality, whereas following ST discourse structure may lead to incorrect or lack of topicalisation. The ST also influences the choice of lexical items, since interpreters tend to duplicate the ST item instead of choosing terms from a Deaf perspective (Cokely 1992; Stone 2009:102). Since in South Africa, neither the SL nor the TL is necessarily the interpreter's first language (DeafSA 2009:6; cf. Leeson et al. 2011:4), lack of proficiency in either language and possible interference of a third, native language may also distort the TL structure. In extreme cases of misinterpretation, coherence can break down completely, e.g. Cokely (1992) identifies *anomalies* as "instances where the TL message is meaningless or confused and cannot be reasonably accounted for or explained by another miscue type". Cokely (1992) found anomalies comprised 16% of the SI conference interpretations that he studied, which he ascribed to nervousness, too fast pace, inadequate prior preparation, deficiencies in ASL and even attempts to restructure material according to sign language syntactic norms.

Finally, according to Stone (2009:105), hearing interpreters are more distant than Deaf signers. They tend to construct action from an observer rather than a participant perspective and are less likely to greet or address their audience directly, thereby failing to create rapport

with their audience (Stone 2009:105,112). He attributes this to a conflict between Deaf cultural norms of maintaining rapport and interpreting norms of impartiality.

The conclusions for the chapter are presented in the next section in terms of the research variables.

2.7 Conclusion

In conclusion, therefore, a literature survey was undertaken to determine whether previous research had addressed the issue of Deaf comprehension of interpreters and to investigate the five main research variables. The literature indicates that possible comprehension problems exist in terms of all research variables.

In terms of the first research variable, the literature indicates that White and Indian Deaf adult viewers not closely attached to a local Deaf community may have limited signing proficiency or use a form of sign-supported speech instead of natural sign due to the oralist educational policies during the apartheid era. The literature also indicates that inadequate spoken-language skills may prevent viewers (especially Black Deaf adults) from accessing information from other sources such as lip-reading or reading subtitles, thereby rendering these viewers dependent on a signed interpretation. Moreover, the research also indicates that insufficient background knowledge due to inadequate schooling may also hinder comprehension of news broadcasts.

In terms of the second research variable, the literature indicates a strong Deaf norm of interpreter visibility which is violated by factors such as poor lighting, small picture size, obstruction of hands and face and poor background contrast. The literature also indicates that comprehension is negatively affected by the difficulty in dividing attention between interpreter and main picture.

In terms of the third research variable, the literature indicates that sociological variation in sign languages is normally evidenced in conditions where regional, religious, ethnic, gender and age group barriers exist. Therefore, the different signing heritage of Deaf groups in South Africa and the incompleteness of the standardisation process present the real possibility that the interpreters and target audience use different dialects.

In terms of the fourth research variable, the literature shows that Deaf signers make use of a number of devices at lexical, syntactic and discourse levels in order to create a rich, coherent and cohesive text. The literature also provides evidence of incorrect application of these

devices by interpreters, caused on the one hand by non-native proficiency in signed language and on the other by factors of the interpreting process itself, thereby indicating that there may indeed be peculiarities in the nature and occurrences of lexical, syntactic and discourse elements of SASL used by the interpreters.

In terms of the fifth research variable, the literature shows that high standards are expected from professional interpreters, especially in terms of fluency of delivery, standards of language use and adherence to professional norms. However, although both Deaf and spoken language interpreting norms prioritise domestication and fluency even above accuracy, Deaf audiences also have certain expectations of good interpreting practice that may contradict IS norms based on spoken language interpreting, especially in terms of partiality, relevance and the use of the first person. The literature study also shows that interpreters use different strategies, described in terms of comprehension and production efforts, to restructure the message for the audience as well as to cope with the demands placed on them by the constraints of simultaneous interpreting, but that these strategies are not always effective and may cause loss of comprehension for a Deaf audience. Omissions enable interpreters to weed out irrelevant information and keep abreast with the fast pace, but are also caused by interpreter failure in the listening and analysis effort, with consequent loss of information. Similarly, additions may increase discourse cohesion and information content, but may also introduce undesirable connotations or be functionally irrelevant. Likewise, reformulation may increase coherence, but can also lead to message distortion or incorrect grammar. The literature further shows that sign language interpreters incorrectly apply syntactic and discourse features and even make phonological errors.

In the next chapter, an overview of corpus research in general and the use of corpora specifically to study sign language is given as background for the theoretical framework underlying the present corpus study.

CHAPTER 3: SIGN LANGUAGE CORPUS STUDIES

The purpose of this chapter is to give an overview of corpus-driven research and its application to research in Interpreting Studies in general and sign language in particular, not only for the construction of the corpus in present study but also to lay a foundation for future research into sign language interpreting (or original) corpora (cf. Siebörger 2013). As noted in Chapter 1.3.3, corpus analysis in this study is used to evaluate authentic interpretations of news broadcasts in order to address research questions three to five, namely:

- To what extent do the interpreters use standard forms of SASL (RQ3)?
- Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters? (RQ4);
- Do the strategies and choices in selection of TL material employed by the interpreter adequately convey a coherent message? (RQ5).

3.1 Introduction

Corpus linguistics, defined by Shlesinger (1998) as “a data-driven methodology for analysing large quantities of machine-readable running text”, evolved as a discipline in the 1980s. Corpora are regarded as the most objective way of analysing texts, since they offer a rich source of naturalistic data with the advantage that findings can be generalised to the larger population provided correct sampling procedures are followed (cf. McEnery & Wilson 2001:1-2). They also offer ease of data access for future research, especially if enriched with additional linguistic information such as part-of-speech annotations, etc. The role of corpus studies has increased over the last twenty years, so much so that Prinetto et al. (2011:13) regard the availability of a corpus as a necessary requisite for modern linguistic research. Corpora have been used to explore phonology, morphology, lexis and syntax, as well as for research into cognitive processes (Johnston 2010:106; Setton 2002:40-42).

The chapter opens with a discussion of general theoretical considerations in Section 3.2. Design criteria and constraints pertaining to corpus construction are outlined in Section 3.3. In Section 3.4, techniques used to analyse corpora are explained and in Section 3.5 applications to translation and interpreting are described. In Section 3.6, some challenges in corpus construction are addressed. This is followed by an overview of existing sign language corpora in Section 3.7, as well of metadata (Section 3.8), transcription methods (Section 3.9) and annotation codes (Section 3.10) in order to provide a basis for the present study. The chapter is summarised in Section 3.11.

3.2 Basic concepts

Loosely defined, a corpus is any collection of texts. However, a corpus in the modern sense is defined as a collection of texts in a machine-readable form that has been annotated with linguistic information (McEnery et al. 2006:4). Similarly, Prinetto et al. (2011:12) define a corpus as “a collection of pieces of language that are selected and ordered according to explicit linguistic criteria in order to be used as a sample of the language”. All elements (i.e. words or other lexical items) that comprise the corpus are termed *tokens*, whereas each unique element is called a *type*. For example, the New Zealand Sign Language (NZSL) corpus consists of a total of 100 000 transcribed signs (i.e. *tokens*), but only contains 7222 unique signs (i.e. *types*) (McKee & Kennedy 2006:374).

From these definitions, it is evident that a corpus study seeks to discover phenomena not specific to one text but generally applicable to a selection of texts linked by common features. This also implies that texts, as well as features for analysis, are selected according to specific criteria. The more specific the research purpose, therefore, the more specific are the criteria for selection and analysis. Such corpora are known as *specialised* or *special-purpose* corpora (McEnery et al. 2006:15; Zanettin 2012:41).

Criteria of purpose also dictate the type of corpus constructed. A corpus is classified according to its content as *multilingual* or *monolingual* depending on the number of languages represented, as uni- or bidirectional depending on language directions and as *comparable* or *parallel* depending on whether the texts are independent of each other or related by translation (cf. Zanettin 2012:10-11). According to Zanettin (2012:41), translation/interpreting (T/I) corpora are specialised since the characteristics of T/I act as restraints in material selection. Baker (1995) defined two types of corpora suitable for the study of translations, namely *parallel corpora* which consist of source texts (STs) in one language and target texts (TTs) in another language and *comparable corpora* which compare a set of original writings to a set of translations in a particular language (cf. Olohan 2004:25; Shlesinger 1998:488; Zanettin 2012:10). In the first type, texts of different languages are related to each other in terms of content, whereas in the second, texts of different contents are related to each other in terms of language. Both can be adapted to the study of interpretations with an additional component of modality, e.g. written STs versus oral/signed TTs (cf. Shlesinger 2008:240). Teubert (1996) added a third classification, namely that of *reciprocal corpora*, to describe bi/multilingual bidirectional corpora. Zanettin (2012:11) defines a fourth type, namely *comparable bi/multilingual corpora*, which can be used to compare features over different languages. Although Zanettin only defines comparable bi/multilingual corpora in terms of original

writings, the definition is also extendable to translations, e.g. comparing features of French and German translations. Shlesinger (2008) adds a fifth classification suitable for the study of interpreting, namely *comparable intermodal corpora*, in which translations of a particular ST are compared with interpretations of the same ST.

According to Johnston (2010:106), sign language corpora can be described as a subtype of spoken language corpora. Following Fung and Cheung (2004), Segouat and Braffort (2009:64) define four kinds of sign language corpora, namely parallel (sentence-aligned STs and TTs), noisy parallel (non-aligned parallel corpora), comparable (non-aligned texts related by topic) and very non-parallel corpora (disparate bilingual documents). They note that on the basis of these classifications many existing sign language corpora are not true corpora but merely dictionaries of isolated signs.

The type of corpus constructed influences the concordance software used in its analysis. Comparable corpora are usually analysed using monolingual packages such as *Wordsmith Tools*, designed by Mike Scott in 1996 (Scott 2011) or *Antconc*, created by Lawrence Anthony at the Faculty of Science and Engineering at Waseda University, Japan (Anthony 2011). Parallel corpora are usually analysed using bilingual packages such as *Paraconc*, designed by Mike Barlow in 2002 (Barlow 2003).

In parallel corpora, STs and TTs are usually transcribed separately, then interleaved or aligned using time-coding or numbers (cf. Moropa 2004:167; Setton 2002:33-34). Some concordance packages such as *Paraconc* perform semi-automatic alignment. Corpora can also be presented in tabular form (Setton 2002:35) or by using different fonts to indicate different speakers (Setton 2002:34). Back-translations, annotations or comments are often also included.

In the next section, criteria that must be considered when designing a corpus are discussed.

3.3 Design criteria

According to McEnery and Wilson (2001:66), the modern corpus displays four important characteristics; namely representativeness, finite size, machine-readable form and the ability to function as a standard reference (cf. Johnston 2010:106). Two other characteristics are added, namely that a corpus is constructed with a specific content and for a specific purpose (Prinetto et al. 2011). Johnston (2010:106) further adds that sign language corpora should also be well-documented with relevant metadata and annotated systematically. Aspects of design criteria, namely representativeness, size, electronic format, reference function and purpose are discussed below. Aspects of metadata, transcription and annotation specific to sign language corpora are discussed in subsequent sections in this chapter.

Firstly, a corpus must be **representative** if its findings are to be extrapolated to the general population it purports to represent, which implies that a corpus should be large (McEnery et al. 2006:13). Chomsky (in Zanettin 2012:7) argues that since language is infinite, any corpus is skewed and hence unrepresentative of its population. This criticism is justified in the case of manually constructed corpora, which, unlike mega-corpora such as Manchester University's *Translational English Corpus* (TEC) corpus, tend to be small due to practical limitations. In reality, as Zanettin (2012:46) notes, representativeness is a "very elusive concept, often something to strive for rather than something which can reasonably be attained" due to practical limitations. According to Zipf's (1935) law, the proportion of tokens in a corpus is approximately inversely proportional to their frequency of occurrence, i.e. approximately half the tokens in a corpus appear only once, a quarter of the tokens appear only twice, etc. (cf. Kanter et al. 2006:35). This implies that corpora have to be astronomically large in order to obtain representation of a particular type. However, Seghiri and Corpas Pastor (2009:88) showed that specialised corpora reach a saturation point in which "the number of types does not increase in proportion to the number of words the corpus contains". Zanettin (2012:41) also notes that specialised corpora restricted to a particular text type need not be as large as general-purpose corpora. There is presently too little data available to determine at what point a corpus becomes representative in terms of size.

Secondly, the term *corpus* used to imply a body of text constructed to be of a finite, usually pre-determined **size** (McEnery et al. 2006:71), e.g. the Brown Corpus contains exactly one million words (Zanettin 2012:7). However, the current trend is to construct open-ended corpora (called *monitor corpora*) to which texts are constantly being added, e.g. John Sinclair's COBUILD project and the TEC corpus (Zanettin 2012:7,41).

Thirdly, the term *corpus* implies that it is available in **electronic format** (McEnery et al. 2006:6). Although obtaining texts in electronic format is much easier nowadays, there may still be language-specific difficulties (cf. McEnery et al. 2006; Zanettin 2012:52) such as orthographies not supported by current concordance software packages, e.g. Hebrew (Shlesinger 2008). In constructing a sign language corpus, a written system must first be devised for an unwritten language. The transcription and annotation system devised must then also conform to an orthography supported by concordance software packages. A second difficulty is the obtaining of copyright permissions, which are not easily obtainable and also need to be renewed after a period of time (Zanettin 2012:52-4). One means of protecting copyrights is to develop software that allows only limited access to corpus users. For example, the TEC corpus only provides clients with wordlists and not original texts (Luz &

Baker 2000). Similarly, the *Corpus of Contemporary American English* bypasses copyright permissions by appealing to the principle of *fair use*, which allows the use of snippets of copyrighted material without needing to obtain prior permissions (Davies 2009). In the case of face-to-face communication where the corpus material cannot be divorced from the actual physical identity of the signer, permission must be obtained from signers to incorporate their video content as part of the corpus material and a system of acknowledgement and identification of the signers needs to be devised (cf. Leeson & Saeed 2012:10-11).

Ideally, the corpus should also be machine-readable – i.e. tagged for parts of speech (POS), lemmatised (meaning morphological inflections are not distinguished) and automatically analysable using established software packages. This has only been achieved for a few interpreting corpora, notably the *European Parliament Interpreting Corpus* (EPIC) (Bendazzoli & Sandrelli 2005, 2008) and Meyer's (2006) K6 and K2 corpora.

Fourthly, a corpus should be a **standard reference** for the language variety investigated (McEnery & Wilson 2001:89,110). It must therefore not only be representative in terms of size, but also balanced in terms of composition (Leech 2007:136; McEnery et al. 2006:16). Bowker and Pearson (2002) suggest that design considerations should include medium of communication (e.g. oral versus written, emails/web content versus printed materials, etc.), text type (e.g. translations versus original writings, registers, communication levels, etc.), subject matter (e.g. general versus specialised, discipline, genre or sub-discipline), authorship, publication dates and languages (cf. Alexieva 1994). These criteria then form part of the corpus' metadata (discussed in Section 3.8 below). As Bendazzoli and Sandrelli (2005:4) note, obtaining a homogenous collection of interpretations is not easy.

Finally, a corpus (and any sub-corpora) should be constructed with a specific **purpose** in mind (Prinetto et al. 2011:12; Zanettin 2012:8), which then dictates composition criteria. Apart from narrower specifications, corpus research is distinguished as being either *corpus-based*, i.e. using corpora to prove existing theories (cf. Storjohann 2005:9), or as *corpus-driven*, i.e. analysing corpora without prior theoretical interpretation (Tognini-Bonelli 2001; cf. Pichler et al. 2009:15).

In the following section, the main techniques used to analyse corpora are explored.

3.4 Techniques used to analyse corpora

Corpus concordance software packages typically offer the researcher a number of techniques to facilitate data analysis. In this section, the use of type-token ratios, wordlists, concordances and collocations are discussed.

As its name implies, the **type-token ratio** is the ratio of the number of unique *types* in the corpus against the total number of *tokens* in the corpus (cf. Zanettin 2012:14). **Type-token ratios** provide information about lexical density and thus complexity of texts (Shlesinger 1998, 2008) and can also be used as a measure of the degree of orality of a text (Kanter et al. 2006) or to compare corpora or sub-corpora. However, type-token ratios are dependent on database size, decreasing as the size of the corpus (i.e. number of tokens) increases (Kanter et al. 2006:41). This means that comparisons of type-token ratios are only meaningful when comparing corpora of similar sizes.

Wordlists are lists of all the types in a particular corpus according to the alphabet or their frequencies of occurrence (cf. Zanettin 2012:117). They can be used to determine the most frequent types, or conversely, to determine which types are used only once (so-termed *hapax legomena*). For example, a frequency-based wordlist for the NZSL corpus was used to determine the most frequent signs for teaching purposes (McKee & Kennedy 2006). Wordlists can also be sorted inversely (i.e. from the last letter of the word) to identify suffixes, filtered through a predefined *stoplist* to identify key words or through a predefined lemma list to lemmatise the corpus (Zanettin 2012:117). Wordlists of different corpora may also be compared qualitatively and quantitatively using statistical tests such as the chi-squared or log-likelihood tests (Zanettin 2012:117; cf. McEnery et al. 2006:55).

A **concordance** is an “index of all tokens of a word [i.e. lexical] type, together with their immediate linguistic context” (Zanettin 2012:124). In the KWIC (Key Words in Context) format, the searched word (termed a *node*) is displayed together with a preselected number of words on either side (Zanettin 2012:125). Inbuilt or user-defined wildcards can be also added to search for general patterns. Concordances can be organised alphabetically according to words to the left or right of the node word, allowing collocations to be detected. They can also be used to find occurrence frequencies of annotations, single characters, symbols or numbers as well as words. Some software, e.g. *Antconc*, also display the concordance results as a concordance plot (Anthony 2011), showing each occurrence of the phenomenon under investigation as a single line against a white strip, similar to a chromatograph spectrum. However, since all strips are of equal length, this creates a visual distortion in that information appears less dense for shorter transcriptions than for longer ones.

Collocations, defined as “characteristic co-occurrence patterns of words” (McEnery & Wilson 2001:7) can also be displayed by concordance software, together with tests that determine collocation strength, such as the MI (Mutual Information) score, or confidences in non-accidental association such as t-tests, Z-scores and log-likelihood scores (Zanettin

2012:130; cf. Shlesinger 1998). Collocations can also be further explored as *clusters* (i.e. frequently-occurring groups of words), *clouds* (which allow collocated words to be investigated as separate nodes) and *trees* (which show positional relationships of collocates) (Zanettin 2012:132-135). Some software packages also allow collocations of specific grammatical patterns about a node (called *colligations*), as well as non-ordered co-occurrences of types (termed *concgrams*) (cf. Zanettin 2012:133-5).

In the next section, some applications of corpora to translation and interpreting research are discussed.

3.5 Application of corpora to translation and interpreting

It was Mona Baker who first introduced the concept of corpus linguistics into Translation Studies (TS). The resulting merge became known as Corpus Translation Studies (CTS) (Baker 1993, 1995) and is regarded as the most objective means to compare source and target texts. According to Setton (2002:42), the level of objectivity afforded by corpus studies is not easily achieved by manual analysis. Corpus analysis has contributed significantly in corroborating T/I-universals (cf. Olohan 2004). Spearheaded by Manchester University's TEC corpus, research into these features was initially only undertaken in TS due to that discipline being more established and also to difficulties in transcribing face-to-face communication (Pöchhacker 1995a:17-32, 2007:129; Setton 2002:29-34). Manchester's TEC annotation scheme currently constitutes the benchmark for annotations in Translation Studies (cf. Cencini & Aston 2002:47-62; Setton 2002:29-34). Corpora have been used to corroborate *simplification* (Laviosa 2002; Øverås 1998), *explicitation* (Olohan 2004:96; cf. Olohan & Baker 2000) and *normalisation* of unusual lexical variations, culture-specific items or collocations (cf. Kenny 2000; Øverås 1998; Tirkkonen-Condit 2004). *ST interference* has also been found in that translators tend to over-represent pronouns, adverbs and other items that have straight-forward equivalents in the TL (Baroni & Bernadini 2006; Mauranen 2008). Although the lack of empirical studies, differences in sizes of corpora, research methodologies and concept definitions and lack of rigorous statistical testing (Setton 2011; Zanettin 2012:27) mean that universals cannot be proved conclusively, corpus studies have nevertheless provided the most systematic and objective evidence of their existence.

The first **interpreting** corpus consisted of Oléron and Nanpon's (1965) samples of UNESCO simultaneously interpreted speeches. This was followed by Seleskovitch's (1975) analysis of consecutive French interpretations of two English speeches (cf. Setton 2011). Other significant SI corpora are those of Chernov (1978, 1994), Lederer (1981), Pöchhacker (1994),

Kalina (1998), Diriker (2001) and Vuorikoski (2004) (cf. Setton 2011). Although South Africans have produced a number of *translation* corpora (cf. Kruger 2000; Moropa 2004), the only South African *interpreting* corpus so far is Wallmach's (2000) corpus of parliamentary speeches and interpretations. As Bendazzoli and Sandrelli (2008) observe, most SI corpora are the result of doctoral studies and are not available to other researchers (cf. Setton 2011).

In general, SI-based corpus studies have primarily focussed on exploring strategies and norms (Schjoldager 1995; Setton 2002, 2011; Shlesinger 2000), differences between SI and consecutive modes (Russell 2002, 2005), translations (Dragsted & Hansen 2007; Shlesinger 2008), original speech (Russo et al. 2006), as well as between signed and spoken SI (Isham 1994, 1995). Corpus studies are also used to corroborate the presence of universals in interpretations (Setton 2011:45). ST interference was corroborated by Dam (1998), who showed that interpreters paid attention to formal features of the ST in consecutive interpreting, and Shlesinger (2008:251), who found that SI interpreters were more likely than translators to borrow lexis from the SL or ST. Shlesinger (2008) also found that interpreters were more likely to simplify grammatical patterns. Normalising and leveling-out tendencies were also evidenced in interpreters' preferences for unmarked registers and modern grammatical patterns. Other corpus-based studies revealed that interpreters tend to choose the most neutral word (Shlesinger & Malkiel 2005) and to paraphrase rather than translate idiomatic items (Jakobsen et al. 2007).

Corpus analysis in sign language interpreting is an undeveloped field. The first attempt at sign language corpus-based research was Isham's (1994, 1995) comparisons of ST sentence recall in SI by spoken and sign language interpreters using transcriptions of their interpretations. Later, Russell (2002) compared transcriptions of simultaneous and consecutive interpreting into American Sign Language (ASL) in a mock trial experiment. However, these corpora were very small and did not utilise concordance software. Therefore this study presents the first annotated corpus for sign language interpreting analysis using concordance software.

The application of corpus studies to sign language studies has been greatly facilitated by new technologies and software that enables annotations to be directly time-aligned with recorded segments. The program most used by sign language researchers is the digital video annotation software called ELAN or EUDICO (European Distributed Corpus Linguistic Annotator) (cf. Johnston 2010:110), which time-aligns multiple user-specific annotation tiers with corresponding video material. Hence, according to Johnston (2010:109), transcription is no longer a first or necessary step in the creation of a sign language corpus.

ELAN has never been used for an interpreting corpus; hence it is not known how ELAN compares with other concordance programs in performing computations related to interpreting research tasks, e.g. comparing a set of STs with a set of TTs, different STs with each other or different TTs with each other.

The next section discusses some challenges faced in corpus construction in general as well as specific challenges faced in constructing interpreting corpora.

3.6 Challenges of corpus research

Although Corpus Interpreting Studies (CIS) (cf. Setton 2011) offers the researcher a powerful analytical tool, it nevertheless presents a number of challenges. These include the cost of corpus construction, the challenge of attaining representativeness, the question of ecological validity and transcription and annotation difficulties.

Firstly, the main disadvantage of any corpus project is that it is extremely time-consuming and expensive to construct (Bendazzoli & Sandrelli 2008; Setton 2011; Shlesinger 2008:239; Wehrmeyer 2004:214). Corpus construction makes huge demands on human resources, both in terms of extensive manual labour required for transcription and annotation, and in terms of specialised linguistic, statistical and sometimes even programming skills in its design and eventual analysis (Wehrmeyer 2004:218).

Secondly, representativeness is difficult to achieve in the interpreting context where researchers usually only have access to a small number of interpretations (Bendazzoli & Sandrelli 2008; Shlesinger 2008:239). As Cencini (2002) observes, professional interpreters are reluctant to grant permission for their interpretations to be analysed, hence researchers usually have to resort to public domain collections or personal contacts (Bendazzoli & Sandrelli 2008). On the other hand, the disparagement that smaller corpora are mere “cottage industries” (Setton 2011) unworthy of scientific attention must be addressed. While the point is made that statistical representativeness in terms of *quantitative* research may not always be achieved, this does not invalidate the invaluable *qualitative* results derived from smaller studies, which, it must also be noted, have always comprised the bulk of T/I research.

Thirdly, according to Gile (1998b:69), to be ecologically valid, material for an interpreting corpus should be recorded at an authentic interpreting event (cf. Bendazzoli & Sandrelli 2008; Setton 2002:30, 2011:38-41; Shlesinger 1998, 2008). This is difficult to achieve, so most interpreting corpora are constructed under artificial conditions, which detracts from their validity (Shlesinger 2008:239; cf. Jakobsen et al. 2007:228). Even including laboratory-constructed corpora, the number of SI corpora is small (Setton 2011).

Fourthly, transcription is viewed as problematic in both spoken and signed interpretation (Bendazzoli & Sandrelli 2008; Shlesinger 1998). According to Shlesinger (2008:239), transcription procedures should be standardised since presently a variety of conventions are used. She also notes that many oral features are not easily defined or identified (1998:487). The difficulty of representing oral features by a written form is succinctly expressed by Pöchhacker (2007:134), who described transcription as a “regrettably incomplete, and indeed truncated, representation of [the interpreters’] communicative production, neglecting prosodic features and their synchronisation with the image on the screen”. Care must also be taken that transcription does not smooth over irregularities (Bendazzoli & Sandrelli 2005; Shlesinger 2008:239).

Fifthly, it is very difficult to control (Alexieva 2002; Bendazzoli & Sandrelli 2008; Shlesinger 1998) and to annotate the large number of paralinguistic and prosodic features of spoken or signed discourse (Pöchhacker 2007:134; Setton 2011:51; Shlesinger 2008:239). According to Shlesinger (1998), these include the type of event, mode of interpreting, speaker characteristics, interpreter characteristics, the nature of the target audience and even the type of speech (cf. Alexieva 2002; Bendazzoli & Sandrelli 2008). The difficulty in annotating sign language corpora is expressed by Segouat & Braffort (2009:65):

Annotations can be made with glosses or complete translations, but these written data cannot describe in an efficient way typical SL [i.e. sign language] properties such as simultaneity, spatial organization, non-manual features, etc. In our opinion, it would thus be difficult to apply the computations used on written comparable corpora or on parallel corpora to comparable or parallel SL [i.e. sign language] corpora.

In this sense, the annotation system constructed for the present study offers a significant contribution as it both constructs a framework for efficiently describing typical sign language properties and allows the application of computations used on comparable or parallel written corpora to be used on comparable or parallel sign language corpora.

In the next section, existing corpora are explored in order to provide a framework for the construction of the corpus for this study. Because (to the best of the researcher’s knowledge) no other sign language *interpreting* corpora exists, corpora of original signed discourse are examined, with particular attention paid to transcription and annotation conventions.

3.7 Sign language corpora

Corpus-based analysis of sign languages is a recent and very active field of study, fuelled by researchers’ attempts to preserve what they perceive are languages threatened by new medical technologies that eradicate deafness (Crasborn 2010:288). Sign language corpus development

was initiated by Trevor Johnston's Australian Sign Language (Auslan) corpus in 2004. Since then, sign language corpora have been constructed by almost every European nation, as well as other countries around the globe, coinciding with the development of software that precisely time-aligns media with text and annotations. This has given rise to a new discipline of "corpus sign linguistics" (Crasborn 2010:278). Corpora are presently considered the most objective way to study sign language. They have also initiated the development of written sign forms (see Section 3.9 below) and contributed to a better understanding how signing norms are related to sign language features (cf. Leeson & Saeed 2012).

In the following sections, an overview is given of existing sign language corpora. A discussion of bi/multilingual corpora is followed by an overview of monolingual European, BANZSL and other international corpora. The use of monolingual corpora as a resource for studying interpreting was first proposed by Shlesinger (1998:488). Because many sign language corpora also contain translation tiers which range from interlinear word-for-sign translations to free sentence translations and can therefore function as parallel corpora, for the purposes of this study, the corpora below are defined as multilingual, bilingual or monolingual on the basis of the number of *sign languages* that they contain.

3.7.1 Multilingual and bilingual corpora

There are three multilingual corpora, namely the European Cultural Heritage Online (ECHO), the DictaSign and the Air Travel Information System (ATIS) corpora. There are also at least five bilingual corpora. These include the Bilingual Bimodal Acquisition (BBA) and Berkeley Sign Language Acquisition (BSLA) projects as well as smaller Chinese/Taiwanese, Icelandic/Danish and German/Swiss German sign language corpora.

ECHO is a multilingual corpus comprising excerpts of British Sign Language (BSL), Swedish Sign Language (STS), Sign Language of the Netherlands (NGT) (Crasborn & Hanke 2010:3; ECHO s.a.; Konrad 2010) and more recently, German Sign Language (DGS). It provides an open-access archive in order to study sociolinguistic variation and linguistic features (Konrad 2010:1-4; Nonhebel et al. 2004:1). Begun in 2003, the corpus contains about 30 minutes of time-aligned transcribed (using non-lemmatised glosses) narratives, poetry and wordlists for each sign language taken from the respective national corpora (Bungeroth et al. 2008:1). Data is collected using a general set of transcription and annotation conventions based on ELAN (Crasborn & Hanke 2010:3; Konrad 2010:3). The corpus is partially annotated for repetition, direction, location, head movements, eye gaze, facial expression, mouthing, role-shift and use of hands and includes tiers for comments and translation

(Crasborn 2010:276-282; Konrad 2010; Nonhebel et al. 2004:1-9). The NGT videos used only native signers, whereas the BSL videos used a range of signers. The data is owned by the Max Plank Institute for Psycholinguistics (Crasborn 2010:276-282).

The **DictaSign** European corpus project (currently at developmental stage) aims to create parallel intermodal corpora of British, Greek, German and French Sign Languages for the purpose of studying differences in these sign languages (Segouat & Braffort 2009:65). The signed recordings are translated¹ from a written English ST and will then be translated into Greek, German and French respectively (Segouat & Braffort 2009:66).

The **ATIS** sign language corpus consists of 595 sentences on air travel translated into DGS, ISL (Irish Sign Language) and SASL following the Aachen University gloss specifications, together with English and German translations (Bungeroth & Ney 2005; Bungeroth et al. 2008:1-3). The corpus is annotated for deixis, reference, questions and emphasis using ELAN (Bungeroth et al. 2008:2). Twenty SASL sentences have been transcribed by Bennie Botha under the auspices of Lynette van Zijl at Stellenbosch University's Department of Computer Science (Bungeroth et al. 2008:3; Duvenhage 2007).

The **BBA** project consists of signing and utterances of hearing (pre-school) children of American or Brazilian Deaf adults in home or laboratory settings in order to study bimodality in bilinguals (Pichler et al. 2010). The participants consisted of four children from ASL backgrounds in the USA and three children in Brazil from Brazilian Sign Language (Libras) backgrounds. The project is jointly run by Gallaudet University, University of Connecticut and the Universidade Federale de Santa Catarina (Pichler et al. 2010:12). The data consists of 45-60 minutes (for each child) of natural conversation between the children and Deaf and hearing adults. The corpus is annotated for sign and speech using ELAN.

The **BSLA** corpus based on the CHILDES software application and run by the University of California in Berkeley studies sign language phonology (Hoiting & Slobin 2002). It consists of 400 hours of interaction of Deaf pre-school children with Deaf and hearing adults in the USA and the Netherlands. The ASL and NGT utterances are transcribed using the Berkeley Transcription System (BTS) designed for this purpose (Hoiting & Slobin 2002:4). The corpus may be described as a noisy bilingual comparable reciprocal corpus.

Other parallel bilingual corpora include a Chinese/Taiwanese sign language corpus developed by Su, Chiu and Cheng (2007) which contains about 2000 sentences in **Chinese** and **Taiwanese** sign languages for machine translation (cf. Bungeroth et al. 2008), a

¹ In sign language studies, the term *translation* refers to prepared productions, whereas *interpretation* refers to spontaneous productions (Segouat & Braffort 2009:66).

German/Swiss German sign language online bilingual lexicon for technical terms and an **Icelandic/Danish** sign language corpus (Konrad 2010; Segouat & Braffort 2009:65). These parallel corpora are aligned and annotated for similarities and differences in signs. ELAN is used for the Icelandic/Danish sign language corpus (Segouat & Braffort 2009:66).

In the next section, monolingual European corpora are discussed.

3.7.2 Monolingual European corpora

Sign language corpora have been initiated in almost every European country. These include the British, Dutch, Swedish, Irish, German, Swiss, French, Italian, Austrian, Danish, Greek and Estonian sign language corpora.

The **British** (BSLCP 2013; UCL 2012), **Dutch** (Corpus NGT s.a.; Radboud 2013) and **Swedish** (Wallin et al. 2010:3; Wallin 2012) corpora continue the experience gained from ECHO. These corpora use ELAN with annotations based on ECHO and also include some of the ECHO material. The corpora comprise various types of narratives done by (249 for BSL, 92 for NGT and 42 for STS) adult native signers (for NGT and STS corpora) and early signers (for the BSL corpus) from different parts of the respective countries and from different dialects. The projects use IMDI metadata (see Section 3.8 below). The BSL project was funded by the Economic and Social Research Council and is carried out at Deafness Cognition and Language Research Centre at University College London under Kearsy Cormier (previously Adam Schembri), but is partnered by Bangor, Herriot-Watt, Queens and Bristol Universities (BSLCP 2013; UCL 2012). The Swedish corpus is sponsored by the Bank of Sweden Tercentenary Foundation and carried out at Stockholm University under Johanna Mesch (Wallin et al. 2010:3; Wallin 2012). The NGT corpus is a completed project run by Radboud University under Onno Crasborn, Inge Zwitterlood and Johan Ros. It is funded by the Netherlands Organisation for Scientific Research and based on the Auslan corpus (see Section 3.7.3 below) (Corpus NGT s.a.).

The *Signs of Ireland (SOI) corpus* for ISL run by Lorraine Leeson at Dublin's Trinity College consists of stories told by forty Deaf adults (proficient native or early signers) who were educated at St Mary's or St Joseph's schools in Dublin. The corpus is used to study language variation and to research ISL linguistic features (cf. Leeson & Saeed 2012). It is based on ELAN, fully transcribed and annotated for handshape, orientation, movement, location, mouthing, mouth gestures, eyebrow movements, eye gaze, eye aperture, syntax and hand dominance (Leeson & Saeed 2012:2-3).

There are ten **German Sign Language** (DGS) corpora (Konrad 2010). The main DGS Corpus Project functions as an all-purpose corpus as well as a lexicon. A second corpus aims to establish a digital library of sign language. There are also six dictionaries of technical terms, a corpus for teaching DGS (*Gerhörlos So!*), a corpus to study formal register (the Berlin corpus) and a corpus based on TV weather reports designed for automatic machine translation. These corpora consist of (mostly time-aligned) dialogues, narratives and free conversation performed by Deaf and hearing CODAs and are partially transcribed. Most of the material is annotated using ELAN and ILEX for orientation, location, technical terms, mouthing, facial expression, meaning, German translations, interpretation and comments (Konrad 2010; Özyürek et al. 2009:5).

There are five **Swiss German Sign Language** (DSGS) corpora (Konrad 2010). Apart from the online bilingual lexicon described above, these include an educational CD, a corpus of religious signs and Bible texts, a multimedia databank and a general-purpose corpus for lexicography and linguistic studies (Konrad 2010). They consist of mostly spontaneous group discussions, dialogues and monologues by native or early Deaf signers. Most of the data is transcribed but not lemmatised. Annotations for classifiers, role shift, non-verbal communication, meaning, POS, modification, synonyms, antonyms, homonyms, variants, loan signs, semantic fields, mouthing and mouth gesture are done using XML-Format, Filemaker Pro and MS Excel (Konrad 2010).

There are six **French Sign Language** (LSF) corpora. The general-purpose LS-COLIN (*Langues des Signes – Cognition, Linguistique et Informatique*) corpus was constructed to develop annotation software and study iconicity (Braffort et al. 2010:453; Segouat & Braffort 2009:65). The *Websourd* corpus provides daily news interpretation into LSF and is also used to study *coarticulation* (i.e. the phenomenon that signs in an utterance are different to their isolated versions) (Braffort et al. 2010:453; Segouat & Braffort 2009:66, Websourd 2012). Thirdly, the CREAGEST project investigates LSF acquisition in young Deaf children, the role of gesture in LSF and neologisms (Garcia et al. 2009:6,16). Fourthly, LIMSI laboratory is constructing a LSF-French dictionary as well as a smaller parallel corpus comprising LSF translations of French railway announcements (Segouat & Braffort 2009:64-65). Finally, the Web-Si project compares Deaf and hearing deictic gestures (Segouat & Braffort 2009:65). Data in these corpora consists of elicited time-coded dialogues, narratives and discussions by native signers. They are partially transcribed using glosses and are annotated for iconicity, facial expression, gesture, blinking and eye gaze using ELAN and MS Excel (Konrad 2010).

ADONIS software is used for metadata (Braffort et al. 2010:453-454) and ANVIL software to create automatic avatars (Garcia et al. 2009:19-27).

There are two **Italian Sign Language** (LIS) corpora, namely the Roman sign language dialect corpus collected by the Italian National Research Council and the Atlas Bridge Project parallel corpus consisting of weather forecast material. Both aim to provide web-based bilingual dictionaries, develop a standard lexicon and study sociological variation. Native or expert signers are used (Bidoli 2009:135; Prinetto et al. 2011:135). Signs are transcribed using lemmatised glosses and, for the Atlas corpus, annotated using ALEA (Atlas Editor for Annotation) (Prinetto et al. 2011). The Atlas corpus researchers (consisting of a hearing interpreter and a team of Deaf native signers) also created neologisms for lexical lacuna.

Other European corpora consist of two Austrian Sign Language technical dictionaries, a general-purpose, time-coded, unannotated Spanish Sign Language (LSE) corpus, the Danish Sign Language (DSL) dictionary project, a Greek Sign Language (GSL) corpus and an Estonian Sign Language (ESL) corpus (Konrad 2010; Paabo et al. 2009; Segouat & Braffort 2009:65). They consist of monologues, narratives, structured dialogues and free conversations performed by native signers, late learners and interpreters and are used for lexicography, linguistic research and language teaching. Transcriptions conform to ECHO conventions and are done using MSWord in the LSE corpus and MS Access in the DSL corpus. Annotations are done on ELAN (Bungeroth et al. 2008:1; Konrad 2010; Segouat & Braffort 2009:65-66).

3.7.3 Monolingual BANZSL corpora

BANZSL is the name coined by Trevor Johnston (2002) to describe the language family to which BSL, Auslan, NZSL and SASL belong. Apart from the BSL corpus (discussed under ECHO above), Auslan and NZSL corpora also exist.

The **Auslan** project was the first sign language corpus to be constructed. It consists of two sub-corpora, both run by Trevor Johnston and Adam Schembri (Johnston 2011:3, 2010:108). The *Endangered Languages Documentation Project* is a general-purpose corpus for the study of lexicography, syntax, semantics and morphology, whereas the *Sociolinguistic Variation in Auslan Project* was created to investigate sociolinguistic variation in grammar and lexicon. They consist of time-coded interviews, elicited narratives, dialogues, free and elicited group conversations and elicited lexical items signed by native or proficient signers (Johnston 2010:108). Transcription is partial (Konrad 2010:1-4). Annotations are done using ELAN, together with a literal and a free translation (Johnston 2011:3, 2010:117). An iterative method of annotation parsing was applied to allow initial tentative annotations to be defined at a later

stage (Johnston 2010:113). The open-source corpus is presently housed at the Endangered Language Archive at the University of London (Auslan 2012; Johnston 2011:8).

The **NZSL** corpus run by Rachel and David McKee at Victoria University in Wellington consists of the *Social Linguistic Variation in New Zealand Sign Language Project* (McKee & McKee 2009) and the *NZSL Dictionary Project* (McKee & Kennedy 2006). The corpora consist of time-coded free and elicited conversations and interviews using native and early signers and are annotated using ELAN, MS Word and Wordsmith Tools for POS, mouthing, language variation, information verb types, demographic information and an English translation (McKee & McKee 2011).

In the next section, other monolingual corpora are presented.

3.7.4 Other monolingual corpora

Other monolingual sign language corpora include projects in America, Korea and Japan.

Apart from the bilingual BBA and BSLA corpora described above, there are four other **ASL** corpora run by the University of Boston, namely the *American Sign Language Lexicon Video Dataset* which consists of isolated signs, the *American Sign Language Linguistic Research Project* which comprises elicited sentences and narratives performed by native signers, a project investigating sociolinguistic variation which uses group discussions, interviews and elicited lexical items and the RWTH-BOSTON-104 Database which consists of 201 ASL sentences with English translations to be used for automatic sign language recognition (Bungeroth et al. 2008). The corpora are time-coded, partially transcribed and annotated for POS, NMFs and gestures. Most ASL corpora are based on Signstream® which, similar to ELAN, synchronises video material, transcription and annotations (Bungeroth et al. 2008; Konrad 2010:1-4; Neidle et al. 2001:23).

The **Korean** Sign Language project consists of approximately 68 minutes of time-coded dialogues, monologues, elicited sentences, narrator discussions, structured interviews, free conversations, teaching materials and sermons performed by Deaf and hearing signers ranging from native to late signers. It is used to study the morphology and phonology of agreement verbs and classifier constructions and is annotated using Ilex and Filmmaker (Konrad 2010).

The **Japanese** Sign Language (JSL) corpus developed at Hitachi laboratory in Tokyo consists of elicited dialogues by two native signers for linguistic research as well as for developing automatic recognition software (Koizumi et al. 2002). Native signers were also used to check the data. The corpus is annotated for NMFs, iconicity, use of space, language variation,

direction and repetition (Koizumi et al. 2002:927-930) using software developed by Hitachi which simultaneously displays the video file, avatar animation, Japanese translation, time scale, the gloss for the manual signs and a tier for non-manual signs (Koizumi et al. 2002:929). Because of the Japanese translation, the corpus can be used as a parallel corpus.

The remainder of this chapter explores specific aspects relevant to the construction of a sign language corpus, namely metadata conventions, transcription systems and annotation codes.

3.8 Metadata

When constructing a corpus, it is important to record background information in order to characterise the corpus. *Metadata* refers to any relevant information about the text and is therefore, as Johnston (2010:108) observed, essentially data about data (cf. Crasborn & Hanke 2010:3). It is a vital part of housekeeping for any corpus, affording future researchers valuable information on how the corpus was constructed. In spoken language interpreting corpora, metadata is usually stored as headers on the transcription (cf. Zanettin 2012:84), whereas in sign language corpus projects it is usually stored on separate files.

The most detailed metadata description is that of the International Standard for Language Engineering project (ISLE) and is called IMDI (ISLE metadata initiative) (IMDI 2003a,b, 2009). It was developed by the Max Planck Institute for Psycholinguistics (Crasborn & Hanke 2010:5). IMDI metadata descriptions can also be shared by publishing them on an <http://> web server. The program allows for input of information ranging from free text strings to content chosen from restricted/closed lists. The IMDI categories include *session* metadata (how and what data is collected), *catalogue* metadata (how the information is filed) and *lexical* metadata (information about the texts in the corpus).

Sessional metadata records “where and when the data was collected, under what circumstances and by whom” (Johnston 2010:110). It includes information about the nature of the recording (i.e. spontaneous or elicited), elicitation methods and participants (Bendazzoli & Sandrelli 2005:6; Crasborn & Hanke 2010:3; Johnston 2010:110; Pöschhacker 1994). In the IMDI system, *session* metadata is grouped into seven sub-categories: session, project, collector, resources, content, actors and references (Crasborn & Hanke 2010:3; IMDI 2003a).

- The *session* category includes administrator information about the external circumstances of the event and the types of resources.
- The *project* category includes information about the corpus project.

- The *collector* category contains the name and contact information for the person who recorded the session, as well as the number, layout, viewpoints and focus of cameras, other recording devices and electronic tools.
- The *resources* element contains information about media files such as URLs and sizes.
- The *content* category describes the intellectual content of the session, e.g. language variety, elicitation method and whether the recording is an interpretation. Interpreting metadata should include information on source and target languages, the mode of interpreting (simultaneous or consecutive), interpreter visibility and the presence/nature of an audience. It can also include **discourse variables** such as delivery speed, level of technicality, degree of spontaneity (e.g. recited/semi-rehearsed/impromptu), genre (narrative, descriptive, discursive) and register (Bendazzoli & Sandrelli 2005:6; Setton 2002:30).
- The *actors* category describes the participants (e.g. interpreters) involved in the session, e.g. age, gender, region, class, religion, education, ethnicity, dialect background, hearing status (e.g. range, type of aid used, frequency of use), sign competence (including acquisition age), sign system used, hearing status of family, involvement in Deaf organisations, spoken language competence (i.e. abilities in speaking, reception, reading and writing), education and employment (Crasborn & Hanke 2010:11,19). In an interpreting corpus, the level of training and experience of the interpreter(s) would also be of interest (Setton 2002:30).
- The *reference* category groups documentation on the session, e.g. publications and notes.

Catalogue metadata includes information on the corpus itself, namely its name, title, ID, description, languages, location, content type, format, annotation unit, applications, date, the project it belongs to, its publisher, author, size, pricing, contact person, etc. (IMDI 2009).

Lexical metadata includes information on the signs in the corpus, such as orthography, phonology, morphology, morphosyntax, syntax, semantics, etymology, usage and frequency of usage (IMDI 2003b).

In the next section, transcription systems are discussed.

3.9 Sign language transcription

Johnston (2010:106) defined transcription as the encoding of face-to-face language (signed or spoken) using a recognised annotation system that represents the phonetic or phonological form of the signal or using a dedicated writing script that represents conventional units of the language. Transcription is thus a *graphic representation* using a dedicated script which

enables the reader of the symbols to reproduce the original utterance or sign (Johnston 2010:107). In this study, the term *transcription* is used generically to include all graphic representations of face-to-face communication. Following the German precedent (Hanke 2004), the term *notation* is used to refer to non-gloss systems that depict the physical characteristics of a sign rather than its meaning.

In transcribing a sign language, the first consideration that needs to be taken into account is that there is no standard sign language transcription system. The first step in transcription, therefore, is to select a manner by which a sign can be described, either in terms of its physical characteristics (classifier, orientation, location, movement and NMFs), or in terms of its meaning. As noted above in Section 3.5, in many monolingual sign language corpora, transcription is avoided by using software that directly annotates video material.

In the following sections, different transcription systems are discussed. An exploration of the notation systems of Stokoe, SignWriting, HamNoSys and Berkeley is followed by a discussion on descriptive and ID glosses. Finally, ID-glosses are defined and described.

3.9.1 Notation systems

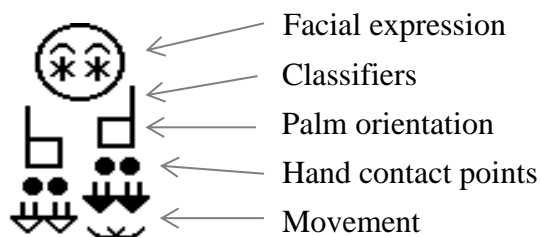
The first written convention for sign language was devised by Bébien in 1825 to facilitate the teaching of signs (Segouat & Braffort 2009:64) and is still used in textbooks today. In this convention, sign language is depicted by drawings of human figures which incorporate facial expression and movement arrows. The first person to develop an arbitrary written system for sign language was **Stokoe** (1960). He used the American one-hand finger-spelling alphabet as basis for his classifier notation with shorthand symbols to describe orientation and movement. Although the initial purpose was to assist research into sign languages, the value of a written system for educational purposes (both to improve literacy levels of Deaf children and to teach sign language to hearing students) was soon recognised. Sutton (2012a) also notes that a written system gives a language greater recognition. A variation of Stokoe's system is used in the ESL corpus², with the hand shapes described in terms of the ESL finger-spelling alphabet (Paabo et al. 2009:411). Stokoe's transcription system also forms the basis for the SignWriting and HamNoSys systems described below.

SignWriting was invented in 1974 by Valerie Sutton (2012a), who produced iconic drawings of signs as they are seen by the addressee. Initially used to teach deaf children to read, the system has become the standard way to depict ASL. SignWriting is taught in about 18

² Although a transcription system, ESL notational symbols can also be used as annotation codes and are therefore included in the discussions in Section 3.10 below.

countries around the world, both to help deaf students learn the local spoken language and to teach hearing students sign language (SignWriting 2012). An example of SignWriting (printed with permission from the SignWriting 2012 dictionary) is given in Figure 3.1 below:

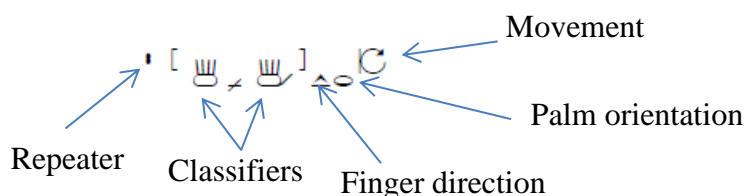
Figure 3.1: SignWriting notation (“to cry” in ASL)



As can be seen from the figure, SignWriting is a pictographic depiction which includes markings for facial expression, classifier handshapes, hand contact points, hand orientation and movement. To enable SignWriting to be processed electronically, Gleaves and Sutton (2004) developed a specialised three-menu keyboard to be used in conjunction with the SignWriter Computer Program developed in 1986 for Apple //e and MS-DOS systems (Sutton 2012b). In 2004, SignPuddle Online, developed by Stephen Slevinski, replaced the SignWriter Computer Program as the standard software for SignWriting (Sutton 2012b; SignPuddle 2012). Besides the online dictionary, a collection of children’s stories and chapters of an ASL Bible have also been composed using SignWriting (Frost 2011). SignWriting is used as the underlying transcription system in some of the ASL corpora discussed in Section 3.7.4 above.

HamNoSys (Hamburg notation system) was developed in 1989 as a research tool by the University of Hamburg (Hanke 2004:2). Based on Stokoe’s system, it comprises 200 symbols representing hand form, hand configuration, sign location and movement. An example of HamNoSys (Hanke 2004:2) is given in Figure 3.2 below:

Figure 3.2: Example of HamNoSys transcription (“nineteen” in DGS)



As can be seen in the figure above, classifiers are represented by semi-iconic drawings and orientation, location and movement by a complex set of arbitrary symbols. Facial expression is not recorded. Computer software has also been developed for HamNoSys, together with a specialised three-menu keyboard to facilitate data entry. The HamNoSys notation system

forms the basis of the Auslan, Austrian, German, Swiss German, New Zealand and Korean sign language corpora discussed in Section 3.7 above. HamNoSys has also been adapted to transcribe ESL (Paabo et al. 2009:404).

The **BTS** notation devised by the University of California uses a combination of plain text codes to describe a sign's phonology. For example, the verb "to mount" is transcribed as

(mount)-pm'PL_VL-pm'TL-gol'PL_VL_TOP-pst'STR

(Hoiting & Slobin 2002:60). The transcription system includes classifier handshapes (e.g. **pm'**) and aspectual modifiers (e.g. **gol'**, **pst'**). Adverbial modifiers are transcribed as **gol'** (=goal), **pst'** (=posture), **mod'** (=modifier), and **asp'** (=aspect), e.g. **pst'STR** = "straddle" (Hoiting & Slobin 2002:61-2). Since the transcription is not reader-friendly, a descriptive gloss is used as label but is not included in the analyses. Meaning is included in the gloss, but not in the actual notation. Following the CHILDES format, BTS utterances begin with * and a descriptive code for the speaker/signer, followed by dependent tiers (e.g. free translation) designated as % with a descriptive lower-case code (Hoiting & Slobin 2002:61), e.g.:

***MOT: COWBOY (mount)-pm'PL_VL-pm'TL-gol'PL_VL_TOP-pst'STR**
%gls: the cowboy mounted the horse.

A disadvantage of the BTS system is that, unlike the SignWriting and HamNoSys systems which describe actual physical features, it only provides indirect access to phonological information. Moreover, the codes devised are neither more systematic nor more objective than the words they represent (e.g. STR = "straddle" in the above example). Since BTS codes function like annotations, they are also discussed in Section 3.10 below.

Although notation systems provide powerful ways to represent sign components and therefore play an important role in defining signs, they do not convey semantic meaning and therefore are not yet suitable for comparisons between STs and TTs. For defining signs in this study (cf. Chapter 4.7.4.3), Stokoe's (1960) notation system was adapted with his complex shorthand replaced by alphanumeric codes. It was chosen because it did not rely on pictorial representation as do SignWriting and HamNoSys and is more systematic and concise than the BTS notation.

In the next section, descriptive gloss systems used for sign language corpora are discussed.

3.9.2 Glosses

A second method of transcription uses a word in capital letters (called a *gloss*) to represent the meaning of a sign, e.g. FLY. The conventional use of uppercase distinguishes the gloss from surrounding text such as comments. Glosses render a representation of meaning but sacrifice

physical representation. However, researchers who use glosses are careful to point out that they are metalinguistic substitutes for signs and not equivalents (cf. Koizumi et al. 2002).

The gloss transcription system most widely used is that of Baker-Shenk and Cokely (1981:3-31). In this system, composite signs are linked by hyphens, e.g. FROM-NOW-ON, or (in the NZSL corpus) by +, e.g. MOTHER+FATHER (McKee & Kennedy 2006:374). Similarly, single signs representing composite ideas in the gloss language are represented using hyphens, e.g. PUT-ON, or underscore e.g. EI_TAHA (= “not want”) (ESL corpus) (Paabo et al. 2009:420). Grammatical or contextual information is indicated above, below and next to the gloss, with an overline extending over all glosses affected by the grammatical or discourse marker, e.g. WORKover & over^{sta} Indicates the aspectual characterisation of repeated action by a comment (“over & over”) as well as by the mouth gesture “sta” which represents a grimace. Similarly, in FLY(t), (t) represents topic marking. In corpora, underlines are used instead of overlines. Finger-spelling is transcribed using hyphenated capitals (e.g. J-O-H-N) (cf. Aarons 1994; Baker-Shenk & Cokely 1980; Lombard 2006; Morgan 2006) or by small letters joined with connectors, e.g. i.r.a.q. (SOI corpus), k-o-e-r (ESL corpus) (Leeson & Saeed 2012:189; Paabo et al. 2009:418).

Movement is transcribed in the Baker-Shenk & Cokely system using *lf*, *rt* (left, right) and descriptive phrases, e.g. the gloss *me*-CAMERA-RECORD-*arc* represents a grounded blend in which the signer role-plays someone filming a scene by moving a camera in a large arc starting from herself. Location, classifier and orientation information is also represented where this needs to be made explicit. For example, the gloss *rt*-ASK-TO-*lf* indicates that the directional verb is carried out from a referent located at the speaker’s right towards another referent at the speaker’s left. In some systems, movement is described lexically, e.g. TEACH-ME (NZSL corpus) (McKee & Kennedy 2006:376).

Classifiers and orientations may also be expressed in the Baker-Shenk & Cokely system, e.g. B↑-CL indicates a “B” classifier oriented with the palm upwards. More frequently, such information is accompanied by a descriptive phrase, e.g. **(2h)4-CL‘line of people’** indicates that the classifier representing the numeral four is used by both hands to represent a queue of people (Baker-Shenk & Cokely 1981:7).

In using glosses to represent text, the sign word order is retained. For example, the sentence “I was bored yesterday, so what did I do?” can be transcribed as

YESTERDAY (t), ME BORED*, DO #W-H-A-T(*wh-q*)?

The glosses reflect the sign order, topic-marking, question-marking, emphasis (represented by *) and the fact that the signer used a finger-spelled loan word (represented by #) instead of the normal sign for the interrogative. However, although it arguably depends on the gloss system used, phonological information is less explicitly recorded in descriptive glosses.

The gloss system is probably the most popular method of transcription (e.g. Lombard 2006; Savvalidou 2011; Swift 2012) because it offers advantages to interpreting research. Since it represents semantic meaning, it allows texts to be compared, e.g. ST with TT. It also offers a system that can be digitised electronically but still remain reader-friendly. Descriptive glosses are used in the ECHO, ATIS, NGT, SGS, DSGS, LSF, LSE, LIS, DSL, NZSL, ESL and Korean corpora described above, sometimes in addition to a classifier notation system (Konrad 2010; cf. Paabo et al. 2009:420). Because of its reader-friendliness, a descriptive gloss system is used in back-translations and to describe aspects of the corpus in Chapter 6.

Johnston (2010:106), however, criticises gloss systems as too subjective, based on “the individual intuitions and research observations of the researchers, which may fail in the absence of clear native signer consensus of phonological or grammatical typicality, markedness or acceptability”. For example, inconsistent glossing is seen in the ESL corpus in that deixis is sometimes transcribed according to its meaning (e.g. YOU LOVE HIM) and sometimes as “index” (e.g. LOVE *index*₂) (cf. Paabo et al. 2009:421). According to Johnston, the dataset also becomes effectively unbounded because each sign potentially has its own gloss. Instead, he advocates the use of a coded gloss which he terms an *ID gloss*.

3.9.3 ID-glosses

An *ID gloss* is a word used consistently to label a sign regardless of its contextual meaning or modification (Johnston 2010:114). As with descriptive glosses, meaning is assigned to the gloss only indirectly because the word chosen bears a relationship to the sign’s meaning. Moreover, since they simply allocate a representation to a sign, ID glosses are lemmatised, thereby creating data which contains minimal prior theoretical analysis (Pichler et al. 2010:24). For this reason, POS annotations are usually recorded on a separate tier. ID glosses are used in the Auslan, BSL, SOI, BBA, DGS, Swiss German, Boston ASL and JSL corpora (Koizumi et al. 2002:928; Cormier et al. 2012; Leeson & Saeed 2012:9; Pichler et al. 2010:23).

The ID gloss for a sign is found by consulting lexical databases (Johnston 2010:116; Pichler et al. 2010:23), which therefore presumes that these exist for the sign language concerned. Usually only a single word is used for an ID gloss; however, if more words are required, they

are separated by hyphens, e.g. PULL-APART (Johnston 2011:13). As with descriptive glosses, compounds are depicted using the individual ID glosses separated by a hyphen, e.g. MOTHER-FATHER (= parents) (Leeson & Saeed 2012:118). In the Auslan corpus, homonyms of a single sign form are transcribed by different ID glosses related to their different meanings (Johnston 2010:118). In the JSL corpus, synonyms corresponding to the same ID gloss are numbered (Koizumi et al. 2002:928).

ID glosses are used to identify *lexical signs*, which Johnston (2010:115) defines as “a sign form whose meaning in context is more than the conventional or iconic value of its components, within the inventory of meaning units of a given sign language, and that meaning is stable or consistent across contexts”. In other words, lexical signs perform the functions that words perform in spoken languages. Signs that are only partially lexicalised (i.e. their meaning is instable or incomplete) and non-lexical signs such as classifiers, finger-spelling, pointers and buoys are not represented by ID glosses but by annotation codes instead (Johnston 2010:19,108). However, in the BBA corpus, letters of the manual alphabet are recognised as lexical signs and accorded ID glosses, e.g. LETTER-A (Pichler et al. 2010:26). Johnston (2010:110) also distinguishes between sub-categories of lexical signs, which according to him need to be glossed consistently in order not to obscure the relationship between signs. These include variants of negatives, marked use of hands, numbers, sign names and borrowings from signed English or other signs languages. For example, he suggests that “don’t know” should be glossed as KNOW-NOT in order to preserve the relationship with KNOW (Johnston 2011:18). However, in the NZSL corpus, DON’T-KNOW is transcribed as a separate lexical item (McKee & Kennedy 2006:375).

For the present corpus, it was decided to adopt the ID gloss system as it enabled systematic, lemmatised sorting in the *Antconc* concordance program, allowed mapping of polysemy and eliminated subjectivity in that glosses could be directly related to signs via a lexical database. This choice represents a break from the tendency in sign language interpreting research to use descriptive glosses (cf. Lombard 2006). Because no electronic database currently exists for SASL, the ID-glosses were based on Penn et al.’s (1992) dictionary of signs.

In the following section, some annotation schemas for sign language corpora are explored.

3.10 Annotation of sign language corpora

According to Johnston (2010:106), “the essential characteristic of [a] signed language corpus is that it has been annotated and not, contrary to the practice of many sign language researchers, that it has been transcribed.” He defines annotations as linguistic (phonological,

morphological, syntactic, semantic or discourse) information appended to identified units (Johnston 2010:108). Although in principle the terms *tags* and *annotations* are synonymous, *tags* refer specifically to automatic annotations such as POS annotations (Johnston 2010:108).

A number of annotation schemes for spoken-language corpora are published in the literature, the most widespread being XML, TEI, XCES and ICE (Cencini & Aston 2002:48; McEnery et al. 2006:74-76; Zanettin 2012:83). Although they are intended mainly for English POS analysis or aspects of spoken language, the standardised annotations can be adapted for sign language. An equivalent sign language annotation system (SiGML) using XML is used for plain-text avatar program coding, but is too bulky to be used for interpreting corpora since it uses separate headers for every non-manual component (Kennaway et al. 2007:3).

As noted in Section 3.5 above, the most popular corpus annotation system used in sign language research is ELAN (cf. Johnston 2010:110). With this system, any amount and type of annotations can be incorporated and users may also construct their own codes. For example, annotation tiers for the Auslan corpus include the ID gloss, grammatical classes, mouthed words, the grammatical class of the mouthed word, eyebrow behaviour, other facial expression, spatial modification, movement modification, aspectual modification, sign notation, clause/phrase identification, sign location, sign direction, body movement, head movements, eye gaze, eyebrow movements, classifier handshapes, movement of the right (dominant) hand, singling or doubling of hands, the semantic meaning of the sign, a free translation and notes or queries (Johnston 2010:112). ELAN is also designed to incorporate a HamNoSys transcription tier (cf. Johnston 2011:42).

Corpora based on ELAN do not need an annotation hierarchy. In the BBA corpora, an annotation order is observed in which the annotations intrinsic to the sign are placed first, followed by annotations relevant to its production (Pichler et al. 2010:27). Similarly, in the ESL corpus, classifier and orientation annotations precede those for location and movement, with the dominant hand indicated first (Paabo et al. 2009:420).

The following sections describe annotation systems for phonology, partially lexicalised items, NMFs, iconicity and discourse markers used in various corpora. These are not intended to be exhaustive, but to give an indication of the systems available and therefore to act as guidelines in the construction of a sign language corpus.

In choosing annotation codes for the present corpus, conciseness, unambiguity and compliance with corpus-driven research principles of avoiding prior theoretical interpretation (Tognini-Bonelli 2001; cf. Pichler et al. 2009:15), were sought, e.g. short alphanumeric codes were preferred over descriptions and physical characteristics of NMFs are represented.

Moreover, the annotations also had to be recognizable to the Antconc software and collectively identifiable in search operations. The annotation codes for the study are presented in Chapter 4.7.4.5 and explained in detail in Chapter Six.

In the next section, annotations for phonological features are described.

3.10.1 Phonological annotations

Although phonological information is inherently coded in notation systems such as HamNoSys and ignored by gloss transcriptions, many corpora also incorporate phonological annotations for orientation, movement, locality, use of hands, handshape classifiers and holds. As the present corpus consisted of interpretations and not original SASL discourse, phonological features are only annotated for absence or incorrect usage that could cause comprehension difficulties or if marked (e.g. movement).

Orientation is annotated in the Auslan corpus using an orientation tier which marks palm orientation as up (u), down (d), sideways (s) or other (o) (Johnston 2011:42). In the ESL corpus, there are directional codes for both palm (=1) and fingers (=2), e.g. “)1” = palm oriented to left, “)2” = fingers oriented to left (Paabo et al. 2009:412-3).

According to Leeson and Saeed (2012:78), **movement**, e.g. for directional verbs, can be described by four parameters, namely, interaction of the hands, hand contact or lack thereof, direction and manner. Movement is annotated as:

- numbers affixed to the gloss, e.g. 1GIVE2 (SOI corpus) (Leeson & Saeed 2012:78) or GIVER₁ (JSL corpus) (Koizumi et al. 2002:929);
- descriptive codes, e.g. **gol’PL_VL_TOP** = “move to top of vertical plane” or **mvt’LEX(ride)** = “movement inherent in the sign” (BTS) (Hoiting & Slobin 2002:61-2);
- ASCII symbols, e.g. “S” = sinuous downward movement (ESL corpus) (Paabo et al. 2009:418).

Similarly, **location** is annotated as:

- combinations of alpha-numeric codes for the ten spatial areas described in Chapter 2.5.6, e.g. numerical codes 1-10 (ESL corpus) (Paabo et al. 2009:421), or combinations of left (l), right (r), up (u), down (d), 45°, 90°, far front (a) and near front (s) (ECHO corpus) (Nonhebel et al. 2004:4);
- descriptive codes, e.g. **loc’PL_VL_TOP** (BTS) (Hoiting & Slobin 2002:62);
- arbitrary ASCII symbols, e.g. “O_” = “under the nose” for sign location relative to the body (ESL corpus) (Paabo et al. 2009:415).

For the present corpus, the ESL corpus annotations were adapted, with movement and location using similar alphanumeric codes.

Which **hands** are used is annotated with LH/RH or dominant/non-dominant tiers. This is done systematically for the Auslan and BBA corpora and for the ECHO, STS, NZSL and SOI corpora if marked (cf. Johnston 2011:15; Nonhebel et al. 2004:2; Pichler et al. 2010:35; Wallin et al. 2010:3), e.g. BIG-KID-2h (McKee & Kennedy 2006:375). In the ESL corpus, the relationship between the hands is coded using ASCII symbols, e.g. “|^” = one hand behind the other (Paabo et al. 2009:415). In the present corpus, the more frequent LH/RH was chosen as annotation with the understanding that LH=non-dominant hand and RH=dominant hand.

Classifiers are usually annotated by a code accompanied by a description, e.g. flat-surface-CL (SOI corpus), CL(pile of books) (JSL corpus) or p- (= “*polycomponential*”) (ECHO corpus) (Koizumi et al. 2002:929; Leeson & Saeed 2012:114; Nonhebel et al. 2004:2). In the Auslan corpus, classifiers are subdivided into location, movement, size/shape, handling and ground categories, e.g. DSL(2-HORI) = “two-legged horizontal object” (Johnston 2011:23). In the NZSL corpus, classifiers are subdivided into body parts (BPCL-), descriptive (DCL-), instrument (ICL-), locative (LCL-), plural (PCL-) and semantic (SCL-) subcategories, e.g. BOOK DCL-C-THICK indicates that a C handshape is used to describe a book’s thickness (McKee & Kennedy 2006:374). In the BTS system, classifiers are annotated as *property markers* (**pm**), e.g. **pm**’TL = two-legged i.e. “human”, **pm**’CYL = cylinder (Hoiting & Slobin 2002:60). For the present corpus, the common CL annotation was chosen together with their semantic meaning, e.g. personCL.

Held signs are also annotated in some corpora. In the BBA corpus, held signs are suffixed with [_], e.g. MOTHER[_] (Pichler et al. 2010:27), whereas in the ECHO corpus they are annotated as (-h), e.g. MOTHER-h (Nonhebel et al. 2004:3). In the present corpus, the latter was initially used since the former was used as sign delimiter, but since it in turn conflicted with mouthing annotations, holds were assigned a category under signing speed.

Unusual **signing speed** is annotated in the STS corpus on the comments tier (Wallin et al. 2010:9). In the present corpus, it had to be assigned an alphanumeric variable, thus was included in the speed category.

Phonological errors are annotated in BTS by [*], e.g. HORSE[*], together with a dependent coded error tier, e.g. %err: HORSE \$hs (=handshape error) (Hoiting & Slobin 2002:62). However, the * symbols is the most common wildcard in *Antconc*, hence “x” was used instead for the present corpus.

As discussed in Chapter 2.5.5, **repetition** is used to express grammar (e.g. plurals and on-going actions). In the ECHO, SOI, NZSL, BBA and ESL corpora, repetition is represented by repeating the gloss or by using Baker-Shenk and Cokely's (1981) code of suffixing "+" for each repetition, e.g. MEET-PERSON+++ (Leeson & Saeed 2012:102,5; McKee & Kennedy 2006:376; Nonhebel et al. 2004:1; Paabo et al. 2009:418). Default repetitions that form part of normal sign execution are not annotated (Johnston 2011:41; Pichler et al. 2010:27). In the JSL corpus, repetition and other aspectual inflections are annotated using descriptives, e.g. *read(repetition)* (Koizumi et al. 2002). In the present corpus, the + symbol had already been assigned to simultaneous constructions by left and right hand, so "r" was used instead.

In the next section, annotations for partially lexicalised items are discussed.

3.10.2 Annotations for partially lexicalised items

In sign languages, the meanings of certain signs (e.g. pronouns, deixis and gesture) are dependent on context. Hence, they are not assigned an ID gloss but are expressed through annotation (cf. Pichler et al. 2010:224). Other partially-lexicalised items that are often annotated as groups include finger-spelling, name signs and unclear signs.

Pronouns are prefixed with PRO and the grammatical class, e.g. PRO2SG (Auslan corpus) (Johnston 2011:50; cf. Paabo et al. 2009:418). Possessive (POS-), reflexive (SELF) and honorific (HONORIFIC) pronouns are also annotated for the relevant person, e.g. POS-2 = "your" in the NZSL corpus (McKee & Kennedy 2006:376), POSS(self) (= "my") in the BBA corpus (Pichler et al. 2010:24). In contrast, the SOI corpus uses INDEX annotated for directional movement, e.g. c INDEX f (= "you") represents deixical movement from the neutral middle space (c) to the distant middle space (f) (Leeson & Saeed 2012:105,154). The present corpus followed the SOI annotation. INDEX was chosen since, apart from its simplicity, it did not introduce prior theoretical categories.

Deixis is usually annotated in the following ways:

- using a category code, e.g. PT (JSL corpus) (Koizumi et al. 2002:928);
- using a category code with a pronoun reference, e.g. PT:PRO3SG (Auslan corpus), IX-3 (NZSL corpus) (Johnston 2011:20; McKee & Kennedy 2006:376);
- using a category code with a descriptive reference, e.g. IX(dog) (BBA corpus), IX-loc (NZSL corpus) (Pichler et al. 2010:24; McKee & Kennedy 2006:376; cf. Paabo et al. 2009:421).

The last system was chosen for the present corpus since it conforms best to corpus-driven principles of not including prior grammatical analysis, and since the handshape used is identical to pronoun use, deixis was also denoted as INDEX.

Gestures are represented by brief descriptions prefixed with G:, e.g. G:HOW-STUPID-OF-ME in the Auslan corpus (Johnston 2011:34). Similar annotations are used in the ECHO and BBA corpora (Nonhebel et al. 2004:1; Pichler et al. 2010:38-9). The BBA corpus further distinguishes between gestures (g) and conventionalised gestures termed *emblems* (e) (Pichler et al. 2010:25), whereas the BTS notation distinguishes between gestures (%ges:...) and actions (%act:...) (Hoiting & Slobin 2002:65). In the NZSL corpus, gesture is transcribed as MIME-, e.g. **MIME-put-arm-around-girl** (McKee & Kennedy 2006:375); however, conventionalised gestures are simply transcribed as signs, e.g. TAP-SHOULDER (McKee & Kennedy 2006:378). In the present corpus, a compromise was reached in that gestures are represented by single word forms with an annotation (g) to indicate that they are gestures. This allowed gestures to be included in word-lists since they were used by the interpreters as equivalents for ST items.

Fingerspelling is usually transcribed. However, in some corpora it is annotated by a category code, e.g. fs-OPOSSUM (NZSL corpus), FS(Julie) (BBA corpus) or FS:WORD(WRD) with the irregular spelling given in parenthesis (Auslan corpus) (Johnston 2011:37; McKee & Kennedy 2006:375; Pichler et al. 2010:24). Finger-spelling items that have become lexicalised are annotated as # (cf. Paabo et al. 2009:418). In the present corpus, finger-spelled items are similarly represented by capitals but annotated as a separate category for easier retrieval. The corpus follows the Auslan practice of distinguishing the letters actually spelled from the word, but does so by making judicious use of capital versus lower case letters.

Name signs are only annotated in the BBA corpus where they form a separate class, e.g. NS(Julie) (Pichler et al. 2010:24). It was decided not to distinguish name signs from other signs in the lexis for the present corpus.

Finally, **unclear signs** are annotated as [=?] in the BBA corpus, e.g. SICK[=?] if the sign's meaning can be inferred and as YYY or XXX (BBA corpus) (Pichler et al. 2010:22) or INDECIPHERABLE (Auslan corpus) if not (Johnston 2011:38). For the present corpus, specific annotation codes were designed related to the nature of the clarity problem. The present corpus also planned to use YYY for indecipherable signs, but this proved unnecessary.

In the next section, annotations for NMFs are explored.

3.10.3 Annotations for non-manual features

Most corpora annotate NMFs, making use of unmarked default neutral positions. In corpora using ELAN (e.g. the Auslan corpus), each NMF is annotated on a separate tier (Johnston 2011:42). For example, the Auslan corpus has tiers for body and head movements, eye gaze direction, eye and brow descriptions, descriptions of general facial features, mouthing, grammatical class of mouthed word, mouth gesture form and mouth gesture meaning (Johnston 2011:42). These are underlined over the duration of the NMF. Where relevant, NMF annotations are also accompanied by a tier of grammatical class annotations, e.g. “Aux:perf” (Auslan corpus) indicates an auxiliary verb that modifies a verb to achieve the perfect tense (Johnston 2011:55).

NMFs are usually annotated in terms of grammatical function or physical characteristics. In the BTS, NMFs are annotated as grammatical (^opr’X ... ^), modification (^mod’X ... ^), affective (^aff’X ... ^) and discourse operators (^dis’X ... ^), with descriptive codes (NEG = negation, AUG = augmented, etc.), e.g. ^opr’NEG WANT BOOK^ (Hoiting & Slobin 2002:63-4). In the ESL notation system, physical characteristics are described, e.g. “DREAMsquint eyes” (Paabo et al. 2009:420).

The remainder of this section is devoted to a discussion of annotation codes for specific NMFs, namely head and body movements, jaw movements, eyebrow movements, eye activity, mouth gestures and mouthing. Although not NMFs, sound effects are discussed briefly as well.

Head and body movements are annotated in the following ways:

- as coded physical gestures, e.g. htb = head tilt back, h/s = head shake (SOI corpus) (Leeson & Saeed 2012:78), or nod (n), shake (s) and tilt (t) (Auslan and ECHO corpora) (Johnston 2011:43; Nonhebel et al. 2004:5);
- as grammatical functions, especially negation, e.g. n __ = negative (SOI), DIFFICULT-**neg** (NZSL) (Leeson & Saeed 2012:22; McKee & Kennedy 2006:375);
- as descriptive references for head (i.e. nods, tilts, shakes (for negation), turn away, move backwards, move forwards and reverse nods) and body (i.e. forward, backwards, upwards, downwards and tilt), e.g. “nod” (Auslan corpus), ^{nod} (JSL corpus) (Johnston 2011:43; Koizumi et al. 2002:928-30);
- as category codes with descriptive reference, e.g. NMS-nod (NZSL corpus) (McKee & Kennedy 2006:375).

The present corpus adapted the SOI annotation codes since they were considered to be the most concise and unambiguous and also do not contain prior analysis.

Jaw movements are also annotated for the JSL corpus, where they serve as interrogation markers (Koizumi et al. 2002:929). These were not applicable for the present corpus.

Eyebrow movement is encoded for raised (“br”) and frown (“fr”) in the Auslan, SOI and ECHO and BBA corpora (Johnston 2011:44; Leeson & Saeed 2012:25; Nonhebel et al. 2004:5). In the present corpus, alphanumeric codes were used for “br” and “fr”.

Eye activity is coded using initial letters, e.g. blink (b), wide (w), squinted (s) or closed (c) (ECHO corpus), /eb/ = eye blink (SOI corpus) (Leeson & Saeed 2012:25; Nonhebel et al. 2004:5). **Eye gaze** is also coded using initial letters, e.g. addressee (a), target (t), other (o) or “cannot be coded” (z) (Auslan corpus) (Johnston 2011:44); as descriptive phrases (JSL corpus) (Koizumi et al. 2002:930), or using movement annotations (ECHO corpus) (Nonhebel et al. 2004:5). Because the visual quality of the interpreters’ eyes was compromised by the small picture, eye activity and gaze were not annotated in the present corpus, except if interpreters closed their eyes (which was considered a factor impeding comprehension).

Mouth gestures are annotated in the following ways:

- using Baker-Shenk and Cokely’s (1981) system of describing mimed sounds , e.g. “pah” = intensity, “mm” = normality (Auslan³, SOI and JSL corpora) (Johnson 2011:45; Leeson & Saeed 2012:105);
- using Bergman and Wallin’s (2001) system (STS corpus) of combinations of closed categories (i.e. /BILABIAL/, /CHEEKS/ and /LABIODENTAL/) with open categories (i.e. /STRETCHED/, /FORWARD/, /ROUND/, /PURSED/, /OPEN/, /AIRSTREAM/ and /TONGUE/ (Nonhebel et al. 2004:7);
- using exact physical descriptions for lip aperture (open or closed), lip position (round, forward or stretched), mouth corners (up or down), air use (in or out), tongue shape (pointed or relaxed), tongue position (% out mouth), teeth-lip contact (upper or lower lip), cheeks in, cheeks puffed, etc. (JSL, NGT⁴ and BSL corpora) (Koizumi et al. 2002:928; Nonhebel et al. 2004:8);
- using descriptives, e.g. pout, tongue poke, grin, etc. (Auslan and JSL corpora) (Johnston 2011:45; Koizumi et al. 2002:928).

All systems conformed to the present corpus’s principles of direct observation, but since conciseness was paramount in a textual corpus, an alphanumeric code was assigned instead of a description for mouth gestures not related to spoken language sounds (e.g. smile, grimace,

³ In the Auslan corpus, contextual meaning is also expressed in a mouth gesture meaning tier.

⁴ Repetitions of NMFs (-2, -3, etc.) are also annotated for this corpus.

puffed cheeks, etc.). Mouth gestures related to spoken phonemes were transcribed as such, e.g. “pow”, “pa” “pr”.

Mouthing is annotated in the Auslan and SOI corpora by recording the mouthed word in its own tier (cf. Johnston 2011:44; Leeson & Saeed 2012:4). In the BBA corpus, mouthed words are written in lower case and prefixed by “m”, e.g. m(okay). Clipped parts are placed in parenthesis, e.g. m((be)cause) (BBA corpus), DELIB(ERATE) (Auslan corpus) (Johnston 2011:44; Pichler et al. 2010:36-37). In the present corpus, only the part mouthed is transcribed.

Sound effects are annotated in the BBA corpus as &=, e.g. &=laughs (Pichler et al. 2010:37). Sounds were included in the present corpus in the ST transcriptions.

In the following section, annotations for iconicity are explored.

3.10.4 Annotations for iconicity

As noted in Chapter 2.4.2, **iconicity** is an inherent property of sign languages and is often utilised in reference and grounded blends. As Prinetto et al. (2012) note, iconicity is seldom encoded for all parameters. In most corpora, iconicity is annotated using the classifier annotations described above e.g. **CL:B+f+trace-nonlinear-path** (SOI corpus) (Leeson & Saeed 2012:122), **PCL-B-heaps-of-bread** (NZSL corpus) (McKee & Kennedy 2006:375). Classifier shapes for referential blends are annotated in detail (using different tiers for each hand) in the SOI corpus as descriptive phrases with a movement entity and translation, e.g.

RH: solid-round-entity-CL+MOVE-imit:sunrise
LH: flat-surface-entity-CL+EXIST-.....

represents the sun rising over the horizon (Leeson & Saeed 2012:114). Iconicity is also annotated as a descriptive referent prefixed by a category code for depicting verb (DV), gesture (g) or emblem (e), e.g. **DV(vehicle-moves-down-straight-path)** (BBA corpus) (Pichler et al. 2010:25). In the present corpus, iconicity is designated by the prefix “I” together with classifier notation for grounds and buoys.

In the next section, discourse-level annotations are discussed.

3.10.5 Annotation of discourse markers

Annotations at discourse level include those for false starts, pauses, role playing and discourse buoys. Discourse devices such as topic-marking and reference are usually annotated as phonological features, deixis and NMFs, in line with the growing practice of constructing data free from presupposed theoretical interpretations (cf. Pichler et al. 2009:15).

False starts are annotated in the following ways:

- as a descriptive parenthesis suffixed to the ID gloss, e.g. TURTLE(FALSE-START) RABBIT (Auslan corpus) (Johnston 2011:42);
- as /, // or /// (depending on who the interrupter is) with corresponding retracings [/], [//] or [///] (depending on the type of correction) (BBA corpus) (Pichler et al. 2010:21);
- as “...” if the signing simply trails off (BBA and SOI corpora) (Leeson & Saeed 2012:190; Pichler et al. 2010:36).

In the present corpus, false starts were annotated if they constituted additions, whereas “...” is also used similar to the BBA and SOI corpora.

Pauses are annotated in the BBA corpus as # (Pichler et al. 2010:22), but in the SOI and ESL corpora, pauses are annotated as /, // (Leeson & Saeed 2012:172; Paabo et al. 2009:421). Both codes conflict with other code designations, e.g. # is also used to express fingerspelling and /, // to express interruptions. In the present corpus, in order to match ST annotations, pauses are denoted by commas and semicolons, whereas deliberate folding of the interpreters' hands is coded as a period.

Role-playing is annotated as descriptives of the characters portrayed, sometimes with category and NMF codes, e.g. ‘RS(dog) EXCITE-^aff’INTENSE’ (BTS) (Hoiting & Slobin 2002:64; cf. Johnston 2011:42; Nonhebel et al. 2004:9), or point of view (POV) (cf. Leeson & Saeed 2012; Hoiting & Slobin 2002). The Auslan corpus distinguishes between *constructed dialogue* (CD) and *constructed action* (CA), e.g. CA:POLICEMAN. It also records the side of the body used for each action (e.g. left/right) in the body movement tier (Johnston 2011:42,50). In the present corpus, role-playing is annotated as iconic, with longer segments annotated as blends (cf. Chapter 2.5.4.4).

Discourse is also managed by the use of **buoys**, i.e. classifiers held over the relevant segments of discourse. In the Auslan corpus, list, fragment, theme and pointer buoys are annotated for category code, hand-shape and meaning, e.g. LBUOY(2):SECOND indicates a list buoy held in the handshape for the number two to designate the second item on a list (Johnston 2011:30-31). In the NZSL corpus, list buoys are transcribed as a list pointer with the number of items annotated as a suffix, e.g. IX-LIST-2 represents a list consisting of two items (McKee & Kennedy 2006:375). In the present corpus, discourse buoys are annotated at the beginning and the end of the discourse segment.

In the conclusion, the main aspects discussed in this chapter that relate to constructing a corpus for sign language research are summarised.

3.11 Conclusion

In conclusion, sign language corpora have been developed around the world as part of the growing interest in sign language linguistics. They represent an effort to describe sign languages systematically as well as to preserve them. Spurred by multimedia technologies, sign language corpora have assisted in verifying linguistic phenomena that were previously only described on the basis of a few isolated case studies. They have also resulted in the formation of bilingual and multilingual dictionaries, teaching aids and automatic service software for Deaf persons. These corpora are being made available on open-access websites.

In the first part of this chapter, corpora were defined in terms of composition and function and their typologies characterised in terms of language and content. Design criteria of representativeness, size, electronic availability and reference function were discussed and an overview of concordance-based analytical techniques of type-token ratios, wordlists, concordances and collocations was given. Thereafter, the application of corpora to the study of T/I features was explored and challenges regarding cost, representativeness, transcription and annotation encountered in the construction of interpreting corpora were examined.

In the second part of the chapter, existing sign language corpora were explored in order to provide the framework for the construction of a SASL interpreting corpus. The literature study revealed that there is a dearth of sign language *interpreting* corpora, but that Corpus Sign Linguistics is a new and fast-growing discipline. Corpora examined included the multilingual comparable corpus ECHO, the DictaSign, ATIS, BBA and BSLA bi/multilingual parallel corpora, as well as Chinese/Taiwanese, Icelandic/Danish and DGS/DSGS projects. Monolingual corpora were then investigated in detail for the BSL, NGT, STS, ISL, DGS, DSGS, LSF, LIS, Auslan, NZSL, ASL, Korean and JSL projects.

In the last third of this chapter, different schemas of metadata recording, transcription and annotation were investigated in order to construct a system for the present corpus. Special attention was given to IMDI's categories of session, catalogue and lexical metadata. This was followed by an examination of transcription systems, which described and characterised the notational systems of Stokoe, ESL, SignWriting, HamNoSys and BTS on the one hand and descriptive and ID glosses on the other. Finally, annotation codes for phonological elements, partially lexicalised items, NMFs, iconicity and discourse markers were explored.

The analytical framework and research procedures for the present study are outlined in the next chapter.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

In this chapter, the underlying research framework, model, procedures and methods of analysis for the study are explained.

4.1 Introduction

The main purpose of this study is to investigate reasons why Deaf South Africans might not understand the sign language interpreters on the TV news broadcasts. Attention is paid on the one hand, to Deaf means of communication, language usage and visibility aspects, and, on the other hand, to factors of the interpreting process. The focus area of the study is Sign Language Interpreting Studies and the application area is sign language interpreting on TV news bulletins. This domain area was chosen not only because of the researcher's belief in the right of Deaf citizens to be informed on events in their country, but also because of an identified need for localised sign language interpreting research.

The purpose of this chapter is to construct the theoretical framework for the study and describe the research paradigms, methods, models and procedures followed in the research design. For all evaluative research, it is essential to have a coherent methodology and evaluative criteria. The framework of the present study is based on the adaption of a reception-oriented model in accordance with Grounded Theory (GT) principles.

The contents of this chapter follow a top-down approach. In Section 4.2, the research questions are reviewed together with references to the research variables and the instruments employed to address them. This is followed by an overview of Interpreting Studies in relation to the study's focus and application areas in Section 4.3. In Section 4.4, GT principles are outlined and in section 4.5, the reception-oriented model that underlies the research is developed and explained. Section 4.6 presents the evaluative criteria that form the basis for the study. This is followed in Section 4.7 by an explanation of the means of data collection and analysis using the different research instruments. A discussion of the study's reliability and validation is then presented in Section 4.8. The chapter concludes with a summary of the main aspects of the research framework and procedures in Section 4.9.

4.2 Review of research questions

The research questions were presented in Chapter 1.2. The main research question is:

- What factors contribute to Deaf South Africans' lack of comprehension of signed interpretations of TV news bulletins?

The secondary research questions addressed in this study are presented in Table 4.1, together with the relevant research variable and the research instruments employed to address them.

Table 4.1: Research questions and procedures

RESEARCH QUESTIONS	RESEARCH VARIABLES	RESEARCH INSTRUMENTS
To what extent does the target audience rely on the service of the interpreter as information source compared to other available sources? (RQ1)	Communication means (V1)	Questionnaire Eye-tracking Discussion
Are there elements of the physical setting that hamper interpreter visibility and thus audience comprehension? (RQ2)	Physical environment (V2)	Questionnaire Discussion Corpus analysis
To what extent do the interpreters use standardised forms of South African Sign Language (SASL)? (RQ3)	Language variation (V3)	Questionnaire Discussion Corpus analysis
Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters? (RQ4)	Language use (V4)	Questionnaire Discussion Corpus analysis
Do the choices in selection of target language (TL) material employed by the interpreter adequately convey a coherent message? (RQ5)	Interpreting choices (V5)	Corpus analysis

In the following section, the theoretical framework of the present research is set in the context of the overall paradigm of Interpreting Studies.

4.3 Interpreting Studies

Although the profession of conference interpreting has been established since the 1930s (cf. Pöchhacker & Shlesinger 2002:5), according to Riccardi (2002:27), it was only during the 1990s that Interpreting Studies began to flourish as a discipline in its own right. Because academic and professional interest in community interpreting only arose after Seleskovitch's (1975) research, simultaneous conference interpreting thus headed the development of the new discipline (cf. Gile 1994; Salevsky 1993; Pöchhacker & Shlesinger 2002:5-9). Because of the newness of both discipline and profession, initial studies focussed on producing interpreting manuals and models (cf. Barik 1975; Gerver 1976; Gile 1983, 1995a; Moser 1978; Oléron & Nanpon 1965). Thus empirical investigation of interpreting features is barely out of the developmental stage.

Although Interpreting Studies has roots in neurolinguistics, cognitive linguistics and psycholinguistics (cf. Gran & Fabbro 1988; Gile 1995; Paradis 1994; Riccardi 2002), the greatest theoretical influence has come from Translation Studies (Riccardi 2002:20-21; Pöchhacker 2008:41; Pöchhacker & Shlesinger 2002:4; cf. Holmes 1988; Pöchhacker 1994; Shlesinger 1989; Toury 1995). According to Riccardi (2002:21), this was mainly because

German theorists regarded interpreting as a subcategory of translation, thereby focusing on text typology and not on the medium. For example, Reiss and Vermeer (1984:6) regarded their *Skopostheorie* as extending naturally to interpreting. Similarly, Pöchhacker (1994:31-32,240-242) places interpreting within the framework of *Allgemeine Translationstheorie*, a fusion of Reiss and Vermeer's (1984) *skopostheorie* and Holz-Maenttari's (1984) *Theorie über translatorisches Handeln*. So strong is the Translation Studies influence that Shlesinger (1994) coined the term *interpreted text*, thereby regarding interpreting phenomena as peculiarities of a new text type.

Research into sign language interpreting developed initially as a sub-discipline of community interpreting in conjunction with the developing profession of sign language interpreting (Bidoli 2001; Wadensjö 2004). Because of the demands of the new profession, the bulk of research still focuses on interpreter training (Leeson et al. 2011:4; cf. Erlenkamp et al. 2011; Napier 2002; Napier & Barker 2004; Napier et al. 2006) and related areas of interpreting practice (Bidoli 2002; Demers 2005; Hetherington 2011; Russell 2002; Stratij 2005; Swift 2012; Wadensjö 2004), strategies (Goswell 2011; Leeson 2005a; Savvalidou 2011), professional ethics (Conrad & Stegenga 2005; Demers 2005; Janzen & Korpinski 2005; and interpreting standards (Cokely 1992; Ortiz 2011; Perreira & Fronza 2011; Strong & Rudser 1985). Other aspects investigated include language use (Erlenkamp et al. 2011; Janzen 2005; Leeson 2005b; Malcolm 2005), differences between simultaneous and dialogue interpreting (Russell 2002; Leeson 2005a), interpreting models (Cokely 1992; Wilcox & Shaffer 2005) and the role of Deaf interpreters (Boudreault 2005; Stone 2009; Stratij 2005).

Academic interest in media interpretation is even more recent. Research usually focuses on the types of programs and the difficulties involved (cf. Antonsen 2006; Bros-Brann 2002), evaluate the quality of the product in terms of norms and constraints (Mack 2002; Savvalidou 2011) or audience response (Chiaro 2002; Kyle 2007; Xiao & Yu 2009). Because both Signed Language Interpreting Studies and media interpretation are very recent fields of research, there is very little research into sign language media interpretation. The following studies are noted for this application area:

- Documentation of practice: Kurz and Mikulasek (2004) documented the use of subtitles and sign language interpreting on Austrian TV broadcasts.
- Guidelines for interpreter training: Antonsen (2006) drew up guidelines for TV sign language interpreters based on his qualitative study of Norwegian Sign Language interpreted TV programs.

- Surveys of audience expectations: Kyle (2007) explored common trends in Deaf expectations and grievances expressed by a number of British surveys on BSL TV news interpretation. Xiao and Yu (2009) reported briefly on Chinese Deaf expectations.
- Exploration of norms and practice: Stone (2009) explored Deaf interpreters' expectations and norms for BSL TV news interpreting through interviews and measures prosody using blink rates for Deaf and hearing interpreters.
- Exploration of discourse strategies: Savvalidou (2011) explored the interpretation of politeness strategies by comparing ST and TT transcripts of a Greek TV political debate.

Hence this study contributes significantly to existing knowledge in this field.

In the following section, the overall research paradigm of the study, namely GT, is discussed.

4.4 Grounded Theory

The overall research paradigm of the study is established on the tenets of GT, which was postulated by Glaser and Strauss (1967) and further developed separately by Corbin and Strauss (1990, 2008), Strauss and Corbin (1990) and Glaser (1998) to account for research that explored new terrain rather than validate existing hypotheses. GT is therefore inductive and leads to theory development, i.e. the formulation of hypotheses. It advocates a continually feeding algorithm in which basic postulates are continually re-assessed in the light of incoming data. By advocating a holistic approach, it breaks away from the rut of deductive/positivist/empirical/epistemic versus inductive/heuristic viewpoints of qualitative versus quantitative research.

A GT approach is built on four main principles, namely an emergent approach to knowledge acquisition, an iterative system of data collection, mixed-method analysis and triangulation of research procedures. These are discussed in the sections below.

4.4.1 An emergent approach

Instead of arbitrarily assigning categories to a research problem or hypothesis, GT advocates the framing of suitable questions grounded in the dynamic context of real events or situations (cf. Corbin & Strauss 1990:5-6; Yeshiva s.a.:7). Answers to these questions lead to further questions and thus the refinement of knowledge. Thus, GT relies primarily on an *emergent* approach to knowledge acquisition. As Dörnyei (2007:262) points out, this approach is invaluable in generating theoretical knowledge in areas where very little is known about the phenomenon being investigated, as was the case in the present study. An emergent approach allowed the researcher to acknowledge ignorance and use respondents (in this case, the local

South African Deaf community) as expert sources of knowledge, thereby precluding hearing prejudices, empowering the Deaf respondents and encouraging their involvement in the study. It also enabled Deaf groups to use the research to advocate for Deaf rights.

However, although the present study lent itself well to an emergent approach, the necessity of an emergent approach in general in qualitative research has been the subject of much debate in the literature (cf. Dörnyei 2007:39). The main disadvantages of a completely emergent approach are that it is time-consuming and can become unstructured and disorganised (cf. Dörnyei 2007:125). However, this can be prevented by constructing an initial set of variables comprising the general aspects of the phenomenon under investigation as soon as possible from the research question(s), which can be refined as the study progresses. These are not predefined categories typical of quantitative research, but similar to the initial variables proposed when problem-solving using mathematical induction. The composition of such a set of parameters is discussed in Section 4.6 below.

An emergent approach implies that GT relies on an iterative approach to data collection.

4.4.2 An iterative approach

A second feature of GT is the feeding of new data back into the research question loop, i.e. newly acquired insights are used to refine research instruments and enhance the structure and methodology of subsequent experiments (Corbin & Strauss 1990:6-7). Therefore, data collection and analysis are treated as simultaneous, dynamic processes. This iteration of data collection is termed *theoretical sampling*. According to Glaser and Strauss (1967:45),

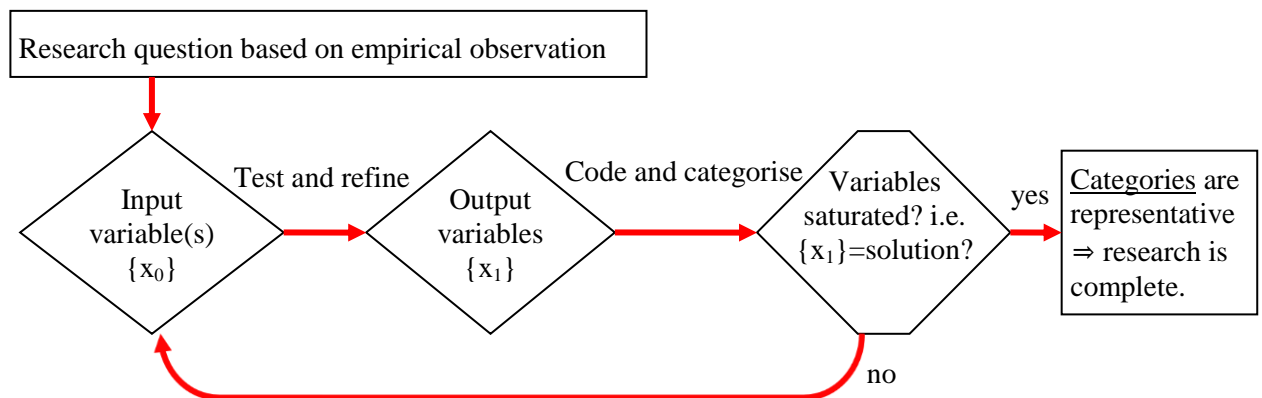
Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges.

Incoming data is grouped into concepts (i.e. *open coding*), which the researcher then attempts to categorise further, a process called *axial coding* (Strauss & Corbin 1990:7,12-14). Through a process termed *selective coding*, these coded concepts and their subcategories are then used to form the bases from which hypotheses can be generated and tested (Strauss & Corbin 1990:15-17). In other words, the hypotheses generated are *grounded* in the empirical data. This process of generating hypotheses through grouping and coding is termed *theoretical coding* (cf. Dörnyei 2007:260-262; Yeshiva s.a.:7).

It is therefore proposed that a GT model functions as an iterative regression operator, in which an initial solution is offered, tested and continually refined in order to eventually obtain a full solution. The process ends when incoming data yields no additional concepts or categories.

This state is termed *theoretical saturation* (Glaser & Strauss 1967:61). The iterative process is illustrated in Figure 4.1 below.

Figure 4.1: An iterative model for GT research



As indicated in the diagram, representativeness (i.e. consistency) in GT is defined in terms of categories of concepts, rather than statistically in terms of the broader population (Corbin & Strauss 1990:6-7). The theoretical implications of this definition in terms of research reliability and validation criteria are discussed in greater detail in Section 4.8 below.

Thirdly, GT supports a mixed-method approach, in which statistical analysis (i.e. quantitative research) complements the findings arrived at by qualitative research. This is discussed in the next section.

4.4.3 A mixed method approach

In a **mixed-method** approach, both qualitative and quantitative approaches are applied (Dörnyei 2007:163; Angouri 2010:30-33). According to Glaser and Strauss (1967:17-18), “each form of data is useful for both verification and generation of theory... in many cases, both forms of data are necessary”.

Research is roughly categorised as being either qualitative or quantitative. According to McEnery and Wilson (2001:1), *qualitative* research is inductive and aims to obtain complete, detailed descriptions of phenomena (cf. Rasinger 2010:52). Findings are not statistically significant; instead, rare phenomena receive attention and classifications are not forcibly simplified. Thus qualitative research is considered to be *hypothesis-generating* as opposed to *hypothesis-testing* (Corbin & Strauss 2008:65-70; Patton 2002; Yeshiva s.a.). In contrast, *quantitative* analysis consists of the analysis and interpretation of statistically measurable data and is therefore deductive (Dörnyei 2007:32; Rasinger 2010:52; McEnery et al. 2006:6). Quantitative research therefore lends itself to *hypothesis-testing* (cf. Rasinger 2010:52). Features are categorised and counted, and statistical models are constructed to explain

observations and generalise findings to a larger population. Sets of data (e.g. two corpora) can be compared with each other, provided valid sampling and significance techniques are used. However, since classifications must be mutually exclusive, categories are often combined in order to obtain minimum frequencies for statistical tests, resulting in less rich data (cf. Dörnyei 2007:33; Levon 2010:77-79).

According to Dörnyei (2007:172), concurrent use of qualitative and quantitative research constitutes a powerful tool for examining complex phenomena, allowing for a broader perspective and comparison of findings obtained by the different methods. As Dörnyei (2007:165) notes, qualitative research often precedes quantitative analysis, since it allows categories to be identified which can later be classified and counted.

The study employs both qualitative and quantitative methods of data analysis. In line with GT, the data from all procedures was first analysed qualitatively to identify and code categories of interest. Qualitative data was collected using open-ended questions in the questionnaire and through coding of the discussion and interpretations (using both the face-to-face visual material and the transcriptions). Categories obtained from the qualitative data analysis were then used to generate quantitative data in the form of occurrence frequencies using MS Excel and the *Antconc* concordancer. Quantitative data was also collected directly using Likert scales in the questionnaires and durations of eye fixations in the eye-tracking experiment. Raw quantitative data was further refined using descriptive statistics.

However, in a GT approach, the use of inferential statistics should be approached with caution. Since the primary aim of GT is to elicit as much qualitative information (in this case, factors contributing to Deaf viewer incomprehension), it is often the case that the qualitative data collected does not belong to mutually exclusive categories – nor, from a qualitative viewpoint, does it have to be. On the other hand, statistical manipulation of data using inferential statistics relies primarily on mutually exclusive categories of which respondents choose only one option. One such example found in the questionnaire is the choice of respondent reasons elicited for their perceived lack of comprehension. Although these categories reflect key issues in the Deaf community, they are not mutually exclusive, neither were respondents restricted to a single choice. Moreover, inferential statistics are built on statistically representative samples, which are not always obtainable. Hence this study restricts itself primarily to descriptive statistics, with only rare application of inferential statistics.

A summary of the research methods used in this study for the various procedures is given in Table 4.2 below:

Table 4.2: Summary of research methods

RESEARCH PROCEDURE	QUALITATIVE DATA (GT coded categories)	QUANTITATIVE DATA (Frequency counts & descriptive statistics)
Questionnaire	Open-ended questions	Closed questions, Likert scales, GT category frequencies
Eye tracking	Retrospective questions	Fixation durations
SASL discussion	Topics of discussion	GT category frequencies
Corpus analysis	Annotations of sign language features and interpreting shifts, collocations, wordlists	Type/token ratios, concordance frequencies

Fourthly, GT relies on triangulation of procedures (Corbin & Strauss 1990:5; Dörnyei 2007:165; Angouri 2010:34). This is discussed in the following section.

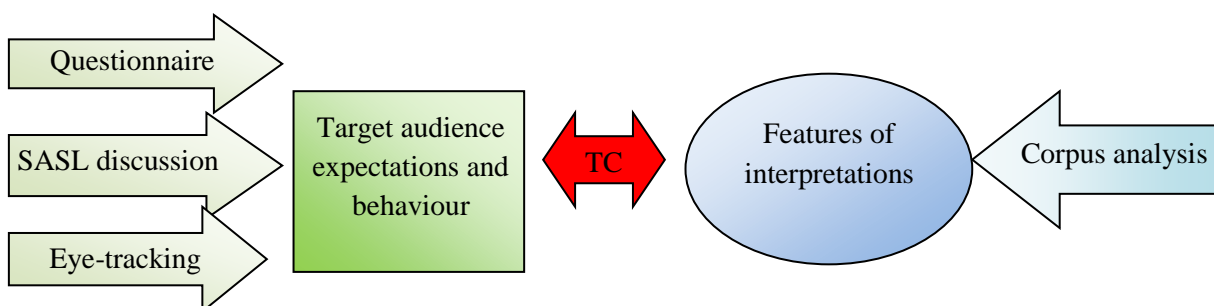
4.4.4 Triangulation

Triangulation means that different theoretical stances, methods and sampling techniques are used to arrive at a similar set of conclusions (cf. Angouri 2010:34). According to Dörnyei (2007:61), “triangulation has been traditionally seen as one of the most efficient ways of reducing the chance of systematic bias in a qualitative study”. *Methodological triangulation* involves the use of multiple research procedures or methods, whereas *data triangulation* involves using multiple sources of the same procedure or method (cf. Cohen et al. 2005). Both forms are used in the present study.

In this study, four different research procedures are used. Firstly, questionnaires ascertained Deaf opinions on comprehension of the TV news broadcasts. Secondly, real viewing habits of Deaf viewers were tested using eye tracking apparatus. Thirdly, feedback was elicited from the group of Deaf participants in the form of a group discussion on the content of the selected portions of news broadcasts they had watched. Finally, selections of authentic TV news interpretations were analysed using corpus tools. The set of evaluative criteria grounded in the research questions comprises a *tertium comparationis* (TC) for the four procedures.

The relationships of the four research procedures are depicted in Figure 4.2 below:

Figure 4.2: GT triangulation model



As indicated in the figure, triangulation is achieved through collection and comparison of the sets of iterative coded variables derived from each procedure.

Triangulation can play both a *complementary* as well as a *confirmatory* role. Both roles were utilised in the present study. As can be seen from the figure above, data from the questionnaires, SASL discussion and eye-tracking experiment are used to collect information on the target audience. The questionnaires and discussion both collect primarily qualitative data related to perceived audience attitudes and therefore triangulation of these data mainly plays a *confirmatory* role. In contrast, the eye-tracking procedure reveals quantifiable information on real behaviour which cannot be derived from the other two procedures. Therefore triangulation of these data with that derived from the other two procedures plays a *complementary* role. Similarly, data derived from the corpus analysis are used to confirm target audience perceptions on language use and visibility issues and to complement other procedures in exploring interpreter strategies.

In the following section, the development of a reception-oriented model and its application to the present research is discussed.

4.5 A reception-oriented approach

Integrated into the GT research rationale is an intra-disciplinary model based on the tenets of Descriptive Translation Studies (DTS) known as a *reception-oriented* approach. DTS theorists concern themselves with providing descriptive analyses of translations within the context of their reception by the intended target audience. Arising in the 1980s after general dissatisfaction with the notion of equivalence as a means of comparing source and target texts, DTS broke away from previous translation theory in that it is neither prescriptive (i.e. dictating how translation should be done) nor ST-oriented (i.e. upholding the ST as the standard against which the translation was to be measured) (Hermans 1985; Toury 1980, cf. Kruger 2002:78). Instead, DTS accepts the translated product as a *fait accompli* in the target language *polysystem*, a term which attempts to explain the hierarchical relationships linguistic products occupy within a particular language or even within a particular genre (Even-Zohar 1990:12; Shuttleworth & Cowie 1997:176; Toury 1995:24). As its name suggests, a reception-oriented approach seeks to describe and explain the *reception* of the TT in terms of the world-view, norms and expectations of the target audience (Hermans 1999a:35; cf. Toury 1995:36).

Although the reception-oriented model was initially created for Translation Studies, it can also be applied to Interpreting Studies and its adoption has certain implications for the

evaluation of interpretations. Firstly, the signed interpretations are *ipso facto* accepted as independent products in the TL (here SASL) and can therefore be described in terms of their adherence to TL norms. Secondly, a DTS approach means that adherence to the ST is not the primary criterion of evaluation of interpreting quality. However, the use of such a model does not necessarily imply the rejection of possible prerequisites of adherence to the ST. As noted in Chapter Two, the principle of loyalty to the ST in terms of information transfer is a strong interpreting norm (cf. Gile 1995:201; Kurz 1993:317). Thirdly, according to the model, the interpretation is evaluated in terms of its *reception* by the target audience, or at least in terms of notions held within the TL system as to what constitutes an adequate interpretation.

A reception-oriented model is built on three concepts, namely the establishment of a *tertium comparationis* (TC), the identification of *shifts* and the description of translation/interpreting (T/I) *norms*. Differences, i.e. *shifts* (Toury 1980:76), between texts are identified according to the TC and explained in terms of underlying principles or *norms* (cf. Hermans 1999a,b; Toury 1995:53-67, 1999:14). These concepts are discussed in the following sections.

4.5.1 The notion of a tertium comparationis

Although reception-orientated theory is descriptive as opposed to prescriptive, it is no less systematic. Instead of being compared with each other in terms of equivalence, source and target text(s) are compared in terms of a set of parameters known as the *tertium comparationis*. The TC, therefore, forms a matrix through which the texts are filtered.

Toury (1980) initially advocated the TC as an idealised metatext, a word-for-word equivalent translation. Toury's idealised metatext is, as Gentzler (2001:132) correctly notes, based on the very concept of equivalence that he rejected. The TC envisaged by Toury is therefore a componential analysis of the ST (cf. Lyons 1981:75-97) in the mind of the evaluator. Others reject the notion of a TC, but still systematically describe incidents of non-equivalence between source and translation for each translation unit (cf. De Vries' (1994) evaluation of Dutch Bible translations). In contrast, Kruger and Wallmach (1997) base their comparisons of ST and TT on predetermined variables related to the research question(s). Lambert and Van Gorp (1985), Heylen (1993) and Wehrmeyer (2001) use similar approaches in which subcategories of macro-textual and micro-textual elements comprise the TC.

Having debunked the ST as basis of comparison of the TT, the notion of what is to be compared and thus of the composition of the TC is still fluid in DTS-based research. Although the primary focus is still on ST-TT comparisons (i.e. *ST-dependent* comparisons) (cf. Kruger & Wallmach 1997), other bases of comparison (i.e. *ST-independent* comparisons)

are also encouraged. For example, corpus-based studies investigating T-universals compare translations not with their STs, but with corpora of original writings in the TL, based on Even-Zohar's (1990) concept of the TT as a product in its own right competing with other elements in the TL system (cf. Laviosa 2002). These studies are still *product-oriented* in that they compare the TT with other text products.

Even-Zohar's (1990) proposed comparison of the TT against target system *norms* forms the basis of development of a *reception-oriented* theoretical model (cf. Wehrmeyer 2001). The term *reception* implies that the TT is evaluated in terms of its reception by the target audience, i.e. the target audience becomes a necessary partner in the evaluation process. Hence, an important component of the research is the exploration of target audience expectations, which, as Heylen (1993:23) notes, change from generation to generation. The notion of target-audience translation evaluation (still practiced by Bible translation organisations (SIL 2012; cf. Lombard 2006)) was originally proposed by Nida (1960, cf. Nida & Taber 1974), whose theory of *dynamic equivalence* advocates that the TT should exert an *equivalent effect* on the target audience that the ST had on the ST audience. Evaluation of interpretations in terms of user expectations has also previously been undertaken in Interpreting Studies (cf. Kurz 1993; Pöchhacker 2000).

This study therefore proposes three typologies of comparisons for DTS, namely:

- Product-oriented ST-dependent comparisons (i.e. which compare TT(s) with ST(s));
- Product-oriented ST-independent comparisons (i.e. which compare TTs with original texts in the TL);
- Reception-oriented ST-independent comparisons (i.e. which compare TTs with audience expectations).

The type of comparison affects the choice of TC, e.g. Toury's (1980, 1995) metatextual TC is useful for ST-dependent comparisons, but meaningless for ST-independent comparisons.

The concept of norms is now discussed in terms of a DTS model.

4.5.2 The notion of norms

DTS theory does not prescribe how translations or interpretations ought to be done, but recognises that the T/I product is a result of choices in the light of prevailing principles or conventions of that period. DTS collectively uses the term *norms* to describe and define these constraints (Hermans 1999b:57). The concept of norms was previously developed by functional theorists such as Christiane Nord (1991:96; 1997:53) and is therefore not unique to DTS. In DTS, the main theories developed around the concept of norms are those of Gideon

Toury and Andrew Chesterman. These are discussed below; following which the application of the concept of norms to simultaneous interpreting (SI) is described.

4.5.2.1 *Toury's definition of norms*

Toury (1999:14; cf. 1980:51) defined norms as:

The translation of general values or ideas shared by certain community – as to what is right and wrong, adequate and inadequate – into specific performance instructions appropriate for and applicable to specific situations.

Toury initially perceived norms in terms of imposed behavioural constraints, the flouting of which implied some form of sanction or consequence. This definition was criticised by a number of theorists, including Chesterman (1999:96) and Hermans (1999a:60). The concept of norms held by theorists nowadays is closer to that of Nord's (1991:96) definition of norms as items "fixed by members of certain groups within the framework of existing rules".

Toury (1980:70; 1995:58-59) defines three sets of norms. Firstly, *preliminary norms* are a result of existing policy or directness. Examples of SI preliminary norms include interpreting in the first person and from the interpreter's other language(s) into her mother-tongue. Secondly, *initial norms* comprise the translator's decision whether to orientate the translation in terms of the ST or the TT culture, or in Venuti's (1995:19-21) terms, whether to *foreignise* or *domesticate* the TT. As discussed in Chapter 2.6.1, the norm in SI (for both spoken and sign languages) is to *domesticate* (Gile 1995:201-4; Stone 2009:xi). Toury (1995:58) later fused his categories of *preliminary* and *initial norms*, defining instead the set of *preliminary norms* as those general principles which the translator/interpreter commits himself consciously to follow *before* undertaking the actual translation or interpreting task. Thirdly, *operational norms* comprise those principles which operate during the T/I process. *Matricial norms* govern omissions, additions and rearrangements of translation units, whereas *textual-linguistic norms* govern the selection of material from the TL. Toury (1995:260) further categorises operational norms as *general* or *particular*, depending whether they belong to translation in general or operate on one translation in particular.

According to Toury (1995:248-254, 1999:26-27), the translator internalises norms through a four-step process, namely, firstly through feedback from others, secondly through the application of sanctions or rewards, thirdly by developing an internal monitoring system and finally full internalisation is demonstrated when decisions are made semi-automatically. It is thus evident that there is a distinction between discipline- or language-specific *system norms* recognised by the relevant society and the translator's *internalised norms* which result in adequate or inadequate strategic manipulation of the ST. Both Nord's and Toury's definition

of norms are in terms of **explicit communal instructions** pertaining to the conduct of an individual *vis á vis* the community, which are defined in this study as *system norms*. On the other hand, the translator's or interpreter's (T/I's) *internalised norms* are defined in this study as a set of underlying **behavioral constraints**, the sum of which produces quantifiable regularities of features in the TT. She may even internalise conflicting norms, e.g. attempt to adhere to both the *verbatim* and the *domestication* norm and may also possess what Toury (1980:51) terms *idiosyncrasies* in norm behaviour. The TT, therefore, reflects internalised norms but not necessarily system norms.

4.5.2.2 Chesterman's definitions of norms

Chesterman (1997:64-65) distinguishes between norms held by the target audience, which he terms *product* or *expectancy norms*, and those adhered to by the translator, which he terms *professional norms*. Although Chesterman wrote specifically for translation, his norms apply to interpreting as well.

Expectancy norms deal with the target audience's expectations of what a T/I product should be like. They are influenced by predominant traditions in the target culture and target language genre discourse conventions, as well as economic and ideological considerations (1997:64). They may also be entrenched by *norm-authorities*, i.e. teachers, critics or publishers who select translations conforming to particular norms (e.g. readability and fluency). However, target audience expectations are not necessarily **explicit** communal instructions (i.e. system norms), but may correspond to Nord (1991) and Searle's (1969:40) notion of *conventions* as "shared expectations ... neither binding nor explicit, acquired and internalised by group members during the process of socialisation" (Nord 1991:96), i.e. **implicit communal expectations**.

Professional norms are those constraints underlying the translator's choices. According to Chesterman (1997:63), they are subordinate to and determined by expectancy norms. He identified three types of professional norm:

- The *accountability norm* (1997:68) relates to the translator's ethical framework and his commitment to uphold professional standards.
- The *communication norm* (1997:69) relates to the translator's commitment to maximise communication between the parties concerned.
- The *relation norm* (1997:69-70) defines the relationship between TT and ST and is thus primarily linguistic. It is determined by a number of factors, including audience expectancy norms, the commissioning brief, the text type, etc. Toury's concepts of

preliminary, initial and operational norms discussed above may therefore be regarded as subsets of Chesterman's relation norm.

It is evident that Chesterman's conceptualisation of norms encompasses a broader framework than Toury's and therefore provides a more holistic framework in which all participants can be considered. Moreover, Shlesinger (1998) observes that professional norms may be at variance with audiences' expectancy norms (cf. Marzocchi 2005).

4.5.2.3 Application of the concept of norms to Interpreting Studies

Shlesinger (1989) was the first to suggest that Toury's concept of norms is also applicable to interpreting and placed normative interpreting behaviour within the context of a system. Shlesinger's suggestion was answered by Harris (1990). He identified preliminary interpreting norms such as using the first person, change of speaker, matching of source sender with interpreter characteristics and direction of interpreting (cf. Garzone 2002:111) and also noted that production errors were more acceptable in interpreting than in translation practice (Harris 1990:115). This was followed by Schjoldager's (1995) correlation of interpreting strategies to Delabastita's (1989) transformation categories and hence to norms, thereby laying the framework in Interpreting Studies for Toury's (1980, 1995) heritage of relating norms to strategies (cf. Gile 1998a; Shlesinger 1999). Schjoldager (1995:310) also observed that interpreting practice tolerated greater deviation from the ST than did translation practice.

However, it was Daniel Gile (1995:150) who first identified specific normative behaviours, which he termed *rules*. Gile's rules for interpreting have been compared to Toury's *preliminary* and *operational* norms (Gile 1995:150 cf. Garzone 2002:112-113) and can be similarly related to Chesterman's professional norms. According to Gile (1995:201-205), the choices made by interpreters during the interpreting process are due to five basic competing rules which are applied unconsciously as a result of tension between professional ethics and actual working conditions (Gile 1995:204).

Firstly, the rule of **maximising information recovery** motivates interpreters to convey information accurately and completely. Marzocchi (2005:93) terms this norm the "operational norm of *completeness*" (cf. Garzone 2002:114; Gonzalez et al. 1991; Roncalli 2001). It encompasses *verbatim*, *fidelity* or *accuracy* norms prioritised in court interpreting.

However, this rule is in conflict with Gile's (1995) second rule of **minimising recovery interference**, which recognises that the output of one chunk reduces the effort available for the input of the next chunk. When the input effort required exceeds capacity, interpreters use techniques such as omissions and simplification that lose information but speed production.

This strategy-based norm is confirmed by Donato (2003), Diriker (2004) and Siviero (2003) for both professional and student conference SI and encompasses Shlesinger's (1999:69) *condensation norm*, which she defines as "strategic macro-processing" in order to produce the underlying meaning rather than attempt to interpret every segment of the ST.

Thirdly, interpreters try to **maximise the communication impact** of the speech by delivering a fluent message. This norm is regarded as the most important by SI practitioners (cf. Kurz 1993; Shlesinger 2000b; Wallmach 2000), since a non-fluent production affects interpreter's credibility (Gile 1995:202; cf. Leeson 2005a:63; Schlesinger 2000). It also encompasses the *domestication* and *idiomaticity* norms discussed in Chapter 2.6.1.

Fourthly, Gile (1995:203) found that interpreters choose tactics that saved time and processing capacity even when these were available. He termed this the **law of least effort**. Although he regarded this as a tactic to be avoided, it indicates that interpreters pace their output in order to avoid (or at least delay) possible future fatigue.

Finally, Gile (1995:204) noted that interpreters prioritise **self-protection**, i.e. not informing audiences of problems. Although Gile disapproved of this tactic, Leeson (2005a:63) notes that informing audiences of mistakes could lead to loss of confidence in the interpreter, which may be more disastrous than the original misinterpretation. As discussed in Chapter 2.6.1, audience expectations tend to be more prescriptive for interpretations than translations. Moreover, in order to inform an audience of problems in SI, the interpreter has to stop interpreting. She will then lose the gist of the speech, which can lead to complete breakdown of the interpreting process. Instead, SI interpreters rely on the compensation strategies described in Chapter 2.6.2.

While acknowledging the relationship between norms and strategies, Marzocchi (2005) also highlights the ethical basis of norms. These include the *verbatim norm* in court interpreting and the notion of interpreter *honesty* (2005:102; cf. Harris 1990) corresponding to the *fidelity norm* (cf. Garzone 2002:118) as a parallel to Nord's (1997) notion of translator *loyalty* (Marzocchi 2005:99). However, Marzocchi (2005) observes that norms are not absolute, but depend on the particular interpreting setting. Thus what is appropriate in one setting may not be appropriate in another (2005:96; cf. Duflou 2007; Swift 2012). It is therefore proposed that the interpreting setting thereby determines a hierarchy of norm priorities.

From the discussion on Deaf norms in Chapter Two, it is evident that *domestication* of a signed TV interpretation in terms of delivery, language and content can be viewed as a strong Deaf *expectancy* norm, whereas relevancy and gatekeeping can be viewed as strong Deaf *professional* norms. As noted in Chapter 2.6.1, a strong domestication norm also dictates a

strong TL idiomaticity norm. Similarly, interpreting in the third person is a *communication* professional norm of Deaf interpreters, or in Toury's terms, a *preliminary* norm.

In reception-oriented theory, norms are derived through an analysis of *shifts* between ST and TT. These are discussed in the next section.

4.5.3 The notion of shifts

It was Toury (1980:50) who introduced the notion of *shifts*. He identified three kinds of differences between ST and TT, corresponding to his categories of matricial norms, namely additions, omissions and skewed substitutions. In contrast, Kruger and Wallmach (1997:123) base their notion of shifts on differences between ST and TT in terms of TC parameters.

However, applications of the concept of shifts to Interpreting Studies have retained Toury's definition of shifts in terms of additions, omissions, paraphrase (i.e. syntactic formulations) and skewed substitutions (cf. Cokely 1992; Hale & Gibbons 1999; Leeson 2005a; Setton 2002). This is partly due to the strong equivalence roots of Interpreting Studies and partly to the close relationship between shifts and strategies discussed in Chapter Two. However, although an analysis of shifts may reveal underlying interpreting norms and strategies, it must be noted that the SI interpreter does not have the opportunity to reflect on her choices made during the process and thereby refine her product, as does a translator. As Camayd-Freixas (2011) observes, "the translator consciously looks for perfection, while the interpreter, pressed for time and fluency, settles for acceptable equivalence".

Since interpreting strategies and shifts were discussed in Chapter Two, it suffices to give a summary here. Firstly, omissions are related to condensation, gate-keeping or filtering strategies to deal with the fast pace, information load and domestication norms (cf. Napier & Barker 2004:370), but are also related to interpreter insufficiencies in listening and analysis efforts, inadequate vocabulary, fatigue, poor incoming sound quality and inadequate coping strategies in terms of fast pace or information density, i.e. saturation of the production effort. Secondly, additions are related to elaboration, explicitation, anticipation, cohesive repetition, emphasis and domestication strategies. However, additions are also related to stalling techniques, false starts and the incorporation of redundant material. Moreover, given the fast pace of SI, additions also place extra pressure on interpreting efforts and may not always be executed satisfactorily. Thirdly, substitutions at word level may be related to norm-based strategies of adequate approximations, chunking up or down, paraphrasing, neutralisations, functionally equivalent substitutions of source language cultural items, but may also introduce indigenised and direct loan-words and word creations, as well as phonological errors and

mistranslations due to inadequate signing ability or overloading of the listening and analysis or memory efforts. Finally, expressing ST segments above word level may result in syntactic reformulations, literal interpretations and condensations, but can also result in normalisation, conservatism, ST interference, inadequate segmentation or chunking procedures, false information due to parallel reformulations, incorrect pragmatic intent and incorrect use of discourse and syntactic markers.

It is thus evident that the existence of shifts in interpreting may not necessarily point to the existence of an underlying norm, but may instead reveal deficiencies in interpreting efforts. Apart from misinterpretations, interpretations may therefore incorporate blatant mistakes in phonology, grammar, syntax and discourse devices which are not considered in any translation model. (In the present study, errors are defined as inadvertent contraventions of TL discourse or linguistic norms.) Barik (1975) is therefore partially correct: while shifts do not necessarily imply errors, they may include errors.

In the next section, the development of a reception-oriented model for the present study is discussed.

4.5.4 Development of a reception-oriented model

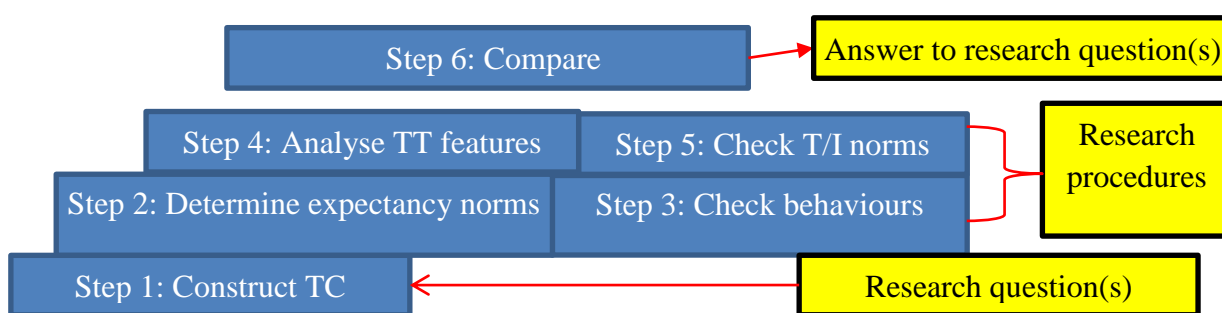
Although Toury's groundbreaking research in 1980 finally allowed researchers to break away from the notion of equivalence as the norm for evaluating translations, a systemic model for reception-oriented studies is still under-developed. Although a DTS model provides the researcher with a powerful analytic tool, it is evident that some aspects of the model have not evolved and therefore present methodological problems, especially when applied to Interpreting Studies. These aspects include fuzzy notions of the relationship of norms to shifts and thereby of the basis of comparison, as well as the overlooking of the possibility of errors. As noted above, Kruger and Wallmach (1997) and Lambert and Van Gorp (1985) independently made great strides in model development by defining alternative concepts of a TC that could be used as basis for comparison. Kruger and Wallmach (1997) also extended the model beyond comparison of a single ST and TT to enable comparisons between a single ST and its different translations, as well as comparisons of multiple STs with their respective TTs on the basis of an appropriately constructed set of parameters as TC. However, as noted in Chapter One, this study represents the first time that a DTS model (in general) or a reception-oriented model (in particular) has been developed for Interpreting Studies.

This study seeks to further develop a reception-oriented model which can be used for the evaluation of both translations and interpretations. This is done by a re-emphasis of the notion

of *reception-oriented* studies. Continuing the development of a model initiated in the researcher's MA studies (cf. Wehrmeyer 2001), a two-pronged analysis is envisaged. In line with the advocacy aims discussed in Chapter One, comparison of the TTs with expectancy norms was an essential feature of the study. Therefore, in order to answer research questions one to four, a reception-orientated ST-independent exploration of target audience expectations is undertaken. However, in order to answer research question five, interpreting choices are explored in terms of additions, omissions and substitutions with respect to the ST, i.e. a product-orientated ST-dependent analysis of shifts is undertaken. The reason for this different approach for RQ5 is that the target audience does not have access to the ST and therefore cannot evaluate shifts. The two different comparisons in the study highlight the state of a TT as a mediated product between source language sender and TL receiver.

A schematic outline of the model is given in Figure 4.3 below in the form of a flow diagram:

Figure 4.3: Reception-oriented model



A comprehensive overview of the model is given below as a contribution to future studies. Not all intermediate steps can or need be followed for every study.

The first step of the model, therefore, is to construct a basis for comparison, i.e. the TC. Following Kruger and Wallmach (1997), the present TC for the comparison of expectancy norms with the TTs is constructed from variables related to the research questions. However, the approach in this study differs from theirs in that the TC constructed for the present study was not constructed for product-oriented but reception-oriented comparison, including the comparing of results from different methods and instruments. The present approach also differs in that the TC variables are not pre-defined but extracted in terms of a GT framework by open-coding responses to pilot questions and further refined through subsequent data. The TC thus developed is dynamic rather than static. The present study therefore represents the first attempt to align a reception-oriented model with a GT approach.

The second step in the model is an assessment of expectancy norms. This can be done in three ways. Firstly, system norms can be derived from the appropriate literature (cf. Stone 2009).

Secondly, norms and conventions operating in the target system may be deduced either by studying T/I products of similar genre that have successfully entered the target polysystem (compared to those that did not) (cf. Wehrmeyer 2001), or by studying original literature in the TL (cf. Laviosa 2002). Thirdly, target audience expectations can be elicited directly from representative samples of the target audience using questionnaires (cf. Kurz 1993) or interviews (cf. Stone 2009). In the present study, international system norms derived from the literature research (Chapter Two) are complemented by specific South African target audience expectations derived from the questionnaires and SASL discussion.

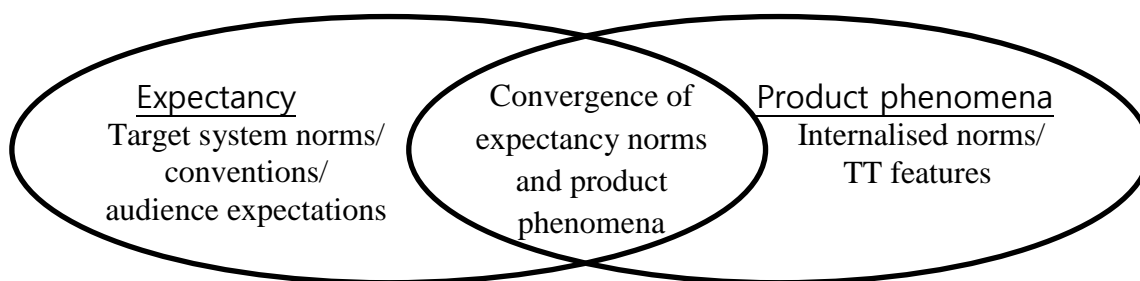
The third step in the model is to design instruments to test perceived target audience norms and conventions against real values or behaviours. This can be done by exposing members of the target audience to excerpts of the TTs under investigation and asking them to comment on specific aspects such as style, language, terminology, etc. (cf. Wehrmeyer 2001). In the present study, this was done by asking participants to view excerpts of the TV news broadcasts, using eye-tracking and discussions to probe real responses. Where applicable, a composite description of TL system norms, target audience expectations and target audience real behaviours derived from steps two and three can be drawn up. Chesterman's term *expectancy norms* is retained as a collective term for these three aspects, with the understanding that the term "norms" is qualified as discussed in Section 4.5.2 above.

The fourth step entails a descriptive analysis of the TT. Firstly, textual analysis of ST-dependent phenomena (e.g. strategies, T/I-universals, etc.) is done by identifying and describing *shifts* between ST and TTs, either in terms of identifying and categorising substitutions, additions, omissions and paraphrase (*SOAP analysis*) or in terms of the TC variables. Secondly, textual analysis of features (of the TL or production) that are not ST-dependent (e.g. unclear signs, head movements, NMFs, pauses, blinks, T/I universals, etc.) can also be done in terms of the TC variables. In the present study, both types of textual analysis were undertaken. Features related to the quality and nature of the interpreters' sign language were extracted from analysis of the video recordings, whereas interpreting choices were identified through analysis of shifts between ST and TT transcripts. It is common practice in Interpreting Studies to study written transcripts of interpretations, with acknowledgement of the resulting loss of aural or visual elements (cf. Pöchhacker 1995a:20; Cencini & Aston 2002:47; Setton 2002:31). Because of the reduction to written medium, textual analysis does not prove *incomprehension* (which pertains to a Deaf person viewing a visual medium), but explores instances of *incoherence*.

The fifth step of the model is to compare TT features with the *internalised norms* of the T/I. This can be achieved through interviews, correspondence and think-aloud protocols with the T/I. Although this was initially envisaged for the present study, none of the interpreters was willing to be interviewed, thus this aim was not achieved. Alternatively, TT features can be described in terms of T/I system norms. TT features and related T/I norms are collectively called *product phenomena*.

The final step in the proposed reception-oriented model is a descriptive comparison and evaluation of product phenomena in terms of expectancy norms, describing their points of agreement and differences. This is illustrated conceptually in the Venn diagram in Figure 4.4 below:

Figure 4.4: Comparison of target audience and product



It must be noted that the convergence of expectancy norms and product phenomena, while certainly implying ‘successful’ interpreting in terms of user/audience satisfaction and TL norms (e.g. fluency, grammaticality, etc.), does not necessarily ensure ‘successful’ interpreting in the context of accuracy or completion of message transfer (which the audience cannot judge as they have no access to the ST). In this sense, it is argued that all T/I activity is goal-oriented. Whether this goal is oriented towards the demands of the target language, culture and user expectations (as in a reception-oriented model) or towards the source text in terms of accuracy and completion of semantic transfer (as is possibly, but not necessarily, the case in product-oriented models), or towards finding an optimal compromise of both, depends on the purpose or *skopos* of the translation or interpretation (cf. Nord 1997; Reiss & Vermeer 1984), or in DTS terms, the composition of the TC in T/I production. It must also be re-emphasised that in evaluation of T/I products, DTS models (whether reception- or product-oriented) do not prescribe what translations/interpretations *should* be like but simply observe and describe how they are.

In the next section, the variables of the TC are revised in terms of the research procedures.

4.6 The tertium comparationis

The TC for the present study was constructed dynamically using the principles of GT. As noted above, a GT approach is somewhat different in that criteria are not predefined but refined during the research. However, as noted above, it was essential to obtain a basic TC as soon as possible. The initial variables discussed in Section 1.3, namely means of communication, physical environment factors, language variation, language use and interpreting choices were derived from the research questions that arose from examining the interpreting setting. These five basic variables were also confirmed by coding answers from a pilot study in which Deaf residents in Gauteng were asked whether they understood the interpreters, and if not, why not.

These five criteria were then refined further through the literature study reported in Chapter Two, which indicated that there were potential problems in all areas identified. The literature revealed that not all Deaf South Africans use sign language or other means of communication equally proficiently, and that lack of standardisation of SASL and isolation of Deaf groups indicate the possibility of dialectal differences between communities and interpreters. Moreover, the literature also indicated possible sources of incoherence due to inadequacies in picture size, the interpreters' SASL usage, choices made during the interpreting process as well as possible conflicts of interpreter and audience norms. The literature was used to generate a more detailed set of evaluation criteria which could then be used in the design of the research instruments. These are listed in Table 4.3 below. Each criterion is supported by a representative citation from the literature.

Table 4.3: Literature-refined *tertium comparationis*

EVALUATIVE CRITERION	LITERATURE RESEARCH	LITERATURE REFERENCE
Communication means (V1)	<ul style="list-style-type: none"> – lip-reading skills – literacy skills – sign language skills – divided attention 	Gregory & Hartley 2002; Stone 2010; Morgan 2008; Akach 1997; Marschark et al. 2004.
Physical environment (V2)	<ul style="list-style-type: none"> – visibility of signs – visibility of face – clothing colour – background colour 	Bidoli 2002; DeafSA 2009; DeafSA 2009; Bidoli 2002; NCPPDSA 2011.
Language variation (V3)	<ul style="list-style-type: none"> – dialects 	Penn et al. 1992.
Language use (V4)	<ul style="list-style-type: none"> – facial expression – head/body movement – reference – iconicity and grounded blends – mouthing – topic marking – sentence structure 	Neidle et al. 2000; Liddell 2003; Koizumi et al. 2002; Liddell 2003; Özyürek et al. 2009 Taub 2001; Prinetto et al. 2011; Crasborn 2009; Monschein 2009 Baker-Shenk & Cokely 1981; Neidle et al. 2000; Stone 2009.

Interpreting choices (V5)	<ul style="list-style-type: none"> – omissions – additions – chunking + reformulation – errors – repair – norms 	Shlesinger 2000a; Napier & Barker 2004; Ortiz 2011; Barik 1975; Leeson 2005a; Kalina 1998; Katan 1999; Cokely 1992; Russell 2005; Marzocchi 2005; Stone 2009.
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The remainder of this chapter consists of a detailed discussion of the research procedures used in the study.

4.7 Research procedures

Due to its Translation Studies roots, evaluation of interpreting quality is an integral part of Interpreting Studies research (cf. Jones 1998:4; Pöchhacker 2002; Riccardi 2002:22; Seleskovitch 1978a; Seleskovitch & Lederer 1984; Shlesinger 1994:226, 2000). Pöchhacker (2002) describes four main research procedures, namely the use of questionnaires and other means of end-user evaluation of interpretations, eliciting either perceived values (cf. Bühler 1986; Kadric 2000; Kurz 1993; Pöchhacker 2000,2001) or ratings immediately after the interpreting event (Gile 1990; Shlesinger 1994); experimental measures of performance against varying input parameters (cf. Gran and Fabbro 1991; Schlesinger 2000; Stone 2009); empirical observations from corpora (cf. Cokely 1992; Pöchhacker 1994; Kalina 1998) and case studies (cf. Savvalidou 2011; Wadensjö 1998). Other procedures reported in the literature include manual analysis of transcriptions and interviews (cf. Stone 2009). According to Pöchhacker (2002:104), corpus studies of interpreting quality tend to measure easily quantifiable features such as omissions, thereby giving a one-faceted rather than a holistic picture of the TT. He therefore posits multi-method case-study research as providing the most holistic findings on quality, citing Wadensjö (1998) as the best example of quality investigation.

In this study, two of Pöchhacker's (2002) suggested research procedures are used, namely a questionnaire and corpus study. Contrary to Pöchhacker's accusation, this study claims to present a holistic corpus-driven evaluation due to the complex annotation system devised. The compilation, distribution and analysis of the questionnaire used to elicit perceived target audience expectations are discussed in Section 4.7.1. A discussion of the experimental setup and methods of analysis of the eye-tracking experiment in Section 4.7.2 is followed by an outline of the setup and analysis of the SASL discussion in Section 4.7.3. Finally, the composition, transcription, annotation and analysis of the interpretations are discussed in Section 4.7.4. The construction of a corpus was a requirement of the grant that partially sponsored the research. Although corpus tools have been used to evaluate media interpretation

of spoken languages (Pöchhacker 2007; Setton 2002), to the best of my knowledge, this is the first application of corpora to evaluate authentic media interpretations of sign language.

In all four research procedures, both qualitative and quantitative methods of analysis are used. As noted in Section 4.4.4, information was first analysed qualitatively by category and axial coding according to a GT model. The categories thus obtained provided data for quantitative analysis in terms of frequency counts and simple descriptive statistics using MS Excel and Antconc software.

4.7.1 Questionnaire design and analysis

The first procedure of the study comprises an exploration of the Deaf community's perceived expectations of the interpreted TV news broadcasts using questionnaires.

The questionnaire phase was initiated in June 2009 by a preliminary pilot study, which consisted of an email sent out (in English or Afrikaans) to approximately 100 Deaf acquaintances whose emails were known, i.e. members of DeafSA and local Deaf communities. Respondents were asked whether they understood the TV news interpreters and to indicate any reasons they had for not understanding TV news interpreters. From the answers of the 42 people who replied (by email), the main areas of comprehension problems were identified and these were used to create the main questionnaire of the study. The results of the pilot study are reported in Chapter 5.2.

In the second half of 2009, over 1000 questionnaires were distributed to all Deaf individuals and groups that could be contacted, of which 314 had been returned by 30 November 2011¹. They were either distributed by hand via Deaf contacts who explained and translated them (into SASL) to their respondents, as well as through email. The Deaf research assistant, Ms Van Aarde, coordinated the distribution, mainly using her church, friends and school contacts, and visited respondents in Pretoria and Johannesburg at her own cost. The forms were distributed to communities outside Pretoria and Johannesburg by local leaders within the Deaf community, e.g. pastors of deaf churches and Deaf staff members at deaf schools. Distribution was done by the Deaf community within the Deaf community and only one hearing person (a pastor of a Deaf church who is also a CODA) was used as a distributor. Since the Deaf community is very close-knit, this proved an effective method of distribution. By excluding hearing people as much as was practically possible, the project gained the trust and

¹ The long delay between July 2009 and November 2011 was primarily due to the initial reticence of Deaf communities to participate in the survey. Survey participation had a snowball effect, in that the more Deaf people participated, the more other Deaf people were willing to participate. Entry of new data into the system closed on 30 November 2011 (with 314 respondents) for the purposes of the present study, but surveys are still being received by the researcher. To date the figure stands at over 360 returned questionnaires.

cooperation of the Deaf communities, which greatly facilitated distribution. Even those questionnaires distributed by email should not be considered isolated written events, but documentary evidence after much Deaf-to-Deaf communication between Ms van Aarde and the recipient. In line with GT principles, the purpose of the questionnaires was to find out as much as possible from the Deaf community; hence all forms of dialogue and feedback were encouraged.

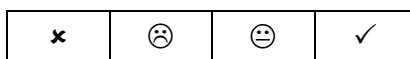
As with any “real life”-based research, reliance on others implies some trade-off of ideal conditions of reliability against optimal conditions of workability. Although training was given to Ms Van Aarde in terms of avoiding observer effects, who in turn gave instructions to the other volunteers, there was no means of controlling what was discussed at Deaf meetings held hundreds of kilometers away from Pretoria (the furthest community, in Cape Town, is 1460 km from Pretoria) and the researcher had to rely on the integrity and capabilities of the Deaf leaders involved. A detailed report on the validity and reliability of the results is therefore presented in Chapter 7.5.2. On the other hand, without the Deaf distributors, the research would simply not have been possible since Deaf communities would not have cooperated with a hearing stranger (the researcher).

The questionnaires were prepared in English and Afrikaans. (Translation into other languages was not economically feasible.) A written questionnaire allowed literacy scores to be assigned but also served as concrete evidence of user expectations. The other alternative, to video individual interviews, would not have been logistically or economically feasible given the intended scope of survey, and would have posed problems of confidentiality and anonymity.

4.7.1.1 Questionnaire design

The questionnaire (presented in Appendix B) was designed in line with GT principles that favoured open-ended questions. Even when quantitative evaluations were elicited, they were accompanied by open-ended questions or opportunities to offer comments. By not imposing arbitrary categories, the Deaf respondents effectively identified and defined the categories of research. Likert scales were preferred over yes/no categorisations. However, it must be emphasised that the questionnaire was primarily designed to elicit *qualitative*, hypothesis-generating data. Therefore, as noted in Section 4.4.3, the kinds of questions asked seldom produce mutually exclusive, single-choice categories of data suitable for inferential statistics. Thus the quantitative manipulation of data is restricted to descriptive statistics and rigorous *quantitative* testing of the factors found in this study is recommended as an avenue for future research.

The questionnaire consisted of three parts. In the first part, personal data was elicited in order to ascertain sample representativeness, identify possible subgroups and ascertain communication preferences. In the second part, general viewing preferences of the respondents were elicited using open-ended questions. In the third part, the respondents were asked to evaluate each news broadcasts and specifically the interpreters associated with each broadcast using a four-point pictograph Likert scale to increase accessibility for those of lower literacy levels according to the following pattern:



The scale was devised in collaboration with Deaf colleagues at the University of South Africa. Initially 5-point scales were envisaged (e.g. “strongly disagree/disagree/neither agree nor disagree/agree/strongly agree” or “Rate property X on a scale of 1 to 5”), but this was rejected by the Deaf colleagues as too complex and not appropriate to their response needs. The categories were adapted to the questions, e.g.:

4) Does the interpreter use your sign language? (choose ✘, ☹, ☺ or ✓) **use highlight colour**

✘ = NO, not at all like my sign language	☹ = only a little like my sign language	☺ = OK but not exactly like my sign language	✓ = YES, it's my sign language
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The 4-point scale also precluded default midpoint answers typical of reticent questionnaire respondents. These sections were also interspersed with open-ended questions.

All evening news broadcasts on SABC and ETV were included for rating. As noted in Chapter One, at the time of the study they were as follows:

- SABC 1 news at 5.30 pm on weekdays (T1);
- SABC 2 news at 8.30 pm on weekdays (T2);
- SABC 3 news at 8.30 pm on weekdays (T3);
- ETV news at 6.00 pm on weekdays (E6);
- ETV news at 6.00 pm on weekends (E5);
- ETV news at 10.00 pm on weekdays (E10).

(SABC 2 and 3 subsequently increased their broadcasts to one hour of interpreted news.)

For questions relating to the interpreters, it would have been more accurate to ask the respondents to evaluate each interpreter individually, but for ethical reasons anonymity of the interpreters is necessary since they and their families (as part of the close-knit Deaf community) are known to the respondents and were aware of the study. Hence respondents were simply asked to evaluate the relevant broadcasts.

Finally, respondents were given opportunity for further comments regarding programs they would like to see in future or any other comments they wished to make.

4.7.1.2 Questionnaire analysis

Analysis of the questionnaire mostly comprised qualitative coding of categories according to a GT model, combined with quantitative analysis in the forms of frequency counts and descriptive statistics. Most variables were elicited directly from the respondents. These included age, gender, region, town, race, hearing status of parents (in order to identify native signers), age of onset of deafness, means of communication with hearing and deaf persons, highest grade attained at school and knowledge of spoken languages. Indirect assessment tools were also constructed in order to estimate respondents' literacy levels, pre-deaf linguistic experience, ability to lip-read and signing proficiency.

Firstly, **respondents' literacy levels** were assessed by marking the standard of language used on each respondent's form using a simplified adaptation of the first five categories of the *Test of Written English* ratings scale (Kennedy et al. 2009). The language samples were selected from sections on the questionnaire where respondents provided comments or answers to open-ended questions. A category of 0 was added for respondents who were too illiterate to complete the forms themselves. Respondents were encouraged to complete the form themselves, but if they indicated that they were unable to do so, the volunteer distributing the forms translated the form into SASL and the respondents' answers into English or Afrikaans on the form and also reported (either on the form itself or to Ms Van Aarde) that this was an assisted questionnaire. The need for assistance was evident in rural Black communities.

Respondents' answers were therefore ranked according to the following scale:

- 0 = Respondent could not complete the questionnaire unaided.
- 1 = Incoherence at phrase level, e.g.: "Because through DTV Now are you sign language small share English object" (Respondent 46). (What this respondent was trying to say was that the picture of the interpreter should be big, as on DTV, but now (on the news broadcasts) it is small and preference is given to the main picture, which represents the English presenter.)
- 2 = Coherence at phrase but not at sentence level: frequent serious errors in syntax, grammar and lexis, little or no structural organisation, e.g. (as an answer to Question C.11 "Should the interpreter use his/her lips to form the spoken word?"): "more interpreter use help deaf" (Respondent 45). (What this respondent was trying to say was that the more means of communication that the interpreter uses (e.g. using words as well as signing), the better the deaf viewer understands the message.)

- 3 = Coherence at sentence but not at paragraph level: frequent syntactic and register errors, unsupported arguments or generalisations, inadequate organisation of thought, e.g.: “One sign language never. Have to used three sign language English, Zulu or Sotho, Afrikaans” (Respondent 152).
- 4 = Coherence at paragraph level in terms of adequate structural organisation, detail or support of arguments, but still showing errors in syntax and lexis, as well as occasional obscuration of meaning, e.g.: “I think personally that the interpreter are good to have when we need them in person for court, meeting, etc, and I think a full screen on TV will help, but it is not an option cos it is not suitable for all of us including the hearing people” (Respondent 280).
- 5 = Coherence at text level in terms of unity, coherence and progression in thought, detail and support of arguments, syntactic variety and range of vocabulary, with only occasional errors in language usage, e.g.: “The oral method of education has been widely used until recently – so in the past words were spoken as well as signed. There were only a limited amount of signs, and the older generation is accustomed to lip-reading, aided by signs. Also, English grammar and accuracy would be greatly improved by the use of TRANSLITERATION – interpreting word-for-word. A vast amount of information is lost by changing the grammar!!!!!!” (Respondent 276).

The scale provided a rough indication of literacy levels which could be compared with respondent information on level of education. This was necessary in view of the fact that South African children in special schools (like deaf schools) are often promoted at school despite not achieving outcomes for a particular grade. Since receptive language skills exceed productive skills (cf. Kyle & Harris 2006), measuring productive skills provides a bounded minimum of literacy level. For example, a child that cannot write coherent sentences may be able to read them, but (for the purpose of this study at least) is assumed not able to read larger pieces of text, especially in view of the speed at which the news subtitles are presented.

This (albeit simple) test therefore presents the first empirical evidence on the literacy levels of deaf South African adults, thereby pioneering the way for future and more detailed research. Since no standard was available for comparison, for the purposes of this study the benchmark of comprehension of subtitles on a news broadcast was set at a Grade 10 level of education (i.e. completion of junior high in a second language subject) for an L2 individual at a special-needs school (the expected profile of the average respondent).

Secondly, the **age at which the respondent became deaf** is used to assess the pre-deaf linguistic experience (PDE) of the respondent. According to Fromkin et al. (2007:325-341),

phoneme² recognition, on which spoken languages are based, is acquired in the first year of life. By the third year (the holophrastic stage) the child has assimilated phonemes, a rudimentary lexicon and can form basic sentences consisting of one or two words, but still possesses an insufficient lexicon and has not mastered syntax. By the seventh year, the child has acquired linguistic competence at sentence level and an adequate conversational lexis; however, full assimilation of syntactic rules and topic-specific lexicons only occurs in the teen years. Obviously, the pattern described above depends on a child's intelligence and ability; in this study an average ability is assumed for each respondent. The ages described above are thus used as benchmarks to compare respondent groups.

Thirdly, a measure of **oral means of communication** (OCOM) was obtained for each participant by averaging the following variables:

- Oral components of communication with hearing, i.e. COMH = 1 (yes) or 0 (no);
- Oral components of communicating with deaf, i.e. COMD = 1 (yes) or 0 (no);
- Affirmation that the interpreter should use his lips to form the word, i.e. LIPINT = 1 (yes) or 0 (no);
- Explicit reference to the need to lip-read, i.e. LIPV = 1 (yes) or 0 (no).

Hence, $OCOM = [COMH + COMD + LIPINT + LIPV]/4$. Average OCOM scores were used to compare different sociological groups of respondents.

Fourthly, according to Marschark et al. (2004:345), the **age at which the respondent learnt to sign** is used as an indicator of signing proficiency. Binned frequencies were used to identify native, early and late signers, based on the critical age hypothesis (Fromkin et al. 2007:53) which states that the ability to learn another language decreases rapidly after middle childhood. Obviously the actual relationship between age of learning a second language and proficiency in that language is far more complex, depending on multiple factors such as the extent of L2 immersion, frequency of use, dedication and commitment to learning the L2, personal IQ, etc. (Lightbown & Spada 1999:41-58).

Fifthly, in the third part of the questionnaire which elicited respondents' assessments of features of the TV interpretations using the 4-point Likert scale (✖/⊖/⊕/✓), the categories ✖ and ⊖ were collapsed to obtain an indication of the percentage of respondents who were (to greater or lesser degrees) *dissatisfied* with the variable investigated. Likewise, the categories ⊕ and ✓ were collapsed to obtain an indication of the percentage of respondents who were (to greater or lesser degrees) generally satisfied (i.e. HAPPY = ⊕ OR ✓). This allowed a simpler

² Since the writing systems of SA languages are phonetically based, a child that does not absorb phonemes is disadvantaged both orally and in his ability to write.

indication of the percentage of dissatisfied/satisfied respondents which facilitated graphical representation.

The results of the questionnaire analyses are reported in Chapter Five.

In the next section, the design and analysis of the eye-tracking experiment are discussed.

4.7.2 Eye-tracking design and analysis

The second part of the study employed eye-tracking technology to determine the extent to which Deaf viewers look at the interpreter as opposed to other sources of information. This part of the research was carried out in March 2011 with the cooperation of the School of Computing at Unisa on their *Tobii* Studio X60 eye-tracking system under the supervision of Professor Helene Gelderblom. In this section, theoretical aspects, experimental design, calibration of the participants and data analysis are explained.

In the eye-tracking experiment, a group of Deaf participants was compared with a control group of hearing participants. For practical reasons, participants were invited from the local Pretoria and Johannesburg Deaf communities, i.e. people who lived within approximately 60 km radius from central Pretoria. In order to ensure that all participants could read the subtitles, all participants had to possess at least a Grade 10. The hearing group comprised 21 participants, of which 18 scans were suitable. These participants consisted of ten males and eight females from different ethnic backgrounds (6 White, 6 Black, 2 Coloured, 4 Indian). Eight were under 35 years of age and 10 over 35 years of age. The Deaf group comprised 13 people of which 11 scans were suitable. These participants consisted of six males and five females of different ethnic groups (7 White, 3 Black, 1 Indian). Five were under 35 years of age and six over 35 years of age. All participants possessed at least Grade12 (equivalent to M-levels). As noted in Chapter 7.5.3, it was planned to have 20 of each group, but some of the Deaf participants could not attend, either due to transport problems (there was a strike in the public transport sector at that time) or because their employers would not give them permission to take leave from work. This also affected representativeness in terms of racial distribution³. A detailed discussion of the reliability and viability of the experiment and subsequent discussion is presented in Chapter 7.5.3.

4.7.2.1 Theoretical aspects

The eye-tracking apparatus resembles an ordinary computer monitor. While participants watch the video stimulus, a non-obtrusive beam of infrared light is shone into their eyes from

³ Most white participants had their own vehicle and were therefore not affected by the public transport strike.

a small orifice of about 2 cm in diameter at the bottom of the monitor. A camera is then used to detect the reflected beam – exactly the “red-eye” phenomenon seen in photos taken with a flash. Since the light is reflected through the eye lens, it pinpoints the exact focus of the eye. A video camera set up next to the monitor simultaneously records the participant’s facial expressions and can also be used to ascertain whether the participant looked away if the eye-track trace disappeared. The video camera was unobtrusive enough to be ignored by most participants.

Eye-tracking is based on the assumption that a focused gaze indicates concentration, whereas eye movement indicates scanning without concentration. The human focus of vision is a 1° arc around the focal point (De Valois & De Valois 1990:53). Anything outside this focal point is assumed to be not registered consciously by the human brain. Although this is an oversimplified assumption which ignores the effectiveness of peripheral vision (cf. Posner 1980:4), it does not negate the technology as an accurate tool in revealing the point of focus. Prior calibration allows the eye tracker to associate the object of interest with x-y coordinates, which are collected together with pupil size information at rates of approximately 60 times a second, i.e. 60 Hz (Goldberg & Wichansky 2003:504).

The Tobii software exports the data as a series of dots superimposed onto the original film clip. Each dot represents a period of focus termed a *fixation*, the duration of which is proportionally represented by the dot’s diameter. A fixation is usually 250-500 msec in duration (Goldberg & Wichansky 2003:503). Apart from the real-time video, fixation information can be displayed as a composite overlay of all fixations (either from a single participant or a group of participants) called a *heat map*, in which contours and colour coding are used to indicate frequency of visits in areas of interest (Tobii 2010:89). Heat maps are useful in determining which areas receive the most attention.

4.7.2.2 Experimental design

The video material comprised a ten-minute composite clip of recordings of three interpreted news broadcasts aired on 21 November 2010. The broadcasts were converted to .avi format before being combined using Windows Movie Maker to make a single coherent video. Approximately three-minute long excerpts from the 5.30pm news on SABC1 (T1) in SiSwati with S1 as interpreter, the 6pm news on ETV (E6) in Ndebele with interpreter C and the 10pm news on ETV (E10) in English with interpreter A were chosen. The exclusion of other regular interpreters was unfortunately necessary due to time constraints, since preliminary trial runs determined that participants lost concentration after ten minutes. The position and size (relative to the eye-tracking monitor) of the interpreters varied as follows:

- T1: bottom left, 4cm x4 cm;
- E6: bottom right, 4cm x4 cm;
- E10: middle right, 6cm x 3 cm.

The content of the composite video is given in Table 4.4 below:

Table 4.4: Contents of eye-tracking video

Channel	Clip description	Content of main picture	Subtitles/ text
T1	Jules High school	Presenter, interviewees, still and action photos	Introduce interviewees
	Financial indicators	Data tables	Data tables
	Cricket	Sport action, interviewee	Introduce interviewee
E6	Headlines	Action and people	Introductions, summary runoffs
	Police story	Presenter, interviewees, action photos	Introductions, summary runoffs
	Vasco Da Gama	Interviewee	Introductions, summary runoffs
	Weather	Maps	Weather data, summary runoffs
E10	Headlines	Action and people	Introductions, summary runoffs
	Wiki leaks	Document excerpts, photos of celebrities	Introductions, summary runoffs, document text
	Sport (cricket)	Action and people	Introductions, summary runoffs
	Weather	Presenter and maps	Map data, international temperatures, summary runoffs

After each scan, participants were asked which interpreters (if Deaf) or languages (if hearing) they understood. Opinions on the content and layout of the news bulletins were also elicited. Because the researcher wanted to compare what hearing participants did when they did not understand a particular language to what Deaf participants did when they did not understand a particular interpreter, hearing participants had access to audio input throughout the video.

4.7.2.3 Calibration

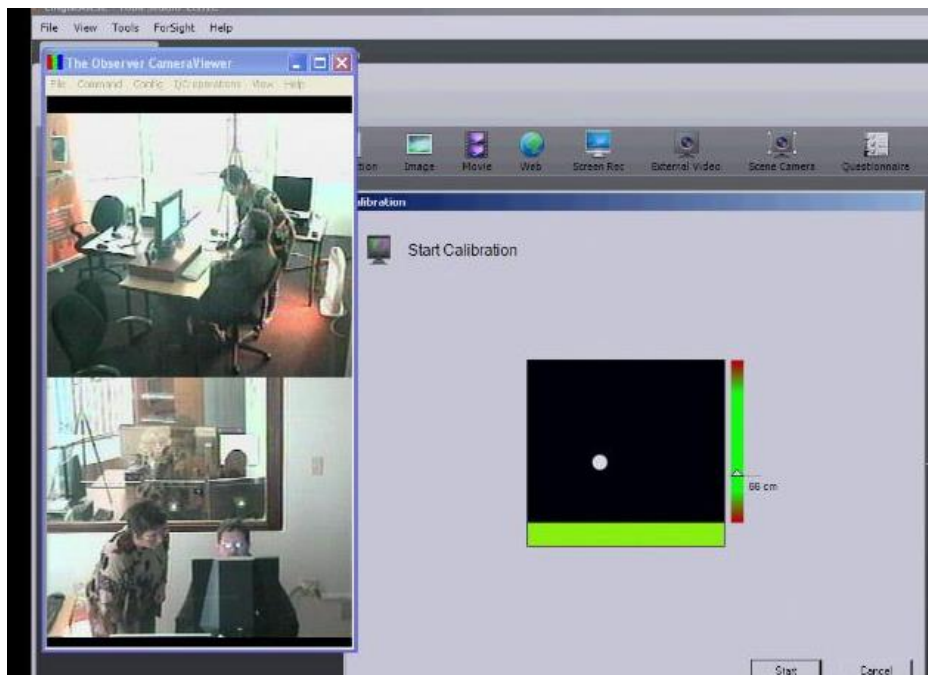
Since eye-tracking correlates the angle of reflected light with where the participant focuses on the screen, calibrations have to be conducted on each participant (cf. Goldberg & Wichansky 2003:511). During calibration, the participant observes a small red ball which traverses the main diagonals of the computer screen while keeping his head steady, while the computer records the angle of incidence of the reflected light from the participants' eyes and matches it with the screen co-ordinates.

In general, calibration is difficult when participants exhibit eye problems such as heavy eyelids, blinking, squinting and far-sightedness, wear certain lenses (especially bifocals), exhibit tics due to nervousness, restlessness or self-consciousness or are exceptionally tall. In calibrating Deaf participants, it was essential that all instructions were conveyed beforehand

(using SASL and lip-reading) so that each participant understood what was expected of him, which required greater prior preparation. Deaf participants were also more susceptible to visual interruption (e.g. if someone entered the testing room or moved during testing) and it was difficult to control secrecy (i.e. prevent tested participants from informing prospective participants on the test content) due to a less individualistic group philosophy and the silent nature of sign language.

The apparatus and calibration screen is depicted in Figure 4.5 below:

Figure 4.5: Eye tracking apparatus and calibration screen



The first task was to obtain both eye signals (in the figure above, the right eye had not yet been detected by the apparatus due to the participant's spectacles). Thereafter calibration could proceed as described above.

4.7.2.4 Experimental protocol

The experimental protocol entailed meeting the participant in the reception room where they read and filled in the consent form. The information on the consent form was also explained in SASL (for Deaf participants) by Ms van Aarde or in English/Afrikaans by the researcher (for hearing participants). They were informed that we were investigating how hearing and Deaf people watched TV and that we were interested in their opinions on the bulletins. Participants were then encouraged to ask questions about eye-tracking and what was expected of them and care was taken to ensure they understood. In order to combat observer bias, no details of the news bulletins were given. Instead it was emphasised that participants should watch the news as they would at home. Participants were asked both before and after the

experiment not to divulge anything about the test to other participants. Deaf participants were also given detailed prior instructions in SASL regarding the calibration process, both in the reception room by Ms Van Aarde and in the testing room by the researcher. In the testing room, participant watched the video clip after being calibrated. Ms Van Aarde remained in the reception room in order to prepare the next participant and also to keep a watchful eye for any signed leakage of information!

On completion of the scan, the eye-track video (the eye-track data is superimposed on the original video material) was played for the participants and their opinions about each broadcast were elicited. As part of this retrospective questioning, participants were specifically asked whether they understood the language of the broadcast (if hearing) or the interpreter (if Deaf), but were also encouraged to comment on any aspect that caught their attention. This retrospective questioning was done primarily in SASL with Deaf participants (periodically stopping the video replay in order to engage in dialogue), but sometimes also using either English or Afrikaans, depending on the preferences of the Deaf participant.

A prior pilot run was conducted using one hearing and one Deaf participant (Mrs Van Aarde). These participants were treated exactly like the others and given the same instructions (and also had no prior knowledge of the video content except that it contained excerpts from news bulletins). However, in addition they were asked to comment on the suitability of the video length, quality and presentation and whether they had experienced discomfort during the scan. Based on their feedback, adjustments were made to improve physical comfort (e.g. a different chair was obtained, the eye-tracker was raised and the room lighting was adjusted). Headings were inserted at the beginning of each bulletin excerpt since both pilot participants complained that they found the sudden change between bulletins too abrupt and confusing.

In the next section, the analysis of the eye tracking data is discussed.

4.7.2.5 Eye-tracking analysis

The eye-track data was imported to MS Excel worksheets for analysis. The percentage of participants who said that they understood a particular broadcast was used as a ranking scale to estimate comprehension of either the interpreters (for deaf participants) or the spoken language used (for hearing participants). Other comments elicited were only used to glean qualitative information on comprehension problems.

The eye tracking results were analysed in terms of five areas of interest, namely interpreter, presenter, picture, text and “other” (cf. Goldberg & Wichansky 2003:503). Fixations were recorded for each second of data from the fourth to the 593rd second to eliminate irregularities

caused in the beginning by the novelty of the video or situation and in the end by participants still looking at the picture after the recording had stopped. Excerpts in which titles of broadcasts had been inserted were also deleted from the analysis since they did not appear in the original bulletins. Fixation durations for each category were also adjusted for instances where the eye track was lost, e.g. when participants leant forward or backward. The data calculations were complemented by heat maps.

The data was analysed in four ways. Firstly, proportional frequencies for each group (Deaf and hearing) over the whole video were compared for each area of interest to determine how Deaf and hearing viewing patterns differed. Secondly, proportional frequencies for each bulletin were compared to determine whether Deaf viewing patterns were dependent on the interpreter viewed. Thirdly, proportional frequencies for different types of scenes were compared to determine whether picture content influenced Deaf viewing patterns. Fourthly, the extent to which the Deaf participants lip-read was explored by comparing Deaf and hearing participants' mouth fixations.

Because the experiment relied on authentic data (i.e. real interpretations), the content of the programs varied and could not be strictly controlled. To compensate for this, the whole bulletin was selected as a scene for the visualisations and area-of-interest data to analyse interpreter effects, thereby averaging out variations in content. Likewise, in analysing for content effects, the data for each particular topic (presenter, interviewee, text and action) were averaged over all three channels to minimise interpreter or presentation order effects. Standard deviations were also noted in order to provide a measure of variance between the different sets of data. In any case, in view of the small sample size of Deaf participants, the data is viewed as primarily qualitative in nature and therefore factor or ANOVA analyses were not undertaken. The results of the eye-tracking experiment are reported in Chapter 5.4.

In the next section, the collection and analysis of data from the SASL discussion is outlined.

4.7.3 SASL discussion

A group discussion in SASL was conducted with the Deaf participants immediately after the eye-tracking experiment. The SASL discussion was recorded at Unisa under the supervision of Professor Helene Gelderblom using Noldus Observer technology and Camtasia recording software which exported it as a single video which was broken up using Windows Movie Maker software into manageable segments and translated into English for analysis. The SASL discussion was also interpreted into Afrikaans by Ms van Aarde, mostly simultaneously and sometimes consecutively. This (spoken) interpretation was recorded using an Olympic

Dictaphone. A composite transcript of the SASL discussion was constructed from the video material, using the audio recordings to confirm meaning in places where the video quality was poor. The transcript was then analysed qualitatively using GT principles of category and axial coding.

The results of the SASL discussion are reported in Chapter Five.

In the next section, the design and analysis of a corpus of transcriptions of authentic SASL interpretations of news broadcasts is discussed.

4.7.4 Corpus design and analysis

The final part of the study comprised the compilation of a corpus of transcriptions of the spoken broadcasts and their signed interpretations. For this purpose, five broadcasts each for interpreters A and B were selected. Initially, interpretations from all six news channels on SABC and ETV were targeted for transcription. However, practical considerations such as expense, translation requirements, transcription time and availability of transcribers prevailed. The two interpreters selected for study are both white hearing CODAs from Afrikaans backgrounds living in Cape Town. Both interpret from English into SASL on the ETV 10pm (E10) news broadcast. The ETV channel was selected because recommendations made by the researcher and transcribers based on the questionnaire findings were received positively by their newsroom. Since the interpretations form part of the public domain, it was not necessary to obtain permission from the interpreters or broadcasting company.

The corpus was originally constructed as a bilingual parallel corpus, but the fact that both source and target languages were effectively English caused recognition problems in *Paraconc*. Hence the corpus was reconstructed as a monolingual comparable corpus using *Antconc*, which was selected for its availability, user-friendliness and versatility. In line with GT principles and current practice in sign language corpus research, a *corpus-driven* approach was adopted. Thus the annotations represent empirical observation and not predefined criteria. Field notes during analysis are recorded as comments in the Word documents.

In the following sections, the selection, recording, notation, transcription, annotation, alignment and methods of analysis of the corpus are discussed.

4.7.4.1 Selection of material

As discussed in Chapter Three, although a number of original sign language corpora have been constructed, this study represents the first sign language interpreting corpus constructed that can be analysed using readily available concordance software packages. Because the

present corpus is small, it makes no claims of statistical representativeness. Instead, in line with a GT approach, the study is directed towards representativeness of *concepts*. Nevertheless, to increase statistical representativeness, selection was based on stratified sampling, which is considered more representative than random sampling (cf. Biber 1993; Fernandes 2008:88; Meyer 2006:3). Therefore selection was restricted to E10 bulletins interpreted by interpreters A and B between September and December 2010, i.e. the sampling frame is stratified according to the TV channel, the period, the source language and interpreter identity. The size of the corpus was set at approximately 100 recorded minutes for each interpreter. Although too small to be considered a standard reference, it will eventually be incorporated into the South African Sign Language Interpreting (SASLI) Corpus being constructed at Unisa (cf. Swift 2012) which aims to provide a broad sample of signed interpretation extending over a wide selection of interpreting types and settings.

4.7.4.2 Recording and transcription

Since at the time of the research, the sales offices of the broadcasting studios did not make recordings of news broadcasts available to the public, the news bulletins were recorded using an LG video machine bought for the purpose. The home recordings meant a decrease in video quality. Because of the initial difficulty in getting the resulting DVD to play on a computer, an Olympus Dictaphone was bought which enabled the spoken presentations to be recorded in mp3 format. For ease of transcription, bulletins were divided into shorter segments (making use of breaks in the news programs) so that each audio sample on average comprised about 8-12 minutes of recorded time. Sign language transcribers were still initially forced to play the actual DVD on Nero® media software (Nero 2013), which proved limiting in terms of accessibility as well as playback and speed functions. Later, as technology developed, it was possible to convert the video files to .avi format, which considerably facilitated transcription as the videos could then be played using Windows Media Player.

Reducing the interpretations to machine-readable form was one of the biggest challenges of the project, both in terms of finding transcribers as well as the transcription of sign language. The STs were transcribed using Nuance's Dragon® Version 11 respeaking software. This software is used to transcribe voice to text in medical and media settings for subtitling and has high output accuracy (Nuance 2013). Preliminary voice recognition training of the software is required. After preliminary self-training to become acquainted with the software, the researcher transcribed the STs by shadowing them at half-speed. The transcriptions thus acquired still required repeated checking and correction.

However, because SASL does not follow English syntax, the TTs had to be transcribed manually. Transcription of sign language is also much more difficult than that of spoken language. Thus a typical half-hour spoken English news broadcast could be transcribed in 24 hours, whereas the sign language transcription for the same broadcast took at least 160 hours. They were then also annotated manually, which was even more time-consuming. This limited the number of bulletins that could be prepared for analysis. Moreover, the transcriber must have good command of both SASL and English, excellent visual memory and adequate literacy, typing and computer literacy skills. In this respect, Mss. van Aarde and Ramjugernath proved to be valuable transcribers and checkers. Transcription and annotation were done in MSWord, after which the files were converted to text format for the analysis using *Antconc*.

4.7.4.3 Notation system

Since sign language does not have its own orthography (cf. Aarons 1994:9), a written system had to be devised. As discussed in Chapter 3.9, representing signs by glosses is the most common way of transcription; however, it was also important to develop a notation system in order to define unknown signs or signs used in different contexts, or to define a gloss. Since it is not reader-friendly, notation was not used in the actual transcriptions, but only incorporated in comments where sign definition or description was necessary.


As described in Chapter 3.9.1, the most popular notation systems used in sign language corpora are the SignWriting and HamNoSys systems (cf. Johnston 2010:109; SignWriting 2012). However, their graphical nature makes it difficult to reduce them to electronic format. Therefore, a computer-friendly notation⁴ was devised in which a sign is written in the format

$$H_{O/@A} (x) h_{o/@a} \text{mrEv},$$

where H = the dominant handshape, O = the dominant hand orientation, @A = the dominant hand-body contact symbol, x = hand-to-hand contact symbol, h = the non-dominant handshape, o = the non-dominant hand orientation and @a = the non-dominant hand-body contact symbol. Motion (m), repetition (r), facial expression (E) and mouthing (v) are expressed as embedded annotations (see Section 4.7.4.5 below) with category codes.

Following Stokoe (1960:31), Signgenius (2009) and Paabo et al. (2009:403), handshapes are expressed in terms of the American one-hand alphabet, numerals or glosses of common signs. (This can be adapted to suit the handshapes of other signed languages). Orientation is

⁴ The researcher developed the notation system as a SASL student.

described using movement codes, directional arrows or polar/Cartesian co-ordinates⁵. Following Baker-Shenk & Cokely (1981), palm orientation is indicated in this study as left (L), right (R), up (U) or down (D). I have extended their notation to include palm orientation away from the body (O) and towards the body (I). Thus  is represented by 5_O, etc. The default (unmarked) hand orientation is when the palms face each other, i.e. right hand faces left and vice versa, which is the natural orientation of the hands. For example, the SASL sign for “between” is represented as BB or more explicitly as B_LB_R. Points of contact are described by a relational marker (x). The default contact point is when the dominant hand rests on top of the non-dominant hand, e.g. “work” = BxB. If more information is required, a more complex notation (x•) is used to indicate where the dominant hand touches the non-dominant hand, e.g. “join” may be represented as A•xA. If the hands are only related by movement, x is omitted, e.g. “weigh” is represented by B_UB_U_mW (i.e. both hands horizontal with palms facing up, moving alternately).

As can be seen in the examples, unmarked information is not explicated in this notation system. For example, for a one-handed sign, the non-dominant notation is omitted, e.g. “my” = A_I@chest. If there is no body or hand contact, these variables are also omitted.

4.7.4.4 *Gloss transcription*

As discussed in Chapter 3.9, non-lemmatised descriptive gloss transcription systems and the use of overlines or special symbols not suitable for concordance programs (where everything must be in plain text format) were abandoned in favour of lemmatised ID glosses that could be related to a data base.

In a concordance program with limited availability of annotation symbols, the convention of using capitals for glosses did not fulfill any real function and therefore lower case is used, including proper names and sentence-initial glosses. Instead, all glosses were tagged with the underscore delimiter so that the number of sign tokens could be calculated by simply counting underscore delimiters. However, initial capitals were retained if a classifier is meaningful as a letter of the alphabet. For example, “Durban” is signed with **D**-CL and is thus glossed as “Durban_”, whereas the classifier for Pretoria (= **W**_{I@forehead}_mG+) does not convey alphabetic meaning and the sign is glossed as “pretoria_”. Capitals were also retained for finger-spelling.

⁵ Directional arrows are convenient when writing by hand, whereas codes are easier in electronic texts. More accurately, the normal vector from the palm can be described using unit polar or Cartesian coordinates. Only palm orientation is used in the notation system since finger orientation is inherent in handshapes.

Lexical entries in the SASL dictionary (Penn et al. 1992) or the closest equivalent word(s) were used as glosses for fully lexicalised signs, whereas partially lexicalised items (e.g. grounded blends, gestures, pronouns, etc.) were assigned descriptive glosses prefixed with “I” e.g. “Icoupletour_”. Following the practice in the *Signs of Ireland* corpus discussed in Chapter 3.10.2, the frequently used deixis sign (= 1_D), which corresponds to various English contextual meanings, e.g. there, you, s/he, it, this, that, etc., is glossed as “index”. The first person pronoun (= A_{@chest}) is glossed consistently as “me”, the second polite form (= A_{m+}) as “you” (as opposed to “index”), thereby relating the gloss to handshape rather than to grammatical role. Most glosses are English words (e.g. “rain”) or combinations of words (e.g. “Inotbother”), but where consistency and equivalence demands could not be met by the English language, glosses were derived from hand classifier forms or other languages. The gesture approximately rendered in English as “there you have it”, is glossed as “vot” (= B_UB_U_{m+}) because it has the same semantic range as its Russian counterpart. Similarly, the sign glossed “gril” (= 5:15:L_m-E4, approximately translated as “shudder” in English) is closer to its Afrikaans equivalent in meaning and contracting body movement. The use of non-English words also serves to reinforce the fact that the gloss is simply a metalanguage used to transcribe the sign.

Where possible, concepts expressed by a **single sign** are glossed as single words, e.g. “sofar_”, “Igivemoneywad_”, again affirming that glosses are metatextual representations of another language. If a single word is illegible or ambiguous, a hyphen is conceded, e.g. “not-here_” (cf. “nothere_”). However, hyphens primarily indicate compound signs made up of two **consecutive** signs, e.g. “Ilongbeard-sack_” (= Father Christmas). Notwithstanding, better concordance results were obtained by writing finger-spelled components together, e.g. “z4NorthWest_” instead of “z4North-West”. If two signs combine **simultaneously**, they are represented by a single word, e.g. “Igivemoneywad_”, or separated with (+) if a single word is too unwieldy or loses information, e.g. “IwalkRhO+walkLh@_”. The single underscore for compound signs means that they are counted as a single sign. In line with prevailing academic trends to exclude prior analysis, glosses are lemmatised. Hence, **plurals** are usually simply annotated for repetition and chirality. However, if singular and plural sign forms differ, the gloss is suffixed with “-pl”, e.g. “children” is transcribed as “childpl_”.

In cases of phonological errors, the gloss of the intended sign is followed by that of the actual sign executed, separated by “/”, e.g. “charge/bad_” indicates that the signer intended to sign “charge” (= 1_{m2+}) but due to an incorrect classifier, signed “bad” (= I_{m2+}) instead. Similarly, polysemy is expressed by the gloss of the intended meaning followed by that of the

primary meaning separated by “=”, e.g. “profit=salary_” means that the sign for “salary” is used to express “profit”.

To distinguish them from true signs, **classifiers**⁶ are represented by a descriptive gloss suffixed with CL, e.g. personCL, carCL, etc. Although this means that handshape information is lost, the semantics, deemed more important for the purposes of this study, are retained. For example, “carCL_” means that the dominant signing hand is held in the car classifier shape instead of executing the car sign.

Simultaneous compounds often express a **referential relationship** between two concepts which is executed by assigning different functions to dominant and non-dominant hands. This relationship is represented as glossRh@CL-Lh, i.e. the dominant hand gloss (the referenced *figure*) is given first, followed by @ and the non-dominant hand classifier (the reference *ground*) (cf. Özyürek et al. 2009). For example, “index@carCL_” (= this car) means that the dominant hand points to the non-dominant hand which assumes a car classifier handshape. If the hands are swapped so that the dominant hand is the *ground*, the gloss is written as carCL@index.

Hand use/dominance is suffixed to the gloss, e.g. “personLh_” indicates that the normal sign for person was executed by the non-dominant hand. (Rh/Lh referring to dominant and non-dominant hands was retained for simplicity.) This notation is also used if part of a two-handed sign is executed, e.g. “carLh_” implies that only the left hand part of the two-handed sign for “car” (= AA_mW) was executed. Similarly, one-handed signs are suffixed with (2h) if executed with both hands, e.g. “fly2h_mK”. Hand use is suffixed after the classifier tag separated by a hyphen, e.g. “personCL-Lh_” indicates that the non-dominant hand is held in the person (= 1_O) classifier shape. Default use of the dominant hand is unmarked.

A new manner of transcribing **finger-spelling** was undertaken since the conventions outlined in Chapter 3.10.2 proved difficult to manipulate with word-based concordance functions and were further complicated by interpreters’ tendencies to abbreviate fingerspelled items. In order to allow comparison of alternative spellings, the full word was glossed with the letters spelt given in capitals and omitted letters in lower case, e.g. “PARKeR_” means that the interpreter fingerspelled the letters P, A, R, K, R of the name Parker. Hyphens are used to distinguish mouthing. For example, “SELEBI_v0” means that the interpreter fingerspells all letters and simultaneously mouths “selebi”, whereas “S-E-L-EBI_v0” means that the

⁶ Strictly speaking, classifiers, reference, hand use and punctuation markers are annotations; however, since they are integrated into the gloss as suffixes, they are included here rather than discussed as part of annotations.

interpreter mouths the first three letters S, E, L separately, then the remaining letters as a partial word, “ebi”.

Quantities greater than ten are transcribed with numerals, e.g. “217_” (= two hundred and seventeen) in both ST and TT. This facilitates concordancing in *Antconc*, since numerals are listed first if the *Sort* function is activated and thus can be easily counted. Token definition settings were therefore set to include number token classes. Mouthed variations could then also be represented, e.g. the gloss “217_v0” means that the interpreter mouths “two hundred and seventeen” while signing, whereas “2-1-7_v0” means that the interpreter mouths the individual numbers “two-one-seven”. Quantities less than ten were represented by a gloss in order to tag them as iconic (see Chapter 6.4.2) although this made them difficult to count. Quantities expressed by signs are glossed as signs, e.g. “thousand_”.

Finally, **punctuation** is used sparingly in the transcriptions. Periods are used to mark paused signing signaled by the interpreters holding their hands at or below waist level. Commas are used to mark pauses where the hands are still held in signing space. Longer pauses are marked as “...”. Question marks are not used since interrogatives are marked in sign languages by NMFs. Emphasis is tagged by an exclamation after the gloss if the manual sign is exaggerated or after the relevant annotation if the NMF is exaggerated, e.g. “big!_” or “big_E2!”.

4.7.4.5 Annotations

Annotation codes for each category identified in the GT analysis were adapted from the literature reported in Chapter 3.10 according to the principles of conciseness, unambiguity, objectivity, compatibility with the *Antconc* concordance software and ease of manipulation in search operations. Since they form part of the GT manual analysis, they are discussed in detail in the relevant sections of Chapter Six. After experimentation, it was found that the most convenient mark-up system was to simply affix tags at the beginning or end of the gloss and use embedded tags and angle brackets < > for more complex annotations, similar to formats used in translation corpora.

Five types of annotations were used in the corpus. Firstly, information on classifiers, chirality and reference were integrated as suffixes into the sign and are discussed above. Secondly, annotations that described the nature of the sign were attached as prefixes to the gloss. These included annotations for iconicity, partially formed signs, fingerspelled words, unknown signs, verbs, information (e.g. number glosses) and questions. Thirdly, descriptive tags in angle brackets (< >) were used to describe head and body movement, file headers and omissions. Fourthly, embedded tags were used for sign quality, facial expression, mouthed

words, movement, repetition, language variation and topics. Finally, mixed tagging was used for additions, shifts, errors and corrections using embedded tags (*_**) at sign level and descriptive tags (*<*/> </*>*) at phrase or sentence level. Both small letters and caps were used as annotation symbols, thus *Antconc* was set to distinguish case. The annotations are summarised in Table 4.5 below:

Table 4.5 Corpus annotations

Annotation	Annotation code (*)	Axial category codes (#)	Example
Suffixed tags			
Classifiers	CL	–	carCL
Chirality	-#h	L,R, 1h, 2h	fly2h
Emphasis	!	–	big!
Reference	@#CL	Classifier gloss	index@carCL
Polysemy	=#	Primary meaning gloss	profit=salary
Phonological errors	/#	Actual sign gloss	charge/bad
Prefixed tags			
Iconicity	I	–	Icloud
Partially formed signs	q	–	qgovernment
Fingerspelling	z#	1-6: e.g. z1=surname	z1PARKeR
Unknown signs	x	–	xscience
Verbs	V	–	Vread
Information	J	–	Jthousand
Questions	Q	–	Qwho
Descriptives < >			
Head movement	<h##>	Initial letter of descriptives, e.g. t = tilt, f=forward	<htf>
Body movement	<b##>	Initial letter of descriptives, e.g. t = tilt, f=forward	<bf>
File headers	<title-#####>	Metadata, e.g. channel, time, initials, date	<title-AKE10E221010sJWsasol1591>
Omissions	<omit-#xyz>	POS, e.g. S=subject	<omit-Smangane>
Embedded tags			
Visibility	u0		first_u0
Facial expression	E#	Types of facial expressions: 1-9	move_E8
Mouthed words	v#	Simultaneity=0,1, clarity=3	ran_v0first
Movement	m#	1-9, capitals	North_m8; trade_mO
Repetition	r#	Number of repetitions: 2-4	wait_r3
Language variation	d##	number=1,2; type=descriptive symbol, e.g. \$=ASL	family_d1\$
Topics	t		thirty_tE2
Mixed tags			
Additions	a#	Types of additions: 1-9	first_a2;
Shifts	s#	Types of shifts: 0-9	shoot_s3
Errors	X#	Types of errors:1-9, word order=WO, coherence=WTF, punctuation=punct	second_X7
Corrections	C#	Types of corrections corresponding to errors:1-9	third_C7

= axial category codes allocated, xyz = text included.

4.7.4.6 Alignment of ST and TT

In order to analyse shifts arising from the interpreting process, STs and TTs were aligned with each other. Alignment is usually done sentence for sentence. However, in interpreting theory, the notion of sentence is replaced by that of chunking, i.e. the amount of ST material that the interpreter is able to absorb, process and produce (cf. Katan 1999). Therefore, the interpreters' sentence-level chunks were used to align STs and TTs. An *interpreting unit* (IU) was therefore defined as a chunk of information at clause or sentence level that was separable by logical pauses. Analyses of shifts, additions, omissions, errors and corrections were also done using the chunk as basis, distinguishing between differences at sign and IU levels. Apart from yielding valuable insights into the process of simultaneous SASL interpreting, the IU was used as the chief yardstick in determining the severity of incoherence in the TTs. It is precisely these chunks that the Deaf audience must absorb and process, therefore the level of coherence of these chunks essentially determines the coherence of the interpreted message as a whole.

Although some concordance packages (e.g. *Paraconc*) perform alignment semi-automatically, it was found that manual alignment in the MS Word files was considerably easier than aligning text files. For the purposes of the present study, a line marker was inserted at the beginning of each IU and a time marker at the beginning of each new story. In cases of non-correlation between ST and TT due to omissions and additions, the relevant line numbers were used with the annotations <add> in the ST or <omit-Rx> in the TT. When the transcriptions form part of the Unisa SASLI corpus, further time-coding will be necessary.

4.7.4.7 Corpus analysis

According to Meyer (2006:2), a corpus can be analysed manually, semi-automatically using concordance programs or fully automatically. Only the first two means were employed in the present study. The recordings and transcriptions were analysed manually using the TC evaluative criteria, specifically regarding sign visibility, language variation, language use, shifts related to interpreting choices and errors. Coding was done through annotations using general and axial category codes. During both transcription and analysis, comments were also inserted in the form of endnotes. Although time-consuming, manual analysis is an accurate way of collecting interesting qualitative data (Meyer 2006:2).

After the texts had been annotated and aligned, they were analysed semi-automatically with the *Antconc* concordance program. While the manual analysis yielded qualitative data, the semi-automatic analysis by means of the concordance software was used to obtain

quantitative data. Although *Paraconc* was created specifically for parallel bilingual corpus analysis, the complicated nature of the annotations, the many “bugs” and limitations still in the software and the fact that the TT and ST were both (effectively) English proved more than challenging. *Paraconc* only accepted the TT transcriptions if they were designated as Jamaican English! Although *Wordsmith Tools* was also suitable, its use was restricted because of its expensive licensing requirements. Therefore it was eventually abandoned in favour of the freely downloadable *Antconc* 3.2.4w (Anthony 2011) software. It was therefore primarily for this software that the annotation system described in this study was devised. Each interpreter’s sub-corpus was therefore analysed separately as a monolingual corpus.

Another option would have been to use ELAN as basis for the corpus. However, because it was to become part of the Unisa corpus of spoken and signed speech, there were strict initial constraints placed on it, namely that it had to be in text format and use an annotation system (the corpus planners were unaware of ELAN) compatible with that used for the spoken corpora. Text-based corpora are the norm in spoken-language interpreting corpus studies (cf. Setton 2002).

Corpus analysis using *Antconc* included all four types of analyses described in Chapter 3.1.4. Firstly, **concordance lists** and **plots** were used to detect the frequency of occurrences for all annotation types or categories being investigated. Secondly, **type/token ratios** were calculated for each variable in terms of number of signs (“% sign”) as well as number of IUs (“% IU”) for each interpreter in order to compare the two interpreters. Thirdly, **wordlists** of signs were created from each concordance list in order to explore lexical categories or types for certain annotations. Wordlists were also used to check that lemmatised ID glosses were used consistently throughout the corpus. Fourthly, **collocations** were used to explore grammatical patterns, e.g. the relationships of head movements to topic marking. The results of the corpus analysis are discussed in Chapter Six.

In the next section, the methodologies used are discussed in terms of their reliability and validity.

4.8 Reliability and validity

Reliability and validity address the quality of data and the appropriateness of the methods used to carry out the research. According to Dörnyei (2007:50), reliability indicates “the extent to which measurement instruments and procedures produce consistent results in a given population in different circumstances”. Validity involves determining that the research instruments measure what they are constructed to measure.

In quantitative analysis, reliability entails accuracy and consistency of results, whereas in qualitative analysis, reliability consists of correlation between data measured by the researcher and factors of the actual setting being investigated (Cohen et al. 2005), i.e. what Glaser (1998) terms “fit”. According to Glaser and Strauss (1967), “the category must be readily (not forcibly) applicable to and indicated by the data under study”. Glaser (1998:18) defines four criteria for reliability and validity in terms of “fit”. Firstly, the concept(s) identified must adequately express the pattern found in the data. Secondly, the concepts and resultant theory developed must sufficiently account for the majority of participants or behaviours, i.e. it must “work” (Glaser & Strauss 1967:30; Glaser 1998:18). Thirdly, they must be relevant, i.e. they must explain the phenomenon under observation. Fourthly, they must be flexible enough to accommodate fresh findings. It is contended that the set of variables determined by the study meet these requirements.

According to Mouton (1996:145), reliability is also affected by the background and biases of the researcher as well as those of the participants in the study. Some of the reliability issues which pertain to studies involving the Deaf community are *participant effects*, language issues and *saturation effects*. Firstly, *participant effects* occur when results being skewed towards what the deaf respondent feels that the hearing researcher wants, or, alternatively, feelings of exploitation and non-cooperation cause the respondent to give the opposite response to what he feels is expected of him (Mouton 1996:152-155). Since power relationships between deaf participants and hearing researchers are often perceived as unequal (Aarons 1994:8-9), in order to avoid participant effects, contact with Deaf communities was initiated through Ms. van Aarde, a Deaf staff member and a member of the Pretoria Deaf community. Secondly, although Aarons (1994:12-13) and Neidle et al. (2000:13) advocate using only native signers for linguistic research, the aim of this study was to determine how the *majority* of deaf viewers understood the interpretations. Hence, any Deaf person could participate in the study, regardless of signing proficiency. However, respondents were categorised in terms of their parent’s deafness so that native signers could be identified. Thirdly, it was found that the Deaf community quickly reached *interview saturation* (cf. Mouton 1996:153), so that some who initially volunteered information during the pilot study could not be induced to participate further in the study. Apart from diplomacy and tact, the researcher relied extensively on the tenaciousness and persistence of Ms Van Aarde.

In the conclusion, the main aspects relating to the theoretical and analytical frameworks of the study are summarised.

4.9 Conclusion

In this chapter, the analytical framework and theoretical model of the study was presented together with the research procedures used.

The analytical framework is based on GT principles, which allows the research variables to be explored using an emergent, iterative, mixed-methods approach that incorporated both qualitative and quantitative data. The GT paradigm was used to generate the TC of a reception-oriented model developed for the analysis of interpretations in terms of target audience expectations. The TC thus formed constitutes a refinement of the initial research variables arising from the research questions.

Four different research procedures were triangulated in answering the research question. Firstly, a questionnaire was sent out to as many Deaf respondents as possible to determine perceived expectations. Secondly, eye-tracking data of Deaf participants watching excerpts from the interpreted news bulletins were compared to that of hearing participants to determine real behaviour. Thirdly, the questionnaire findings are complemented through analysis, using GT principles, of a group discussion in SASL. Finally, a corpus of interpretations was constructed for two interpreters to identify and quantify incoherencies in the TTs. The chapter explained the design of each research procedure as well as the methods of data collection and analysis in terms of the research questions and variables. The extraction of both qualitative and quantitative data and their respective analyses were also explained. Finally, issues regarding the reliability and validity of the data were addressed.

In the next chapter, the results of the analyses of the questionnaire, eye tracking experiment and SASL discussion are presented in order to construct a composite picture of Deaf audience expectations.

CHAPTER 5: TARGET AUDIENCE EXPECTATIONS

The purpose of this chapter is to explore target audience expectations and viewing behaviours in terms of the research questions.

5.1 Introduction

In accordance with the reception-oriented model discussed in Chapter Four, the expectancy norms of the Deaf target audience were explored in three stages. Firstly, an initial set of variables were obtained by means of a pilot study. These results are presented in Section 5.2. Secondly, a questionnaire based on the pilot study results was used to elicit expectancy norms. These results are presented in Section 5.3. Perceived expectations were then qualified by analysing real behaviours through eye-tracking (Section 5.4) and immediate feedback responses in a SASL discussion (Section 5.5). The chapter concludes with triangulation of the data in Section 5.6, resulting in dynamic refinement of the study variables and thus of factors affecting Deaf comprehension of the interpreted news broadcasts.

5.2 Pilot study

In line with a Grounded Theory (GT) approach, a pilot study elicited (through email) Deaf viewers' opinions regarding the interpreted news broadcasts in June 2009. In the email, respondents were asked whether they understood the TV news interpreters and to give reasons for incomprehension. As noted in Chapter 4.7, the email was sent out (in English or Afrikaans) to members of DeafSA as well as Deaf acquaintances of the Deaf researcher, Ms Van Aarde, i.e. to all known individuals in the Deaf community whose email addresses were available. Since no sampling technique was undertaken, the 42 respondents were not representatively balanced in terms of gender (62% male), race (81% White, 14% Black), region (44% Gauteng, 33% Cape, 22% KZN) or language (57% Afrikaans, 39% English). Education levels ranged from Grade 7 (completion of primary schooling) to Grade 12 (completion of secondary schooling). Having access to email also meant that these respondents were all literate.

The pilot study revealed that only 9% understood the interpreters on SABC 1 (T1) and SABC 2 (T2), compared to 14% for SABC 3 (T3) and 43% for ETV interpreters. Firstly, Deaf viewers indicated that they needed to lip-read or access written text, or had weak signing skills (11%). Since the main reason for incomprehension for these responses lies with the means of communication, these reasons were grouped under the heading *communication*

factors. Secondly, Deaf viewers complained that the picture, hands or face of the interpreter was too small for them to see clearly or that clothing or background colour interfered with visibility (30%). As these reasons concerned physical visibility rather than interpreters' skill, they were grouped under the heading *physical environment factors*. Thirdly, respondents complained that the interpreters' sign language was different to theirs (50%), that interpreters lacked facial expression, were "dumb" or "stiff like corpses" or that their hand signals were unclear (27%). Since these reasons were related to the interpreter's use of SASL, they were coded under the heading *language factors*. Two sub-variables were distinguished, namely language variation and language use. Fourthly, viewers complained that interpreters took "shortcuts" (the word was used to refer both to omitted signs in a sentence and to omitted information) or signed too fast (8%). Since they blamed poor interpreting skills for their lack of comprehension, these reasons were grouped under the heading *interpreting factors*.

Hence the following variables and sub-variables were identified in the pilot study:

- Communication factors: need for lip-reading or subtitles, poor audience SASL skills;
- Physical environment factors: size (picture, hands, face), colour (clothing, background);
- Language factors: language variation, language use (facial expression, mouthing, movement, sign execution);
- Interpreting factors: omissions, speed.

It is evident that these variables correspond to those derived from the interpreting setting discussed in Chapter One. The fact that no new category variable was found already suggested saturation of the main category variables.

In the following section, the results of the questionnaire analysis are discussed.

5.3 Questionnaire results

As noted in Chapter 4.7.1, approximately 1000 questionnaires (in English or Afrikaans) altogether were sent out to various Deaf groups around South Africa from July 2009, of which 314 completed surveys were returned by November 2011. As noted in Chapter 4.7.1, the questionnaire consists of three sections. The first section elicits sociological information to check representativeness and assess means of communication. These results are presented in Sections 5.3.1 and 5.3.2 below respectively. The second section elicits general viewing preferences in order to explore expectancy norms. These results are discussed in Section 5.3.3. The third section elicits evaluations of the interpreted TV news broadcasts in terms of viewing preferences, comprehension, language variation, the interpreter's signing skills and

visibility issues using the four-point Likert scale discussed in Chapter 4.7.1 (i.e. ✖/⊕/⊖/✓). These results are presented in Sections 5.3.4. Finally, the questionnaire results are summarised in Section 5.3.5. The questionnaire is presented in Appendix B and the data is tabled in Appendix C.

Not all respondents completed all sections of the questionnaire, especially the evaluations of the individual news bulletins. Those that did not complete sections said that they did not watch a particular news bulletin and therefore justifiably did not feel qualified to answer questions on it. Thus Likert-scale percentage rankings for the assessment section are calculated in terms of the number of respondents who actually answered a particular question. A zero value category was assigned to each abstained evaluation. The data in Table C13 of Appendix C indicates the number of respondents (= Real N) who actually completed a particular assessment, as well as the number and percentage of those who refrained. This provided a fairer assessment of the bulletins.

Based on an estimated population of one million Deaf SASL users, the sample size of 314 respondents accessed for the questionnaire is representative of the population at 99% confidence level within a confidence interval of 7.28, whereas using the SA Statistics (2011) preliminary population of 52 000 hearing-impaired individuals gives a confidence level of 7.26 for the sample (Surveysystem 2012). (At 95% confidence level, the confidence intervals for the 1000000 and 52000 values are 5.3 and 5.1 respectively.) However, as noted in Chapter 4.4.3 and 4.7.1.1, the questionnaire is primarily designed to collect qualitative data and thus extrapolation of the sample data to population statistics within a 5% or 7% confidence interval is only methodologically sound in the rare instances of single-choice, mutually exclusive categories.

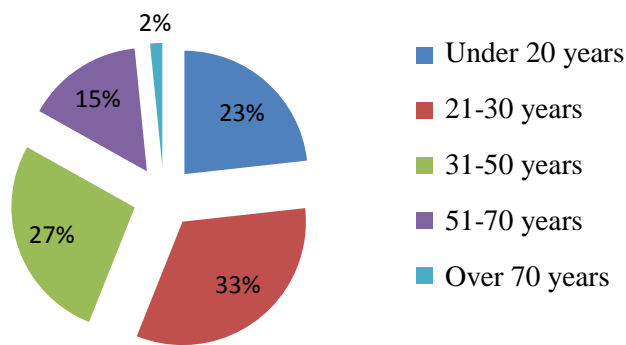
In the next section, a sociological profile of the respondents is constructed.

5.3.1 Sociological profile

To check representativeness, information was elicited on respondents' socio-cultural backgrounds in terms of age, gender, race, geographical location and school attended (Questions A1-4). Although names were elicited to prevent questionnaire duplication, this information is kept confidential. The sociological data is given in Table C1 in Appendix C.

The binned age groups of the respondents are illustrated in Figure 5.1 below:

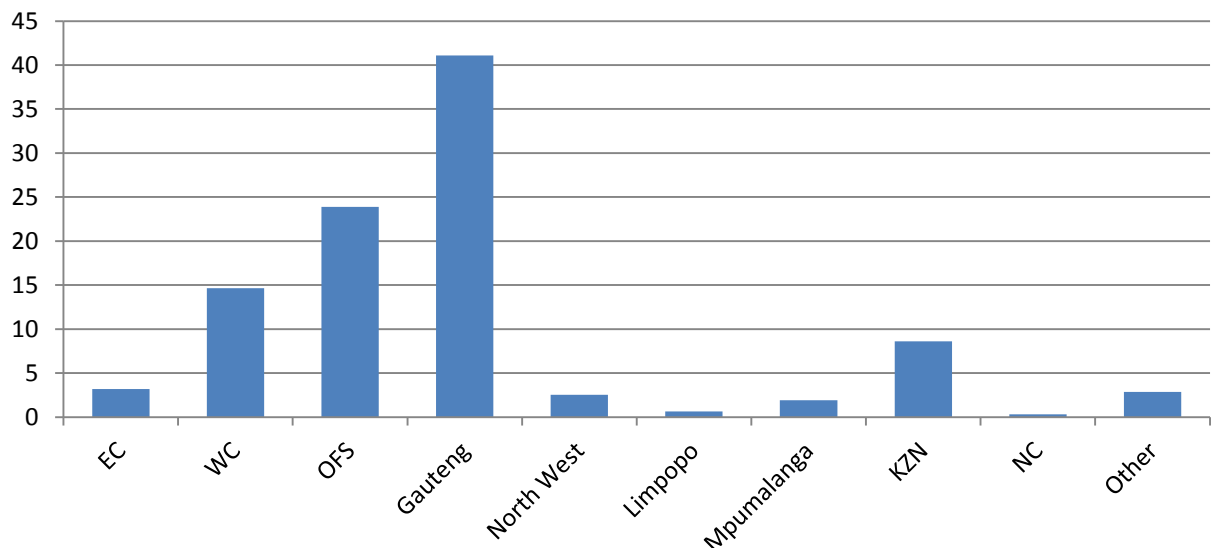
Figure 5.1: Distribution of respondents over age groups (%)



The binned **age** distribution appears to follow a normal curve with an average age of 33 years, indicating representativeness in terms of age. The sample was also representative in terms of **gender**, but skewed in terms of **race** in favour of Black (49%) and White (45%) respondents.

The respondents' **regional distribution** was also not representative, since most respondents are from Gauteng (41%), the Free State (24%) or the Cape provinces (18%) and other provinces are under-represented. The regional distribution is depicted in Figure 5.2 below:

Figure 5.2: Regional distribution of respondents (%)



Finally, the respondents came from a variety of **schools**, the most popular being Transoranje Skool vir Dowes in Pretoria (29%), Thiboloha (25%) in QwaQwa, De La Bat School in Worcester (13%), St Vincent's in Johannesburg (5%), Dominican Grimley in Cape Town (4%) and Filadelfia in Soshanguve (4%).

Although it was initially planned to also investigate subgroups within the respondent sample in terms of the sociological variables described in Chapter 2.2.4., specifically the variables **Region**, **School**¹ and **Race**, correlation of these variables with each other revealed that the variables **Region** and **School** were dependent on the variable **Race**. In terms of regional distribution, Asian respondents live in Gauteng (50%) and KZN (50%), most Black respondents in the OFS (45%) and Gauteng (22%), most Coloured respondents hail from the Western Cape (69%) and most White respondents are from Gauteng (60%) and the Western Cape (24%). Similarly, the school attended depended on the respondent's race group. Black Deaf respondents mainly attended Thiboloha (50%), Transoranje (14%), Filadelfia (7%) and Kwathintwa (5%). White respondents mainly attended Transoranje (50%), De La Bat (28%), St Vincent's (9%) or Sonitus (6%). Coloured respondents mainly attended a Dominican school (50%) or De La Bat (25%). Asian respondents attended either St Martin de Porres (50%) or V.N. Naik (50%).

Since **Race** appears to be the only independent sub-category, sub-group analysis in this chapter is restricted to racial distributions. However, some explanation is required regarding the relevance of this variable for this study. Despite globalisation trends in the rest of the world, South Africa is a multicultural, multilingual country. Each ethnic group in South Africa is linked to a particular language, culture and tribal origin, and through these to a particular racial group. Superimposed on these natural cultural divisions are political classifications of race, both in the apartheid era and presently. Thus, the South African White racial group consists of English (mainly of British descent), Afrikaans (of Flemish and Dutch descent), German, Portuguese, Russian, Jewish, etc. ethnic communities, whereas the Black group consists of Zulu, Xhosa, Southern Sotho, etc. ethnic communities divided linguistically into Nguni (Zulu, Xhosa, Ndebele, Swati), Sotho (Northern Sotho, Southern Sotho, Tswana), Tsonga-Shangaan and Venda language groups (Mesthrie 2002). Ironically, the Asian race group is racially mixed, consisting of Chinese, Japanese, Korean, Indian, etc. communities, each with their own sets of languages and subcultures. (Even more ironically, the Chinese community was previously classified as Black under the apartheid regime). Only the Coloured *race group* (which, also ironically, is derived from interracial mixing primarily of White and Black races) is considered to be a single, homogeneous *ethnic* community (cf. Mesthrie 2002). Before 1994 (which marks the end of the apartheid era), each ethnic community functioned effectively as a closed group. Even nowadays, most South Africans marry and

¹ Not enough information was known about all the schools attended by the respondents to investigate schools in terms of religious subgroupings.

associate primarily within their respective ethnic communities (i.e. within the variables of race, culture, (tribal) heritage and language), although integration policies at schools and work-places, globalisation and the prevalence of English are eroding these boundaries.

From the above discussion, it is evident that investigation of different racial subgroups' perceptions within the larger respondent sample has nothing to do with racial stigmatisation but carries enormous implications of cultural and linguistic differences. Because insufficient numbers of Coloured and Asian respondents were obtained, statistics for these two groups are reported for interest's sake but are not statistically relevant.

Examination of the other sociological variables in terms of racial groups revealed that the average age of each racial group is skewed: Asian = 28 years, Black = 24 years, Coloured = 21 years, White = 44 years. Hence the White group represents a predominantly older group. Gender representation is maintained across all racial groups except Asian (Males: Asian=75%, Black = 54%, Coloured = 46%, White = 48%, total =52%).

In the next section, respondent means of communication are explored.

5.3.2 Means of communication

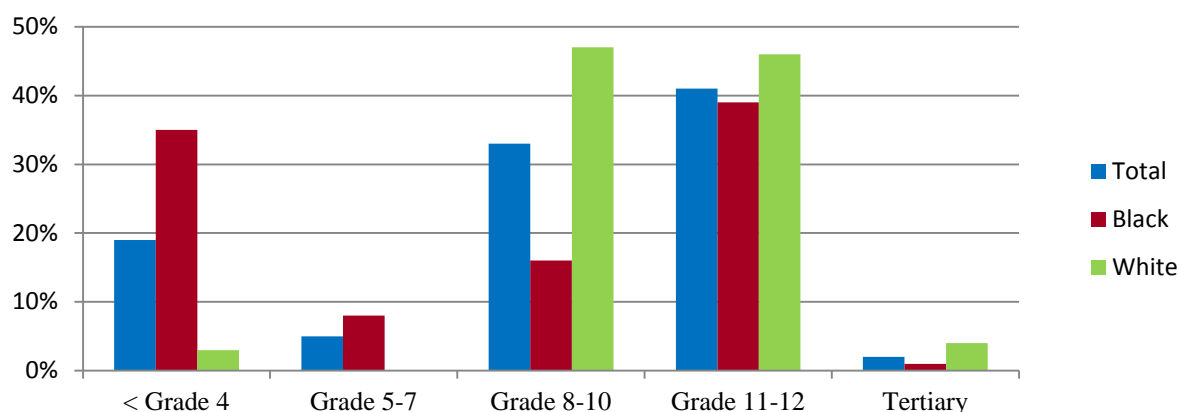
In line with the first research question, the respondents' communication preferences were assessed in terms of literacy, lip-reading and sign language proficiency. Information was elicited on the hearing status of parents (in order to identify native signers), means of communication with hearing and deaf persons, age of onset of deafness, age at which respondents started learning SASL, highest grade attained at school and knowledge of spoken languages (Questions A5-13). As explained in Chapter 4.7.1.2, these variables were also used to estimate pre-deaf linguistic experience and signing experience. Respondents' answers to open-ended questions were also assessed using the simplified TWE scoring system discussed in Chapter 4.7.1.

5.3.2.1 Assessment of literacy levels

As discussed in Chapter 4.7.1, the average literacy level of the respondents is deduced from three factors, namely education level, ability to use language to express an opinion as measured using the adapted TWE rating score and explicit indication of writing as a means of communication with deaf or hearing persons.

The first measure of literacy is the respondents' **highest level of education** (Question A5). Binned respondent distribution is depicted in Figure 5.3 below:

Figure 5.3: Highest education level achieved



(In all Questionnaire tables and figures, **Total** = proportional statistics for the whole respondent sample.)

Although most (60%) of the respondents possessed at least Grade 10, 24% of the respondents did not complete primary schooling, 57% did not complete secondary schooling and only 2% obtained some form of tertiary education. These figures are much lower than national averages for hearing persons. The mean school-leaving grade is 9.24, i.e. the average respondent completed Grade 9. In terms of racial distribution, the average Black respondent left school after Grade 8, Coloured respondents after Grade 9, White respondents after Grade 10 and Asian respondents after Grade 12. If a Grade 10 education is assumed necessary to fully understand a news bulletin (cf. Chapter 4.7.1.2), then it is evident that only White and Asian groups meet this criterion. The results indicate a bimodal distribution for Black respondents.

The second means of assessing literacy levels was by marking respondents' language samples (provided by their comments and answers to open-ended questions) using the adapted **TWE score** assessment instrument discussed in Chapter 4.7.1.2. Since respondents could answer the questionnaire in English or Afrikaans, the TWE scores are based on literacy in these languages. Ideally, the questionnaires should be offered in all languages. However, apart from economical and logistical considerations, it was found that respondents who preferred languages other than English or Afrikaans (e.g. African languages) were functionally illiterate in these languages since the medium of instruction in deaf schools is either English or Afrikaans. An exception was a group that was literate in Southern Sotho. Initially it was planned to translate the questionnaire into Southern Sotho, but the processing of such questionnaires would have created logistical problems for the researcher, so the questionnaire was interpreted into SASL and the respondents' answers back into English, as with

functionally illiterate groups. However, these respondents were given a TWE rating of 1 rather than 0 since they are not illiterate (although they are still functionally illiterate in English and Afrikaans).

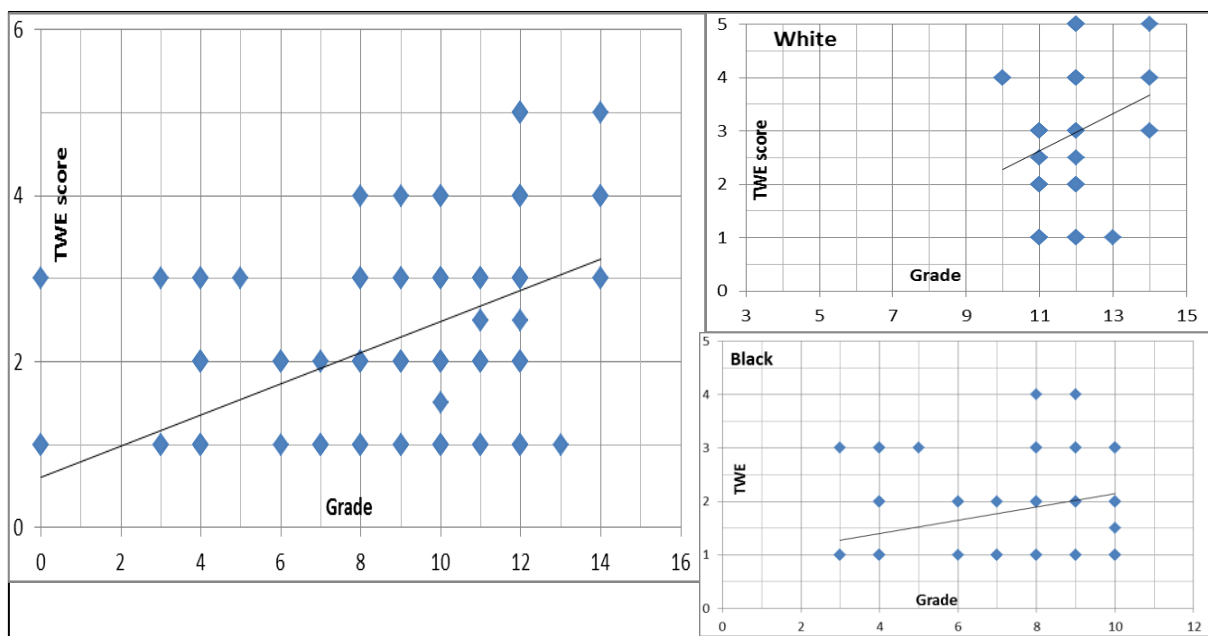
According to information provided by the volunteer distributors, the form was filled out unassisted in English by 40% (126) of the respondents and in Afrikaans by 41% (129 respondents). A further 19% (59 respondents), all Black people living in rural areas, completed the form in English with assistance from a hearing volunteer and can be regarded as functionally illiterate in English or Afrikaans. In terms of racial distribution, the following statistics were obtained:

- English form: (100% Asian, 50% Black, 31% Coloured, 27% White);
- Afrikaans form: (0% Asian, 9% Black, 69% Coloured, 73% White);
- Assisted English form: (0% Asian, 41% Black, 0% Coloured, 0% White).

The mean TWE score for the sample was 2.32. In terms of racial distribution, the following means were obtained: Asian = 2.75, Black = 1.78, Coloured = 2.23, White = 2.94. All groups fell short of TWE score 3 (i.e. the ability to write coherently at sentence level).

The relationship between TWE and grade is further investigated in Figure 5:4 below.

Figure 5.4: Scatterplot of TWE scores against highest grade achieved



The above figure shows that while there is some correlation between grade and TWE score, higher grades evidence multiple TWE scores. The spread of TWE scores per grade, especially at Grade 12, shows that deaf learners leave school with varying levels of literacy. It is therefore suggested that the TWE score is a more accurate indicator of literacy than the exit

grade. Disparity between Black and White literacy levels is evident, with White respondents achieving higher exit grades and higher average TWE scores per grade (evidenced by the best linear fit gradient) which can be explained in terms of better access to education, specialist help and language exposure at home and in school, especially prior to 1994. The lower Black score is also negatively affected by the group of functionally illiterate rural respondents.

The third measure of literacy is respondents' **explicit information** that they used writing as means of communication. The following results were obtained:

- With hearing people: 25% Asian, 45% Black, 8% Coloured, 35% White, 40% total;
- With deaf people: 0% Asian, 15% Black, 8% Coloured, 15% White, 15% total.

These results show that 40% use writing as a means of communicating with hearing people, whereas only 15% use it with other deaf people, confirming that writing is an acceptable Deaf cultural norm when communicating with hearing people but not with other deaf people. Furthermore, despite lower literacy skills, proportionally more Black respondents use writing to communicate with hearing people than other groups, indicating that passive literacy levels may be higher than performance levels.

In the next section, the respondents' use of oral means of communication is discussed.

5.3.2.2 Oral means of communication

The respondents' use of oral communication means is assessed by means of four variables, namely spoken language experience, explicit use of oral means of communication with deaf and hearing, use of mouthing in sign language interpreting and respondents' perceived need to lip-read the interpreters. An assessment score (OCOM) derived from these variables is calculated and used as a measure of the extent to which respondents use oral communication.

Firstly, respondents' **experience with a spoken language** is explored (Question A6). The results are presented in Table 5.1 below:

Table 5.1: Language preferences

Afrikaans	S. Sotho	English	Zulu	Xhosa	N. Sotho	Tswana	Venda	Other African	Other European
127 (40%)	62 (20%)	53 (17%)	26 (8%)	15 (5%)	7 (2%)	9 (3%)	5 (2%)	4 (1%)	3 (1%)

Afrikaans is the most popular language (40%), followed by South Sotho (20%), English (17%) and Zulu (8%). Correlation between the above data and questionnaire language showed that 50% consistently use either English (13%) or Afrikaans (37%), whereas the other 50% have to cope with more than one spoken language. Most respondents who reported that they

use an African language as their spoken language also indicated that they are not proficient in this language. Two respondents wrote that they grew up without language.

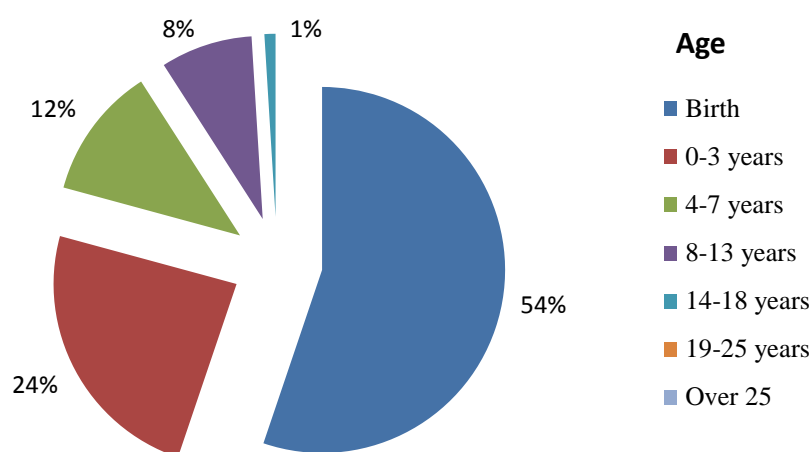
In terms of racial distribution, the following languages are identified:

- English: (75% Asian, 11% Black, 31% Coloured, 20% White);
- Afrikaans: (0% Asian, 3% Black, 69% Coloured, 78% White);
- African language: (0% Asian, 85% Black, 0% Coloured, 0% White).
- Other language: (25% Asian, 0% Black, 0% Coloured, 2% White).

Thus Asian respondents prefer to communicate in English, whereas White and Coloured respondents prefer Afrikaans. Most Black respondents identified with the language associated with their ethnic group, despite the fact that the medium of instruction in most deaf schools is Afrikaans or English (cf. Chapter Two) and their admitted weak knowledge of these languages. This suggests that Deaf people strongly associate spoken language with cultural group identity. In fact, in Deaf circles, identification with a spoken language is designated as “culture”.

Spoken language experience is further explored by using the age of onset of deafness (Question A8) as a measure of pre-deaf linguistic experience. The average age at which respondents became deaf is 2.0 years. The binned age distribution is depicted in Figure 5.5 below:

Figure 5.5: Binned ages of onset of deafness



As can be seen from the data, just over half the respondents were born deaf (54%) and can therefore be considered prelingually deaf, meaning that spoken languages were learnt as silent codes. The other respondents would have had some exposure to spoken language phonemes. In terms of racial distribution, the average age of onset of deafness for Asians and Whites is

during the first year, whereas for Black and Coloured respondents at age three. These may well be the ages that the child is discovered to be deaf, thus the onset of deafness may be earlier and the percentage of prelingually deaf respondents higher.

Secondly, the percentages of respondents that **explicitly acknowledged use of oral means of communication** (Question A12) are presented in Table 5.2 below:

Table 5.2: Oral means of communication

	With hearing people			With other deaf people		
	Oral only	Oral + sign	Depends on situation	Oral only	Oral + sign	Depends on situation
Total	71 (23%)	91 (29%)	65 (21%)	5 (2%)	123 (39%)	76 (24%)
Asian	25%	25%	50%	0%	25%	75%
Black	6%	20%	20%	1%	19%	22%
Coloured	31%	54%	15%	8%	62%	0%
White	40%	35%	21%	2%	59%	26%

Within the overall sample, 23% use only talking and lip-reading, while 50% use a combination of signs and words to communicate with hearing people. Of the latter group, 29% use both consistently, whereas 21% adjust the amount of speech according to the situation. The figures also imply that 27% use no oral form of communication with hearing people. In terms of racial distribution, White respondents are more likely to communicate with hearing persons using speech and lip-reading without signing, whereas other groups prefer to combine signs and words. Combining all oral categories gives the following statistics: 100% Asian, 46% Black, 100% Coloured, 96% White, 73% total. Thus it appears that, apart from the Black group, lip-reading and oral components are common means of communication with hearing people.

In communication with deaf people, only 2% use purely oral means, while 63% use a combination of signs and words. Of the latter, 39% use both consistently, whereas 21% adjust the amount of speech according to the situation. The decreased percentages of respondents using talking and writing as means of communication with deaf people compared to hearing persons indicates that these strategies are not viewed as appropriate in deaf-to-deaf communication and that the few who rely on purely oral means of communication have very weak signing proficiency. Collapsing the variables gives the following distributions for orality as a mode of communication between deaf persons: 100% Asian, 42% Black, 69% Coloured, 88% White, 63% total. These figures show that although speech (without sign) and writing are not viewed as appropriate deaf-to-deaf communication modes, orality with sign (i.e. mouthing) is indeed common in deaf-to-deaf communication in Asian, White and Coloured groups. At this stage of the investigation it was still supposed (as claimed in the literature)

that Deaf South Africans all use a single sign system and do not mouth, hence these results are surprising. Black respondents, however, indicated the least use of orality in communication with both deaf and hearing persons.

Comparing the use of orality in deaf-to-hearing and deaf-to-deaf communication, respondents who use a combination of words and sign consistently are also consistent in their communication strategies between the two different audiences, suggesting that mouthing is integral to their sign language. An interesting result was found in the responses of three young people who initially submitted assisted questionnaires (cf. Section 5.3.2.1) from a rural Black church in QwaQwa, but subsequently submitted individual questionnaires. In the assisted questionnaire, these respondents indicated that they sign without words, but in their individual questionnaires, said that they communicate by talking and lip-reading with hearing people and sign with words with deaf people. It is suggested that these young people have sufficient command of English to mix it with signing in the school environment, but when they go home to their village, they either do not have sufficient knowledge of Southern Sotho or they follow a local practice of not mouthing with sign. They also indicated that they use hearing aids at school but not at home. This suggests that different communities may observe different Deaf cultural norms.

The third variable used to explore the degree of orality is the **role of mouthing in signed interpreting**. The percentage of respondents who want mouthing with interpreting is investigated in Question C11: *Should the interpreter use his/her lips to form the spoken word? Explain why*. The results are depicted in Table 5.3 below.

Table 5.3: Mouthing preferences

GROUP	YES	NO	Not answered	ENG	AFRIK	NONE	AFRICAN
Asian	75%	0%	25%	25%	0%	0%	0%
Black	38%	45%	17%	20%	11%	45%	8%
Coloured	85%	8%	7%	54%	38%	8%	0%
White	83%	2%	15%	22%	38%	0%	3%
Total	62%	24%	14%	22%	24%	23%	5%

The majority of respondents (62%) want the interpreter to mouth, as opposed to 24% who expressly do not. In terms of racial distribution, the majority of Asian (75%), Coloured (85%) and White (83%) respondents want mouthing, compared to only 38% of Black respondents. These statistics reflect the deaf-to-deaf communication patterns discussed above. Black respondents (45%) who rejected mouthing also stated that they wanted a Deaf signer for the news broadcasts. However, it was not clear whether they referred to Deaf interpreters or non-interpreted signed news broadcasts.

English (22%) and Afrikaans (24%) were the most popular mouthing languages suggested, but respondents also wanted the same language to be used consistently for mouthing, subtitles and audio message. Not all respondents who want mouthing suggested a language and some respondents suggested more than one language, hence the language choices in Table 5.3 are not mutually exclusive. The most popular mouthing language for Asian and Coloured respondents is English, whereas Afrikaans is the most popular for White respondents.

When asked why interpreters should mouth, only 9% indicated a need to lip-read (i.e. a primarily oralist means of communication). The most common reason given is that mouthing facilitates understanding (25%), suggesting that mouthing is used as an alternative source of information when the initial source (the interpreter's sign) is inadequate. To a lesser degree, respondents identify with the spoken language (4%), consider mouthing part of their sign language (2%) or need mouthing to distinguish between the different sign languages used by interpreters (1%). In contrast, those who do not want mouthing seldom gave reasons. Those that did noted that sign language does not need words (2%), that facial expression should be used instead (0.3%) or that the picture is too small to discern words (0.6%).

The fourth variable used to assess respondents' use of oral communication is respondents' **explicit perceived dependence on lip-reading**. A total of 142 respondents (47%) ascribe their lack of understanding of the interpreters to their need to lip-read (Question C3). In terms of racial distribution, the following statistics are obtained: 25% Asian, 28% Black, 31% Coloured, 65% White. This confirms the higher incidence of orality in the White group.

Finally, as discussed in Chapter 4.7.1, the **OCOM score** is derived as a general assessment tool for orality by averaging the following variables: oral components of communication with hearing; oral components of communicating with deaf; affirmation that the interpreter should mouth; explicit reference to the need to lip-read. The overall OCOM score was 0.62, with scores for racial distributions as follows: Asian 0.92, Black 0.39, Coloured 0.74 and White 0.86. The score confirms that orality is prevalent in respondents' communication and means of information gathering in all groups except Black respondents and thus that lip-reading could constitute a viable alternative source of information.

In the following section, the respondent's use of sign language is explored.

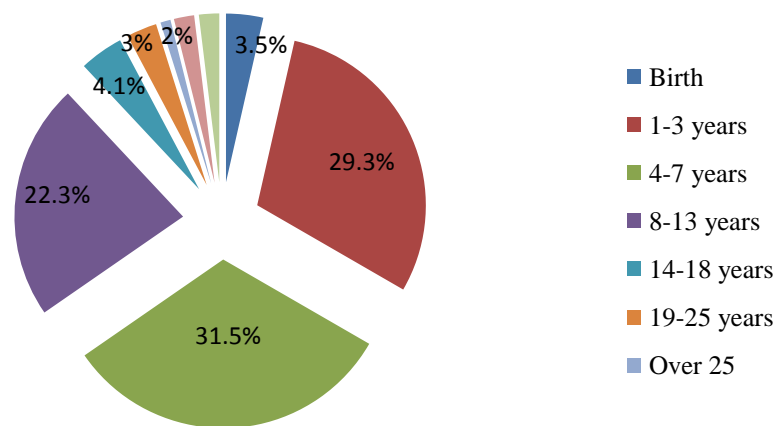
5.3.2.3 Sign language competence

Sign language proficiency is investigated using five variables, namely the age at which the respondent started learning to sign, explicit use of sign language as means of communication,

hearing status of parents, identification with the Deaf community and explicit perceived lack of signing proficiency. The results revealed that sign language is used extensively by respondents with corresponding strong association with Deaf culture, but that approximately one fifth are very late or weak signers for whom signing proficiency may be a factor hampering comprehension.

The first variable used to explore signing competency is **the initial signing age** (Question A13), which, as noted in Chapter 4.7.1, is inversely related to proficiency. The average age at which respondents learnt to sign is 6.6 years. Distribution over binned aged groups is given in Figure 5.6 below:

Figure 5.6: Binned signing age distribution



33% of the respondents learnt to sign by age three (i.e. native and very early signers), a further 32% by age seven (i.e. early signers) and a further 22% by age thirteen (late signers). Cumulative percentages for the ages 3, 7 and 13 are respectively 33%, 65% and 87%. Therefore, 13% are very late signers (i.e. after 13 years of age). Six respondents (2%) never learnt to sign, and a further six (2%) did not answer the question, which could also indicate lack of signing ability. In terms of racial distribution, the average age of learning to sign is 3.5 years for Asian respondents, 7 years for Black respondents, 5 years for Coloured respondents and 6 years for White respondents. As noted in Chapter 2.2.2, the age of signing is often the age when deaf children of hearing parents are sent to school.

The second variable used to estimate respondents' signing proficiency is the **explicit use of sign language as means of communication** with deaf and hearing. These results are depicted in Table 5.4 below:

Table 5.4: Sign language as means of communication²

Signing	Sign with hearing?	Oral+sign (Hearing)	Situation (Hearing)	Sign only (Hearing)	Sign with deaf?	Oral+sign (Deaf)	Situation (Deaf)	Sign only (Deaf)
Total	73%	91 (29%)	65 (21%)	73 (23%)	96%	123 (39%)	75 (24%)	103 (33%)
Asian	75%	25%	50%	0%	100%	25%	75%	0%
Black	86%	20%	20%	46%	97%	19%	22%	55%
Coloured	69%	54%	15%	0%	92%	62%	0%	31%
White	59%	35%	21%	2%	96%	59%	26%	10%

The data show that 73% of the respondents use sign language when communicating with hearing people (who would not normally know sign language), either alone (23%) or with oral elements (50%). This indicates that signing is used as primary communication means even with hearing people. Black respondents tend to sign without words even to hearing persons, whereas Asian, Coloured and White respondents combine words and signs to communicate with hearing people. Sign language is also the primary mode for all groups in deaf-to-deaf communication, with 96% using sign language to communicate with other deaf people, 63% using mouthing with sign and 33% using signs alone. There is thus an increased tendency to use sign language without words in deaf-to-deaf compared to deaf-to-hearing communication.

The third means of exploring signing proficiency is by eliciting parents' **hearing status**³ (Question A9) as a means of identifying native signers. In line with international statistics reported in the literature, 10% of the respondents have at least one deaf parent. However, only White respondents conform to the 10% statistic. In contrast, in this sample 50% Asian, 6% Black and 23% Coloured respondents had deaf parent(s).

A fourth indication of signing proficiency is **identification with Deaf culture** (Question A7). In this respect, 93% (292) of the respondents view themselves as belonging to Deaf culture. Of the remainder, six only learnt to sign after 13 years of age and two never learnt to sign. In terms of racial distribution, 75% of the Asian respondents identified with Deaf culture, compared to 94% for Black, 85% for Coloured and 92% for White respondents.

Finally, 6% of the respondents explicitly ascribe lack of comprehension to their own **poor signing** (Question C2). Racial distribution is as follows: 0% Asian; 2% Black; 8% Coloured; 10% White. The higher White statistic is probably due to the oralist legacy.

In the next section, the respondents' general viewing preferences are explored.

² Some of this data is also represented in Table 5.2 in the investigation of orality. The data in both tables is derived from Question A12 (see Section 5.3.2.2).

³ The researcher acknowledges that having deaf parents is increasingly recognised as neither a necessary nor sufficient condition for native proficiency, but follows convention in using the criterion as a rough indicator.

5.3.3 General viewing preferences

Viewing preferences are explored by asking respondents to list their favourite TV programmes, the reasons they watch them, whether they watch Deaf TV (DTV), whether they enjoy it and why they enjoy it (Questions B1-3). Respondents were also asked to indicate their preference for subtitles as compared to having an interpreter, to provide suggestions on how to make TV programmes more understandable or more enjoyable to Deaf audiences (Questions B4-6), to identify their primary focus when viewing and to estimate the level of difficulty experienced in viewing both interpreter and main picture simultaneously. The results are tabulated in Table C4 of Appendix C and are discussed in the following sections.

5.3.3.1 Programs watched

The TV programmes watched by respondents were axially categorised into the following six categories: news, soaps (*7de Laan, Generations, etc.*), sport; movies; nature/outdoor and serials/variety (*Noot vir Noot, Pasella, Survivor, etc.*). Soaps were the most popular, watched by 71% of respondents, followed by sport (39%), movies (33%) and news broadcasts (27%). Programmes are chosen mainly because they have subtitles (62%), contain self-explanatory action (28%) or to a lesser extent, reflect respondents' interests (23%) or provide information (15%). Three respondents indicated that they need a hearing person to interpret for them to actually benefit from watching TV. Only 7% indicated that they watch because sign language is offered and only one respondent watched programmes specifically related to Deaf issues.

The results for the most frequent categories according to racial distribution are summarised in Table 5.5 below.

Table 5.5: Racial distribution of general viewing preferences

RACE	WATCH WHAT?			WHY WATCH?		
Asian	Soaps (75%)	Movies (50%)	News = Sport (25%)	Subtitles (75%)	Interest (25%)	Life lessons (25%)
Black	Soaps (81%)	Sport (53%)	Movies (32%)	Subtitles (73%)	Action (49%)	Interest (14%)
Coloured	Soaps (85%)	Movies (38%)	Serials (38%)	Interest (46%)	Subtitles (31%)	Understand=Content (15%)
White	Soaps (58%)	News (40%)	Movies (35%)	Subtitles (52%)	Interest (31%)	Content (11%)

Soaps are the most popular for all race groups (75% Asian, 81% Black, 85% Coloured, 58% White). Thereafter, Black respondents prefer sport (53%), whereas White respondents prefer to watch the news (40%). Watching the news ranks very low in priority for other race groups. Black, Asian and White viewers primarily choose programmes that have subtitles, whereas Coloured viewers prioritise interest.

5.3.3.2 Deaf TV viewing habits

Secondly, respondents were asked whether they watch DTV, whether they enjoy watching it and why they enjoy it (Question B3). Most respondents watch DTV, 18% weekly and 50% occasionally, but 12% do not watch it. Most (70%) enjoy watching, as opposed to 15% who do not and 11% who did not answer the question. Respondents enjoy DTV because it has subtitles (33%) or sign language (24%), or because it is interesting (16%). Only 9% watch DTV in order to be informed on Deaf issues or Deaf community news.

Respondents who do not watch DTV gave weak signing skills or lack of understanding (6%) as reasons, but 6% of respondents revealed that they find it boring. Others indicated that DTV caters mainly for Black audiences or that the timing is inconvenient. Results for the most frequent motivations are tabulated in Table 5.6 below:

Table 5.6: DTV viewing preferences

RACE	WATCH DTV?		ENJOY	WHY WATCH DTV?		
	Yes (%)	No (%)		Deaf (%)	Subtitles (%)	Sign (%)
ASIAN	Yes (50%)	No (50%)	100%	Deaf (50%)	Interest (25%)	
BLACK	Yes (80%)	No (1%)	88%	Subtitles (57%)	Sign (33%)	Interest (20%)
COLOURED	Yes (69%)	No (0%)	100%	Interest (38%)	Sign (15%)	Inform (15%)
WHITE	Yes (55%)	No (24%)	45%	Sign (14%)	Subtitles (11%)	Boring/don't understand (13%)
TOTAL	Yes (68%)	No (12%)	70%	Subtitles 33%	Sign 24%	Interest 16%

As can be seen from the data above, DTV is watched enthusiastically by most Black and Coloured respondents and less so by White and Asian respondents. Although all groups gave the presence of sign language as an important reason for watching DTV, the main reason for watching is the presence of subtitles. Except for the Asian subgroup, information on Deaf issues does not constitute a primary motive for watching DTV (Deaf = 50% Asian; 9% Black; 8% Coloured; 5% White). Interestingly, some white respondents indicated that they did not understand the original sign language used on DTV. However, they did not specify whether this was because it was a different dialect or whether it was due to inadequacies in their signing abilities.

5.3.3.3 Interpreter versus subtitles

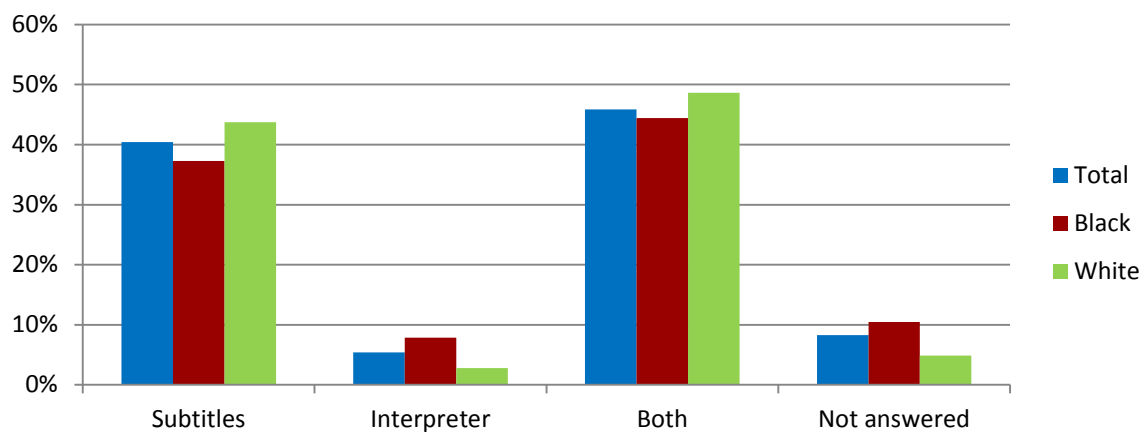
Thirdly, respondents were asked whether they prefer subtitles, an interpreter or both (Question B4). It was expected that the answers would yield data on modes of information gathering. The results showed that 46% of the respondents want both interpreter and subtitles, whereas 41% want only subtitles and 5% want only the interpreter. Hence the option of interpreter only (as is presently the case) is the lowest preference. The cumulative score for

subtitles is therefore 86% as opposed to 52% for interpreters. Racial distributions of preferences are as follows:

- Both subtitles and interpreter (0% Asian, 43% Black, 46% Coloured, 51% White);
- Subtitles only (100% Asian, 38% Black, 23% Coloured, 42% White);
- Interpreter only (0% Asian, 8% Black, 8% Coloured, 2% White);
- Combined Subtitles (100% Asian, 81% Black, 77% Coloured, 93% White);
- Combined Interpreter (0% Asian, 51% Black, 62% Coloured, 53% White).

These results are illustrated in Figure 5.7 below:

Figure 5.7: Interpreter versus subtitles



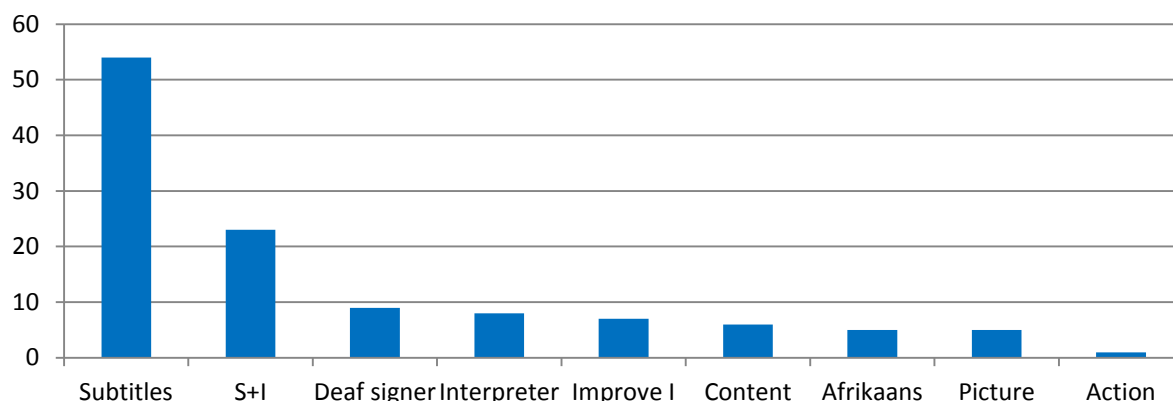
All groups prefer firstly both subtitles and interpreter and secondly to have subtitles only. Accordingly, the combined score for subtitles is consistently higher than that for an interpreter for all groups. Moreover, since this data reflected single-choice, mutually exclusive categories, the sample statistics reflect population choices within 5% at 95% confidence level.

Respondents were then asked how to improve understanding or enjoyment of TV programmes (Questions B5-6). The following suggestions were offered:

- Add subtitles (52%);
- Use a combination of both subtitles and interpreters (23%);
- Make programmes more deaf-friendly by using deaf signers (9%);
- Add an interpreter (8%);
- Improve interpreter performance (7%);
- Improve programme content (6%);
- Use Afrikaans subtitles or interpreters (5%);
- Improve the interpreter picture quality (5%).

Figure 5.8 below shows the combined percentages for each suggestion:

Figure 5.8: Suggestions to improve viewing experience



Most respondents listed the use of subtitles as the primary means of increasing enjoyment and understanding for Deaf TV audiences. The second most popular choice was to have both subtitles and an interpreter (= S+I). Moreover, a total of 238 respondents (76%) indicated somewhere on their questionnaire a desire to have an interpreter or a Deaf signer on the news broadcasts, compared to 283 respondents (94%) who indicated somewhere on their questionnaire the desire to have subtitles. Racial distribution is as follows:

- Interpreter: 0% Asian, 90% Black, 85% Coloured and 63% White;
- Subtitles: 100% Asian, 84% Black, 77% Coloured and 94% White.

This indicates that the notion of a signed interpretation of news broadcasts is not unwelcome to respondents, suggesting that the higher demand for subtitles may be based on the present quality of signed interpreting rather than rejection of interpretation *per sé*.

5.3.3.4 Interpreter versus picture

Fourthly, the perceived difficulty in dividing attention between an interpreter and the main picture during the news broadcasts was investigated. Respondents were asked what they mainly looked at (main picture, interpreter or both) and to indicate the (perceived) difficulty of looking at both interpreter and picture simultaneously using the four-point Likert scale (Question C14-16). It was expected that most respondents would find it difficult to divide their attention with consequent loss of information and would therefore choose a primary source of information. However, the results showed that most respondents (61%) think that they look at both the interpreter and the main picture, whereas only 13% of the respondents said that they only look at the interpreter. The low satisfaction score (34%) and mode (= 2) indicates that most respondents (i.e. 66%) find it difficult to divide their attention between the main picture and the interpreter. Only members of the Coloured group claimed they could look at both with ease. The results are tabulated in Table 5.7 below.

Table 5.7: Interpreter versus picture

LOOK AT	TOTAL	ASIAN	BLACK	COLOURED	WHITE
Interpreter	40 (13%)	0%	14%	23%	11%
Main picture	27 (9%)	0%	4%	8%	14%
Both	192 (61%)	50%	56%	54%	55%
Not answered	54 (17%)	50%	26%	15%	20%
DIFFICULT?					
No (1)	69 (22%)	0%	27%	0%	21%
Only a little (2)	80 (24%)	50%	22%	0%	29%
OK (3)	68 (22%)	0%	21%	15%	23%
Yes (4)	38 (12%)	25%	6%	38%	14%
Not answered (0)	58 (18%)	25%	24%	46%	12%
Mode	2	2	1	4	2
Easy = 3 OR 4	106 (34%)	25%	27%	54%	38%

The results indicate that divided attention between interpreter and main picture is a factor hampering comprehension.

5.3.3.5 Summary of viewing norms

In summary, exploration of respondents' perceived viewing patterns showed that they chose programmes based on the following hierarchical scale of features: subtitles, action, sign language, areas of interest and content. The inclusion of subtitles was also the most common suggestion on how to improve programmes and demands for subtitles exceeded preferences for an interpreter or Deaf signer. Therefore the use of subtitles can be regarded as a strong Deaf viewing norm. One reason why an interpreter is a lower priority may be the perceived difficulty in watching an interpreter while keeping abreast of information in the main picture. Interestingly, Deaf issues are not regarded as important viewing motivations, indicating that these needs are satisfied within the local communities.

In the next section, respondents' assessments of the interpreted news bulletins are explored.

5.3.4 Assessments of the news bulletins

In this section, respondent assessments of the interpreted news bulletins are explored using the 4-point Likert scales. Firstly, viewing preferences are correlated with comprehension of the interpreters for each bulletin. This is followed by assessments of the similarity of the interpreters' variety of sign language to that of the respondents, interpreters' signing skills, interpreter visibility and the visibility of the of the interpreter picture. The results are tabulated in Appendix C (Tables C5-C12). As discussed in Chapter 4.7.1.2, Likert data for ☺ and ✓ categories are collapsed to obtain an indication of the percentage of respondents who were generally satisfied (i.e. HAPPY = ☺ OR ✓). These are presented in the figures below. Although not an ideal comparison since the information content and delivery speed of news

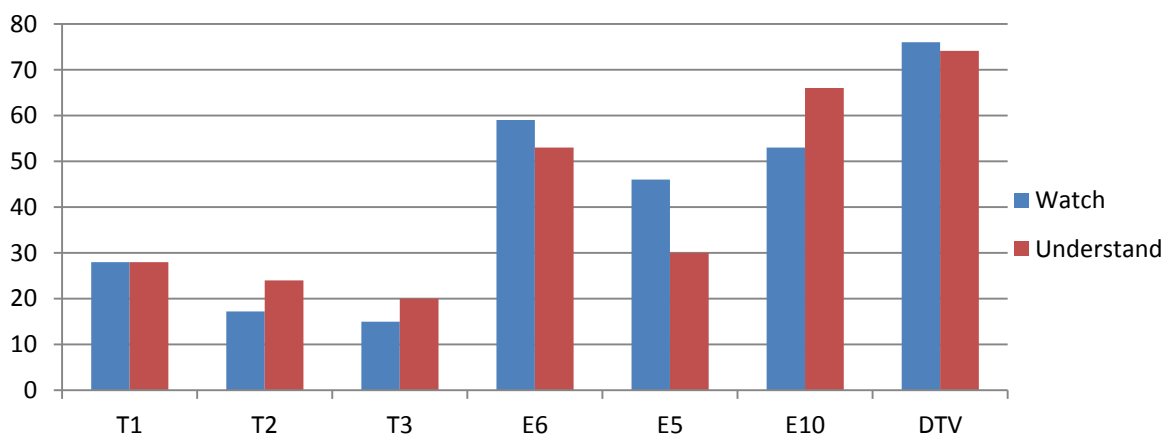
broadcasts are much higher than those of normal communication, respondents' assessments of DTV (the only TV programme that uses natural SASL) were also elicited in order to provide a basis of comparison.

Since most TV stations use more than one interpreter, some respondents gave a score for each interpreter on a particular bulletin (often giving the names of the interpreters concerned), indicating differences in quality between interpreters. Although it would be more accurate to evaluate each interpreter individually, for ethical reasons interpreter anonymity is preserved. Thus the scores given represent the best interpreter in a particular broadcast.

5.3.4.1 Viewing and comprehension preferences

Respondents were asked which of the interpreted news broadcasts they habitually watch (Question C1) and to what degree (using the 4-point Likert scale) they understood the interpreters (Question C2). The results are depicted in Figure 5.9 below:

Figure 5.9: Watching and understanding



Few respondents watch the SABC interpreted news broadcasts (T1, T2 and T3). Most watch the ETV broadcasts (E5, E6 and E10), E6 being the most popular (59%) for all except the Asian group, followed by E10 (53%). The two main reasons given for the popularity of E6 are comprehension of the interpreter and the time slot. However, 42% of Black respondents also watch T1. A much lower percentage of Whites watch the interpreted news than other groups, with most preferring to watch the 7 pm non-interpreted news on SABC 2 or ETV instead. This preference could be due to not understanding the interpreters, but could also be due to family dynamics (most South African hearing families watch the 7 pm news broadcasts).

It is evident that comprehension appears to correlate with viewing statistics. The results also evidence comprehension difficulties for all three SABC bulletins, as well as some comprehension difficulty for E5. In contrast, most respondents understand E6 and E10 (mode

= 3 for both), with slightly greater comprehension of the latter as seen by the higher cumulative score. However, this understanding does not match that of DTV (mode = 4). E6 actually has a bimodal distribution, with roughly equal percentages strongly indicating that they do not understand the interpreter. Examination of race distribution statistics shows that most Black respondents understand this interpreter, whereas most White respondents do not. To a lesser extent, Black respondents also understand the T1 interpreters. The most comprehensible interpreters for White viewers are those on E10, but the comprehension percentage is considerably less than the other groups. The results for DTV reveal that most White respondents also do not understand the original SASL presented on DTV, indicating significant discrepancies in this group's signing.

In order to obtain a clearer picture of comprehension patterns, respondents' answers were correlated to investigate how many both watch and understand, i.e. the number of respondent answers for which WATCH = 1 AND UNDERSTAND =1. The results are displayed in Table 5.8 below.

Table 5.8: Correlation between watching and understanding

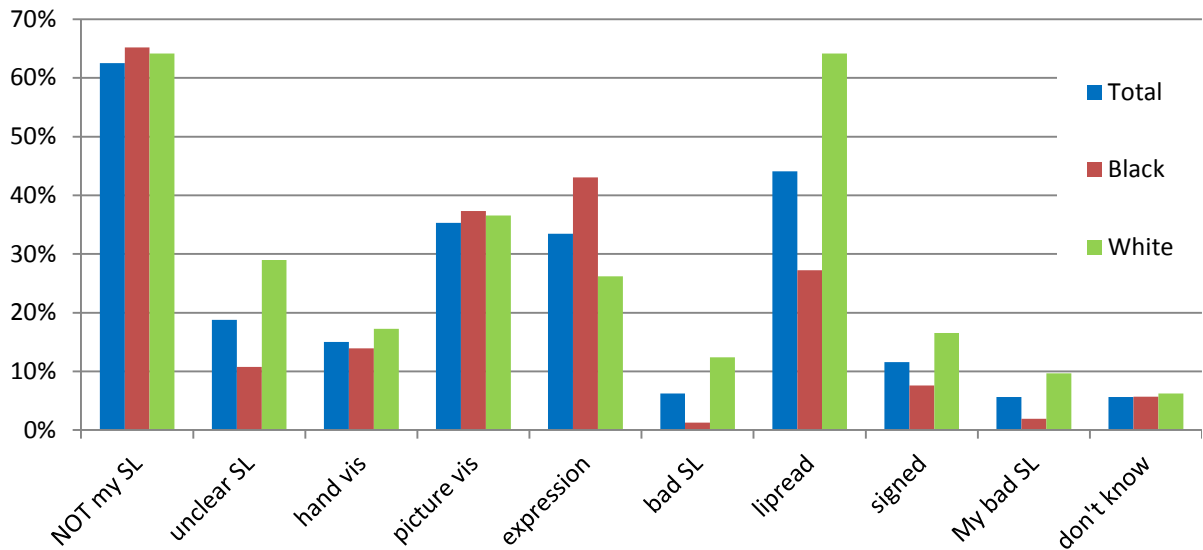
U+W	T1	T2	T3	E6	E5	E10	DTV
Asian	0%	0%	0%	25%	25%	25%	0%
Black	29%	10%	15%	71%	24%	67%	83%
Coloured	15%	23%	23%	62%	54%	54%	77%
White	2%	11%	13%	15%	8%	19%	26%
Total	15%	10%	14%	45%	18%	44%	56%

Only a fraction of respondents that regularly watch a particular news bulletin also understand it. These percentages are consistently lower than those in Table 5.13, indicating that there are also respondents in each category who understand but do not watch. Hence comprehension is not the only reason for watching a particular news bulletin. However, the pattern mirrors previous results in that E6 and E10 are most watched and understood, whereas the other news bulletins are seldom watched nor understood.

Reasons for incomprehension were then elicited from a list of potential problems derived from the pilot study (Question C3). The most frequent reason given is that the interpreter's sign language is perceived as different to that used by the respondents. The second reason for Black respondents is the interpreters' inadequate use of facial expression, whereas White respondents noted the need to lip-read. Small picture size is listed as the third main problem. In their comments, some respondents also stated that they had learnt the British two-handed finger-spelling system and do not understand the one-handed (ASL-based) finger-spelling

system currently used, which therefore also contributes to their lack of understanding. The results are illustrated in Figure 5.10 below:

Figure 5.10: Reasons for incomprehension

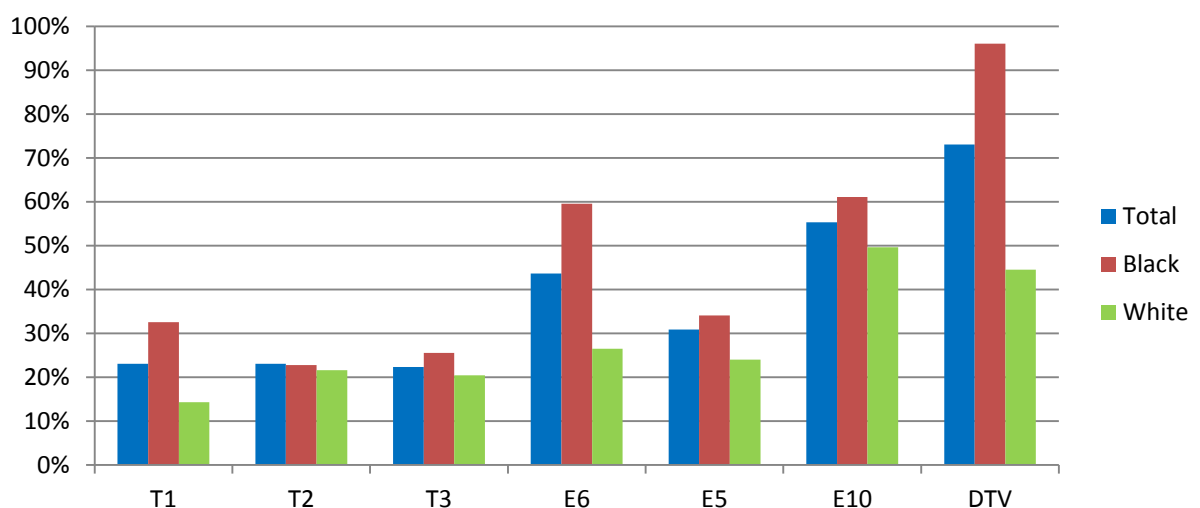


In the next section, differences between interpreters' and respondents' sign languages are explored.

5.3.4.2 Dialectal differences

Respondents were asked to indicate whether they perceived the interpreters' sign language to be similar to theirs (Questions C4-5). The results are illustrated in Figure 5.11 below:

Figure 5.11: Your sign language?

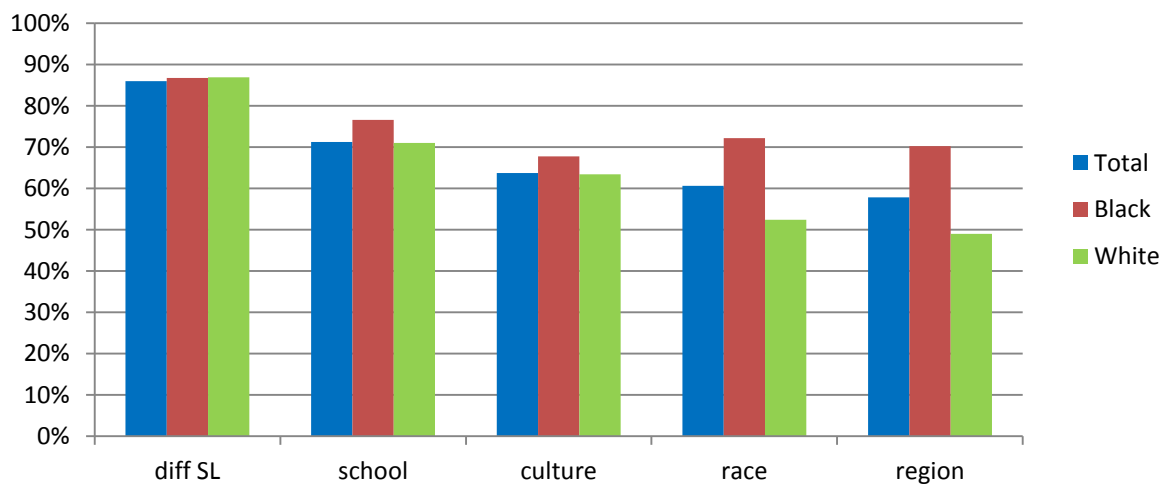


The E10 interpreters' (particularly interpreter A's) SASL is perceived as closest to that of the respondents and is even perceived by White and Asian respondents as closer to their signing than the original SASL produced on DTV. Black, Coloured and Asian respondents also

identify with the SASL used by interpreter C on E6. Interpreters on other news channels are perceived as using different sign languages to those of the respondents. Again, all groups rated the SABC interpreters worse than those of ETV.

In order to explore perceptions regarding the existence of language varieties, respondents were asked whether they knew of the existence of different sign languages in South Africa and whether these sign language differences could be ascribed to different schools, language groups, races or regions (Questions C6-7). The results are illustrated in Figure 5.12 below:

Figure 5.12: Different sign languages?



Most (86%) respondents think that different sign languages exist in South Africa, attributing this primarily to the different schools where sign language is usually learnt and secondly to cultural backgrounds. Each ethnical subgroup of respondents reflected similar hierarchical preferences. However, it must be born in mind that the sociological data of the respondents (given in Section 5.3.1 above) show that the variables **School**, **Culture** and **Region** are not yet independent of the variable **Race**. As discussed in Chapter 2.2.4, this is primarily due to the previous policy of *apartheid* in South Africa.

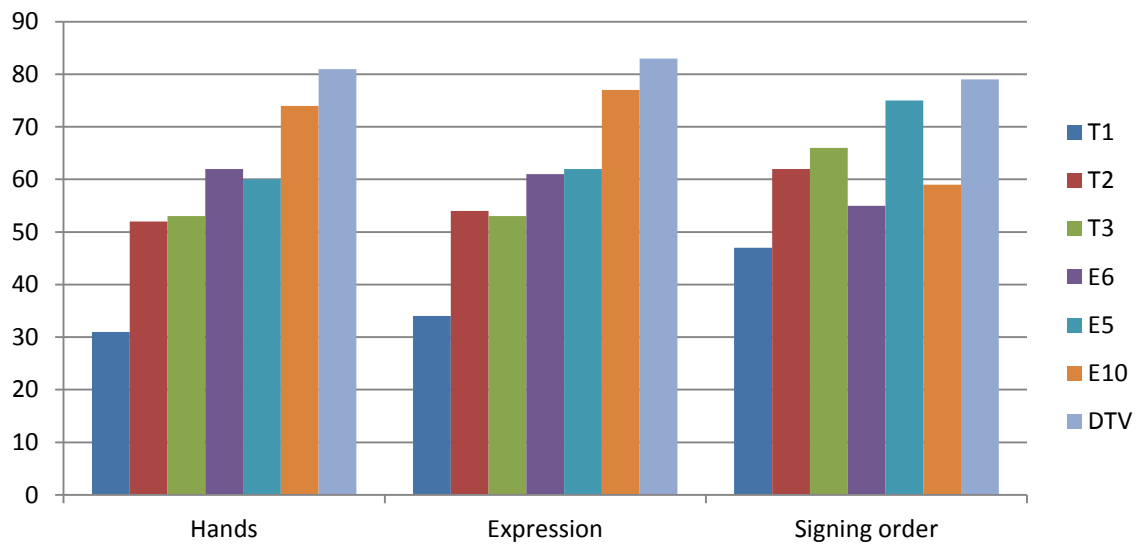
In the next section, respondents' perceptions of the interpreters' signing skills are discussed.

5.3.4.3 Interpreter signing skills

Respondents were asked to evaluate the interpreters on each news bulletin in terms of the quality of their hand classifiers, facial expression and signing order (Questions C9-10). E10 interpreters were rated best regarding hand classifiers and facial expressions (respondents indicating that this mainly referred to interpreter A), while E5 interpreters were rated best regarding SASL signing order (respondents indicating that this mainly referred to interpreter B). T1 interpreters received the worst rating for all three variables, confirmed by low modes

and satisfied frequency scores. However, T2 and T3 interpreters ranked well with Black respondents for all three variables (respondents indicating that these scores mainly referred to a Black male, henceforth termed interpreter D). Apart from the E10 interpreters, White respondents were generally critical of interpreter skills. The results are illustrated in Figure 5.13 below:

Figure 5.13 Interpreter signing skills

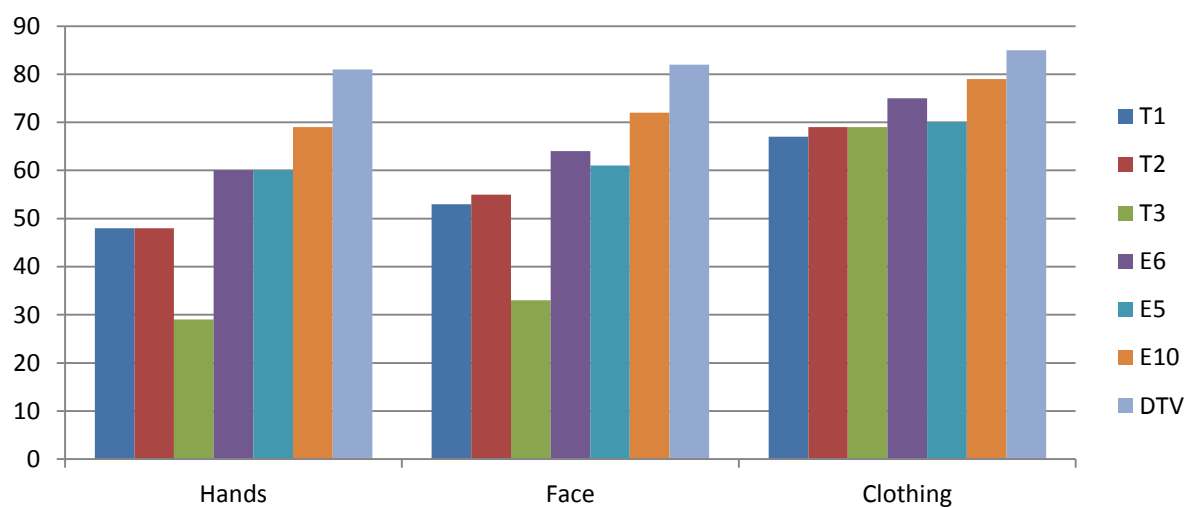


In the next section, respondents' perceptions of interpreter visibility are discussed.

5.3.4.4 Interpreter visibility

Interpreter visibility was assessed in terms of hands, face and the suitability of the clothing colour (Question C8). The results are presented in Figure 5.14 below.

Figure 5.14 Interpreter visibility



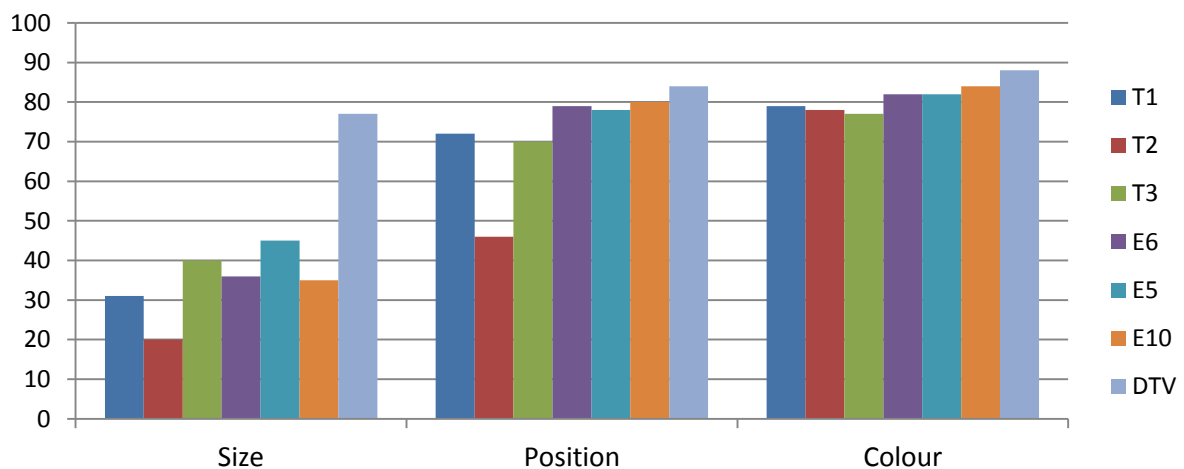
The ETV interpreters consistently out-performed the SABC interpreters in terms of visibility. **Hand and facial visibility** is a significant problem for T3, evidenced by the low modes and scores. To a lesser extent, hand visibility is also problematic for T1 and T2. In reality, the area occupied by the interpreter’s face or hands is the same for all bulletins, thus the perceived variation is due to other factors. **Clothing colour** was perceived as satisfactory for all bulletins, indicating that low hand and facial visibility are not perceived as being related to bad choices in clothing colour. In terms of racial distribution, most Black respondents are satisfied with visibility except for T3 hand and face visibility, whereas White respondents were unsatisfied with hand and face visibility for all bulletins except E10 and also rated clothing colour as unsuitable for all bulletins except E10 and E6.

In the next section, variables relating to the interpreter picture are explored.

5.3.4.5 Picture visibility

Respondents were asked to assess the picture of the interpreter in terms of size, position and background colour (Question C12). These results are illustrated in Figure 5.15 below:

Figure 5.15 Picture visibility



Picture size is considered problematic for all bulletins, as evidenced by low modes and combined percentages. Respondents requested that at least one third, but preferably half the screen be devoted to the interpreter. The picture size for T2 (20%) is rated the worst, although this is a perceived value only since all picture sizes for SABC are identical. Similarly, the lower ranking of E10 compared to other ETV bulletins belies the fact that all ETV interpreter pictures are the same size. Black respondents were dissatisfied with the interpreter picture size for T2 and E10, whereas Whites expressed dissatisfaction with all interpreter picture sizes (mode = 1 for all), but especially with T1 and T2. It is suggested that the perceived variations are due to less utilisation of the space provided or that the relative zoom factor of the

interpreter is too small compared to the activity in the main picture. For example, in Figure 5.16 below, the interpreter is approximately the same size as the humans portrayed in the main picture and tiny in comparison to the presenter.

Figure 5.16 Interpreter picture size



Picture position was considered satisfactory for all broadcasts except T2, with ETV interpreters regarded as better positioned than those of SABC. However, T1 and T3 which have the same interpreter picture position as T2 are judged favourably. Black respondents also judged T2 as unfavourably positioned, whereas White respondents were satisfied with all positions. As depicted in Figure 5.17 below, SABC interpreters are placed on the left, whereas ETV bulletins have the interpreter on the right.

Figure 5.17 Interpreter position



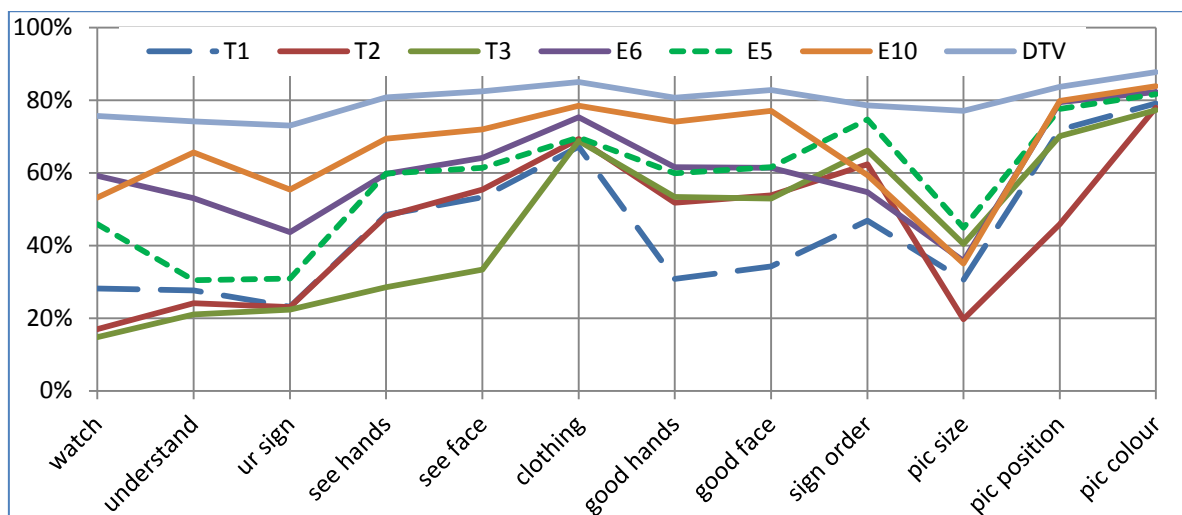
Thirdly, all respondents and groups were satisfied with the **background colour**. The slightly better evaluation of ETV over SABC bulletins is not significant.

In the next section, respondent assessments of the news broadcasts are summarised.

5.3.4.6 Summary of news bulletin assessments

In conclusion, the overall satisfaction scores for each bulletin and category are depicted in Figure 5.18 below:

Figure 5.18 Overall satisfaction scores for news bulletins



Comparison of variables indicates that picture size and language differences are perceived as the biggest impediments to comprehension for all news channels. Respondents complained that the small picture size affected interpreter visibility and increased the effort required to view an interpreted news broadcast. This study therefore suggests that if signed interpretation is offered, the interpreter should be approximately the same size as the presenter. The perception that all interpreters except those of E10 use a different sign language may be due to the use of the one-handed finger-spelling system, non-standardisation of SASL, source language interference or inadequate interpreting strategies. However, it may be that different sign languages exist in South Africa. These suggestions provide avenues of further research.

Respondents regarded **DTV** as the benchmark over all variables. Apart from the quality of the natural sign language presented, DTV presenters occupy full to half the TV screen and ensure good contrast of background and clothing against the signer's hands and face.

Overall, the **E10** news channel is judged as the best interpreted news broadcast and is watched and understood by most respondents, although the late time slot is a deterrent for some. The interpreters (especially interpreter A) are perceived as having good signing skills, interpreter visibility and the least use of dialect. However, signing order is perceived to be slightly problematic and respondents noted that the interpreters use English word order. In contrast, **E5** interpreters are not understood and are perceived as using a different sign language, despite being rated satisfactory in terms of signing skill and especially syntax. This result is

somewhat incongruous since E5 and E10 use the same interpreters. However, it was apparent that these evaluations referred particularly to interpreter B. The discrepancy between signing order and comprehension suggest that the problem lies with manual signs used by this interpreter.

E6 is watched and understood by the majority of respondents. Apart from picture size and the perceived use of dialect, other variables were rated satisfactory. Interpreter C was rated satisfactory (but lower than the E10 interpreters) in terms of signing skill and visibility. However, although her signing order was rated satisfactory, it was nevertheless rated as below all other bulletins except T1.

The SABC bulletins consistently underperformed those of ETV for almost all variables. The majority of respondents do not watch or understand these interpreters, regarding the sign language variety and picture size as particularly problematic. Moreover, visibility of interpreters' hands and face (especially for T3), careless signing, too little facial expression, incorrect signing order (especially for T1 interpreters) and unsatisfactory positioning of the interpreter picture (for T2) are also perceived as problematic. Only interpreter D (on T2) was identified as satisfactory.

5.3.5 Questionnaire summary

In conclusion, Deaf perceptions of the interpreted news broadcast on South African TV channels were explored by means of a questionnaire conducted with over 300 respondents. The first two parts of the questionnaire were used to characterise the target audience's sociological characteristics, means of communication and viewing preferences, whereas the third part elicited respondents' assessments of the signed news interpretations in terms of language and visibility. Sample representativeness was achieved in terms of sample size, age distribution and gender, but was skewed in terms of race (too few Coloured and Indians), region and schools represented. However, since this study is the first attempt to compose a profile of the South African Deaf population, it offers, in line with GT, a proposed profile as departure point for future research.

According to the sample profile, the average Deaf South African lives in Gauteng, the Free State, the Western Cape or KwaZulu Natal. He was born deaf or became deaf during early childhood and would have been sent by his hearing parents to Transoranje Skool vir Doves, Thiboloha or De La Bat, where he would have learnt to sign (using the variant characteristic of his race and school) and enter the Deaf community. The language of instruction at school

and thus the language he knows best is most probably Afrikaans. TV viewing experience is mostly restricted to viewing soaps because of the presence of subtitles and DTV because of the sign language. He prefers both subtitles and interpreter, but insists on subtitles on all programmes to increase comprehension despite general good signing proficiency and weak literacy levels. Although he perceives himself as able to concentrate on an interpreter as well as absorb the content of the main picture, he acknowledges that this is difficult and causes loss of information. He prefers ETV news bulletins mainly because he comprehends the sign language variety used by these interpreters. So great is his difficulty in understanding the other interpreters' sign language variety that other potential problems (such as an interpreter's lack of signing skills/interpreting skills/visibility) pale in comparison. In terms of physical environment factors, he perceives the small size of interpreter picture as the other major factor hindering his comprehension of the interpreters, but is satisfied with the colours of the background and the interpreters' clothing.

If White, he would have learnt to lip-read and speak, would possess a Grade 10 and have attained a level of literacy which allows expression at sentence level, although with grammatical errors. Oral means, together with some signing, are used to communicate with hearing persons in a predominantly monolingual spoken language environment and he is probably able to access information on TV through lip-reading. Signing with other Deaf is likewise strongly characterised by mouthing. Interpreters are therefore expected to mouth and are not well comprehended if they do not. He watches soaps (because they have subtitles), news (on ETV at 6pm or at 10pm) and films on TV, but is somewhat critical of DTV, mainly because he finds the content boring or doesn't understand the variety of sign language used on the show. Apart from E10 (especially interpreter A), he cannot comprehend the other interpreters' sign language and is highly critical of their unclear signs, poor use of facial expression and hand/face visibility. Although more critical of picture size than his Black counterpart, he is satisfied with the position of the interpreter and the signing order.

If Black, he would probably not have been taught to lip-read or speak and would have been encouraged to leave school by Grade 8, attaining a level of literacy which allows expression at phrase level, although with major errors. Signing with other Deaf is strongly characterised by a lack of mouthing. Sign language, together with writing (but not orality), is also used to communicate with hearing persons. As an adult exposed to a multilingual spoken language environment, he adopts English rather than Afrikaans as communicative written language and also has a rudimentary knowledge of the spoken language of his ethnic group, with which he also identifies despite his minimal knowledge of their spoken language. He therefore does not

want an interpreter to mouth, but instead emphasises the need for proper facial expression to facilitate comprehension. Apart from soaps, he watches sport (because of the self-explanatory action) and films. On the occasions that he does watch news, he prefers ETV, understanding and identifying with the sign language used by interpreters A and C, but may also watch T1 since he partially understands the sign variety used. He is highly critical of certain aspects of individual bulletins, such as the signing skills of the T1 interpreters, the visibility of the T3 interpreters and the position of the T2 interpreter, but generally less critical in terms of other variables except signing order than his White counterpart.

In the next section, the results of the eye-tracking experiment are presented.

5.4 Results of eye-tracking experiment

In the eye-tracking experiment, a group of 13 Deaf participants was compared with a control group of 21 hearing participants. The eye tracking results were analysed in terms of five areas of interest, namely: interpreter, picture, text, mouth fixations and “other”. The category *text* designated text that had been superimposed on the screen by the broadcasting corporation such as subtitles, running summaries and sports scores. Text that appeared as part of the picture was designated *index* and analysed under picture fixations. The category *other* refers to all instances where participants did not look at any of the designated locations. It incorporates fixations on the logo, clock or background image, as well as off-screen glances.

The data was first cleaned for the times when participants focussed on the video but the eye track was lost. Deaf participants lost more data than hearing participants, primarily due to body movement and one participant due to spectacle reflection. Two of the Deaf participants’ lost so much eye contact that their scans had to be discarded. It is suggested that the higher loss for Deaf participants is due to the greater stress placed on their visual concentration. As discussed in Chapter 1.1.2, divided attention between two complex visual tasks is far more demanding than between an aural and a visual task (cf. Duncan 1980; Miller 1982:252; Pashler 1989:478).

As discussed in Chapter 4.7.2, three tasks were envisaged for the eye-tracking experiment. The first task was to determine whether there are differences in the way that Deaf and hearing respondents watch a TV news bulletin. Secondly, the influence of interpreter comprehension on fixation patterns was explored. Thirdly, the material was divided into different scenes to investigate whether content influences viewer fixation patterns.

In the next section, differences between Deaf and hearing viewing patterns are examined.

5.4.1 Differences between Deaf and hearing viewing patterns

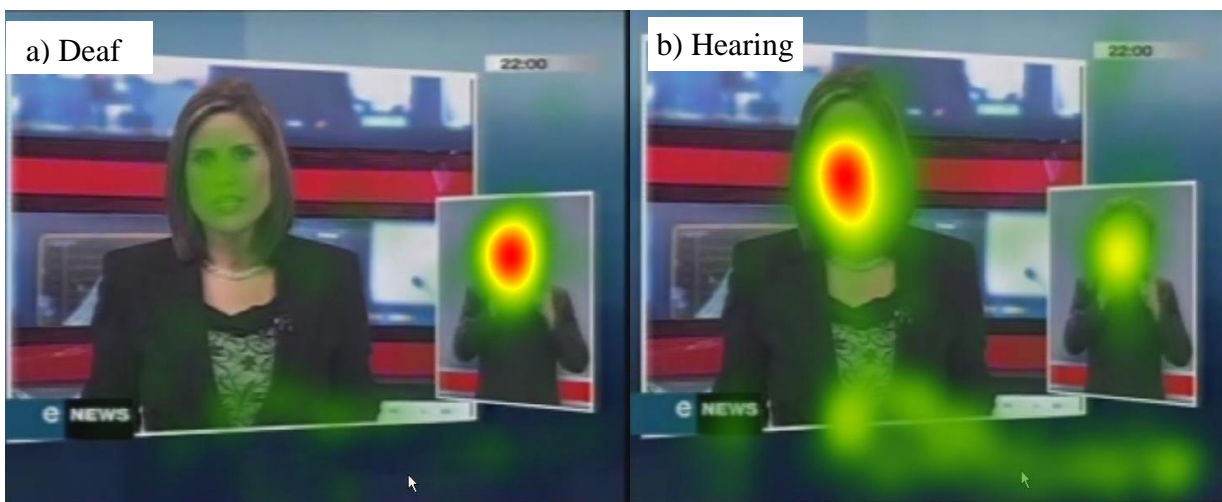
Firstly, the overall results of the eye-tracking scans were analysed in order to determine differences between Deaf and hearing viewing patterns. Typical fixation patterns for Deaf and hearing participants are illustrated in Figure 5.19 below:

Fig 5.19: Typical fixation patterns for Deaf and hearing participants



As depicted in Figure 5.19(a) above, Deaf participants usually fixated for longer periods of time (i.e. creating a bigger dot) on the interpreter than for any other object, or for any hearing fixation. In contrast, as depicted in Figure 5.19(b) above, hearing participants' fixations were usually short (i.e. creating a small dot), with frequent saccades between all areas. The different foci of the two groups are further illustrated by the heat maps in Figure 5.20 below:

Figure 5.20: Heat map comparisons (presenter scene)

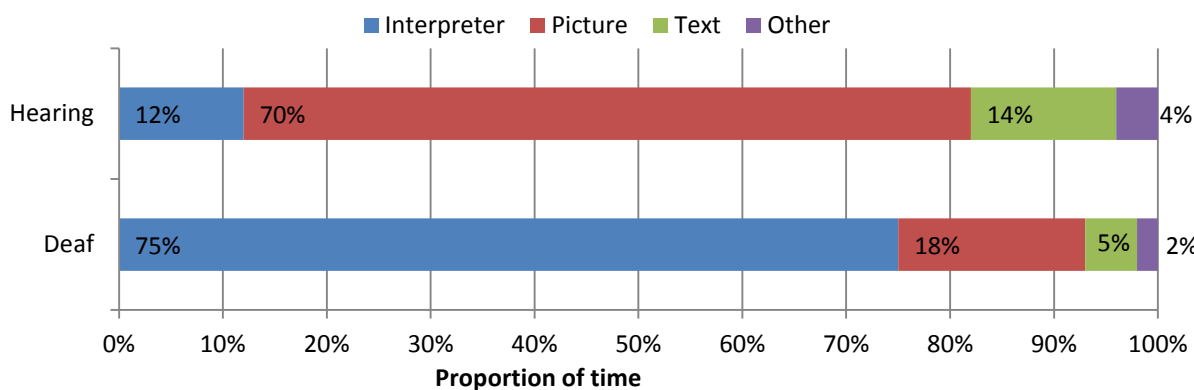


The heat maps demonstrate that Deaf participants focus almost exclusively on the interpreter, whereas hearing participants look at everything, including the interpreter and the summaries. (As noted in Chapter 4.7.2, a heat map is a composite image of fixations over a period of time.) This shows that hearing people, while focussing primarily on the picture, constantly

monitor all visual information sources. Hearing people are also sensitive to minor alterations such as changes in the logo or time displays.

The average times spent on each category by each group are compared in Figure 5.21 below:

Figure 5.21: Deaf and hearing fixations as a percentage of total time



Deaf and hearing participants viewed the interpreted news broadcasts differently. Hearing participants focus 70% of the time on the main picture, but also give attention to on-screen text (14%) and the interpreter (12%). Because of their additional faculty, hearing participants could divide their attention between information sources while maintaining predominant visual attention on the picture. In contrast, Deaf participants concentrate almost exclusively on the interpreter (75%), with secondary attention given to the main picture (18%) and scant attention given to on-screen text (5%).

Since text was only available 79% of the total viewing time, attention to on-screen text was also calculated in terms of its availability. These figures showed that Deaf participants looked at 7% of the available text viewing time, whereas hearing participants looked at 18%. The category was also further analysed to determine what kind of text participants were accessing. Also included in this analysis is text that forms part of the picture (= INDEX). The results are given in Table 5.9 below:

Table 5.9: Textual fixations for Deaf and hearing participants

Category	Gross (Deaf)	Gross (Hear)	Adjust (Deaf)	Adjust (Hear)
WRITING	3%	5%	12%	22%
SUMMARY	2%	8%	4%	15%
INDEX	2%	8%	21%	87%
SPORTS SCORES	0%	1%	4%	9%
LOGO	0%	1%	0%	1%

The *gross* values give the percentage time spent on a category in terms of total viewing time, whereas the *adjusted* values give the percentage time spent in terms of its availability. The results show that both Deaf and hearing participants looked mainly at text that is part of the

picture, such as excerpts of documents, weather maps or financial indicators (=INDEX) and secondly at text that introduces personas (= WRITING), whereas less attention is paid to summaries and even less to sports scores (which the men occasionally looked at). However, hearing participants make greater use of these sources than do Deaf participants, especially of INDEX text.

The *picture* category was also further analysed to determine whether participants focus on mouths of presenters or interviewees. It was found that Deaf participants focused on mouths 3% of the time, whereas hearing participants focussed 15% of the time. Mouth foci were only available 58% of the time; hence, in terms of availability, Deaf participants focussed on mouths 12% and hearing participants 53% of the available time. This indicates that Deaf participants make little use of lip-reading as an alternative information source, whereas hearing participants do.

In the next section, the bulletins are compared in order to ascertain whether Deaf participants' viewing habits are dependent on their comprehension of the interpreter.

5.4.2 Channel comparisons

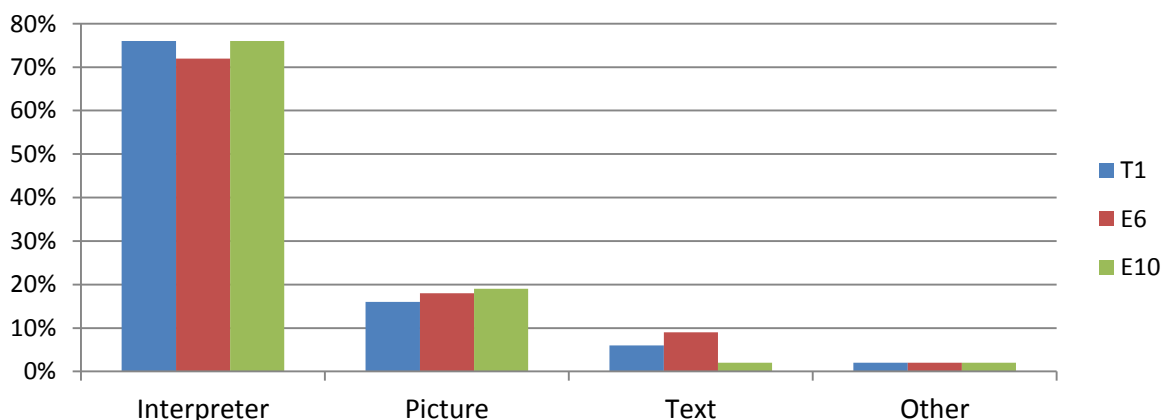
In order to compare the effect of an interpreter on Deaf viewing patterns, fixations in each broadcast were analysed separately. Deaf participants were asked which interpreters they understood, whereas hearing participants were asked which languages they understood. The first clip on the video contains approximately three minutes of the T1 broadcast. This bulletin differs from the two ETV bulletins in that it offers viewers a limited range of visual information sources. A Deaf viewer is mostly offered a binary choice, i.e. interpreter versus picture or interpreter versus text. Unlike ETV, no running summary is offered, although the percentage availability of WRITING is similar. Only one Black Deaf participant said that he partially (about 40%) understood interpreter S1 and explained that S1 uses a local (Venda) sign system. All Deaf participants regarded this interpreter as using a different sign language to their own and possessing weak interpreting skills. Similarly, only two hearing participants understood the spoken language (SiSwati) and complained of weak presenter skills. The second video clip contains approximately three minutes of an E6 broadcast. Interpreter C was not understood by the White Deaf participants, who said that her sign language differed from theirs, but was partially understood by the Black and Indian Deaf participants. Similarly, White hearing participants did not understand the Ndebele presenter, whereas Black participants did. The running summaries appeared approximately one minute into the clip. No participants commented on interpreter C's signing skills. The third video clip contained

approximately three minutes of the E10 news broadcast. Interpreter A was understood by all Deaf participants, who found his sign language similar to theirs and commented on his good signing skills, specifically his clear execution of manual signs and mouthing. Similarly, all hearing participants understood English. Thus the clips were ranked in terms of both interpreter and spoken language intelligibility in the following descending order: E10, E6, T1. The results for the Deaf participants are given in Table 5.10 and Figure 5.22 below.

Table 5.10: Channel comparison – Deaf participants

Gross (Deaf)	Fixations				Standard deviations			
	ALL	T1	E6	E10	ALL	T1	E6	E10
INT	75%	76%	72%	76%	11%	15%	19%	8%
PIC	18%	16%	18%	19%	7%	10%	9%	5%
TEXT	5%	6%	9%	2%	5%	3%	13%	2%
OTHER	2%	2%	2%	2%	1%	2%	2%	2%
Adjusted (Deaf)	ALL	T1	E6	E10	ALL	T1	E6	E10
INT	76%	78%	72%	76%	11%	15%	19%	8%
PIC	16%	16%	16%	17%	7%	11%	9%	5%
TEXT	7%	11%	11%	3%	6%	6%	15%	2%
OTHER	2%	2%	2%	2%	1%	2%	2%	2%
Comprehension								
Deaf	-	1/11 (9%)	4/11 (36%)	11/11 (100%)				
Hearing	-	2/18 (11%)	5/18 (28%)	18/18 (100%)				

Figure 5.22: Gross channel comparisons for Deaf participants



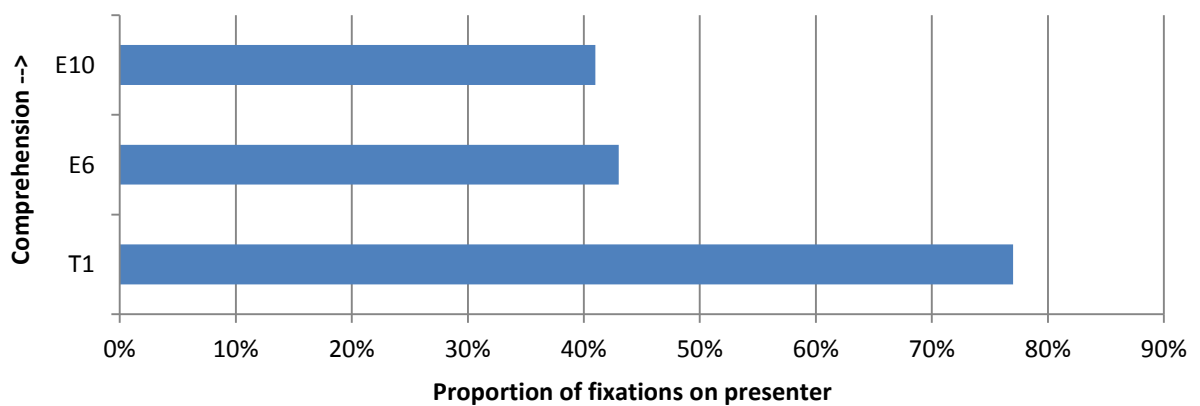
The data shows little variation in the amount of attention for each category. Although the E6 interpreter fixations are less than the others, the percentage difference is within the others' standard deviations and therefore is not significant. It is also evident that the percentage of text fixations is slightly greater for E6 (also within the range of the standard deviations). Hence the decrease in interpreter fixations can be attributed to the distraction caused by the introduction of the running summaries on the E6 clip. The low percentage of text fixations for E10 suggests that once the novelty of the running summaries wore off, they were ignored by the Deaf participants. It is also possible that the English summaries offered an alternative

source of information to Deaf participants who did not understand the E6 interpreter but were not needed in the E10 bulletin where the interpreter was generally understood. Therefore, since the variations on the amount of attention given to the interpreter from channel to channel are not statistically significant, it can be concluded that Deaf fixations on the interpreter are independent of comprehension of the interpreter.

The data were then analysed to see whether any appreciable differences for each area of interest could be discerned in terms of percentage availability. The adjusted results indicate a slightly greater focus on the interpreter for T1, but this is not significant. The variations are probably due to order of appearance and the participants “settling down” into a regular pattern as time progressed. Therefore, no justifiable correlation between fixations and interpreters was found.

In contrast, data for hearing participants shows that as comprehension of the verbal message increases, the proportion of fixations (in terms of availability) on the presenter as perceived source of the auditory message decreases significantly, indicating an inverse relationship. This is depicted in Fig 5.23 below:

Figure 5.23: Presenter fixations for hearing participants



In the following section, the data is analysed thematically to determine whether fixation behaviours are influenced by bulletin content.

5.4.3 Scene comparisons

Thirdly, the eye-tracking patterns were explored to determine whether viewing patterns are dependent on the **type of scene** depicted during the news. Four scene types were identified based on picture content, namely presenter, interview, action and texts. In **presenter scenes**, the picture features the news reader against the news studio or a neutral background. The human presence means that lip-reading is possible. Presenter scenes are characterised by fast,

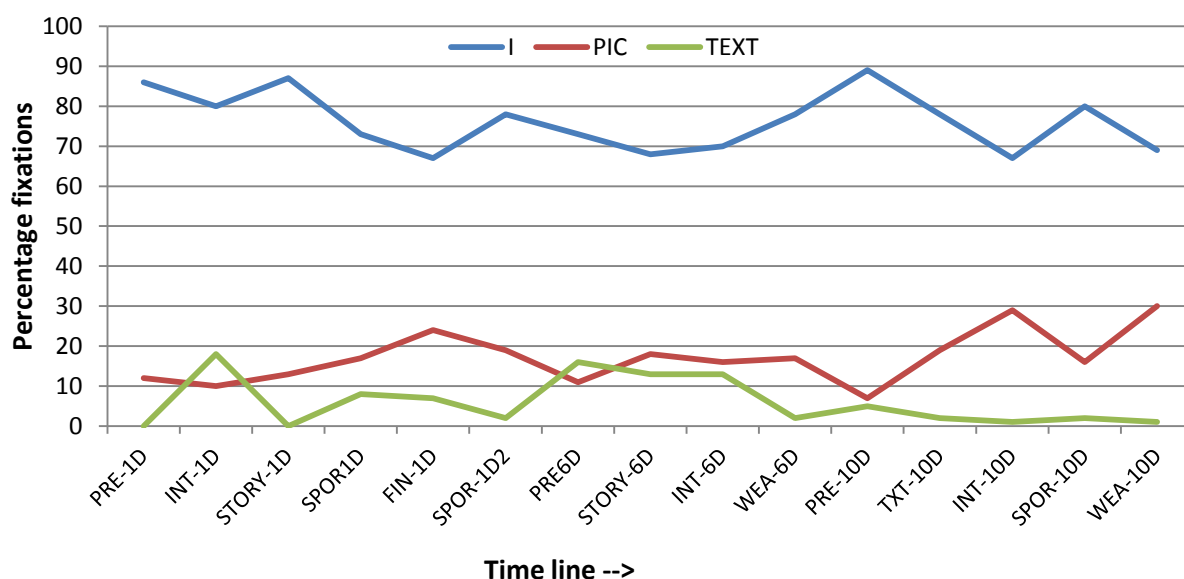
professional delivery. In **interview scenes**, the delivery is slower and less polished, with better opportunities to lip-read interviewees. Text in these two scene types is limited to names and positions (=WRITING) (i.e. apart from the continuous running subtitles on ETV bulletins). In contrast, **action scenes** are characterised by the physical absence of an immediate human presence: the narrator is invisible and human actors are figures rather than faces, precluding lip-reading. The viewer's attention is focused on movement in the main picture. Apart from sports scores, text is confined to the occasional name banner. Finally, in **text scenes**, written information is the main component of the picture. These include financial indicators, document excerpts and parts of weather bulletins. A selection prerequisite for analysis was that the text had to be legible for at least 10 seconds.

The following scenes were identified in each news clip:

- T1: presenter, story (action), interview, text (financial indicators), action (sport).
- E6: presenter, action (story), interview, text (weather).
- E10: presenter, text (document excerpts), action (story), action (sports), text (weather).

Due to time constraints, it was not possible to duplicate all scenes for each bulletin. Average fixation percentages for Deaf participants are depicted in Figure 5.24 below:

Figure 5.24: Timeline scene analysis – Deaf participants



The data evidences an almost sinusoidal variation on the fixations between different scenes as time progresses. The heat maps for the different scene types are presented in Figures 5.25 for hearing participants and 5.26 for Deaf participants below:

FIGURE 5.25

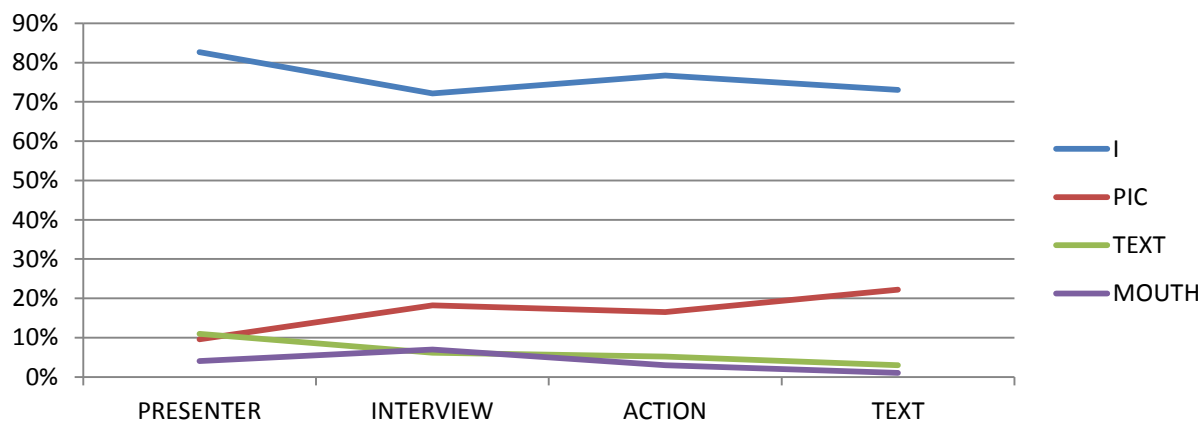
FIGURE 5.25

FIGURE 5.26

FIGURE 5.26B

To remove possible attention or interpreter effects, the data for each scene type was averaged over all three channels. The results for the Deaf participants are presented in Figure 5.27 below.

Figure 5.27: Averaged scene analysis – Deaf participants



The results indicate a trade-off between picture and interpreter. Thus, the denser the pictorial information, the less fixations occur on the interpreter and the more on the picture. It is also evident that Deaf participants focus on interviewees with resulting higher pictorial and mouth fixations for this category, but hardly glance at presenters.

In contrast, textual fixations are the highest for human subjects, i.e. the interviewee or presenter. Analysis showed that this text is primarily WRITING, i.e. names and titles of persona, indicating that Deaf participants possibly find it easier to read names than decipher fingerspelling. Other text received scant attention and it is evident that textual fixations decrease as pictorial information increases.

Mouth fixations are the highest for interview scenes (7%). Apart from these, Deaf participants seldom fixate on mouths. In contrast, hearing participants fixate on the mouths of presenters (38%), interviewees (37%) and even on mouths of close-up shots of non-speaking humans in action and text scenes. In fact, hearing participant mouth fixations on non-speaking human figures in action scenes are greater than those of Deaf participants for interview scenes.

5.4.4 Eye-tracking summary

Therefore, in conclusion, the eye-tracking analysis revealed that Deaf participants rely almost entirely on an interpreter as information source, and that this reliance is dependent upon the information content in the picture and not the level of comprehension of the interpreter. The extra cognitive load on the visual input capacity meant Deaf participants could only

effectively monitor one secondary information source (the picture) and rarely utilised a third (text) or fourth (lip-reading) source.

The results show a systematic decrease of interpreter, textual and mouth fixations and corresponding increase of picture fixations as the information density in the picture increased, indicating that the Deaf participants adhered to a hierarchy of information in which an interpreter, if present, is always retained as primary source regardless of comprehension levels while picture, text and mouths act secondary sources of information, competing with each other for attention. In terms of Gutt's (1994) *relevance theory*, reading and lip-reading require more processing effort than looking at pictures. Therefore, it is suggested that they are relegated to third source priority. Moreover, they are not always available and may therefore also be regarded as less reliable sources requiring even further effort to monitor their availability.

Thus the analysis shows that reading text and lip-reading are not effective alternate sources of information for Deaf viewers. Although hearing participants utilised text to a greater extent than did the Deaf participants, on-screen text was nevertheless under-utilised by both groups. The most effective use of text was made when the text formed part of the main picture and the second most effective text type for Deaf participants was the added names, titles or short gist phrases. The running subtitles were the least utilised text by Deaf participants. The negligible access of text undermines Deaf preferences (as noted in the survey) for subtitles in news broadcasts together with an interpreter. Similarly, Deaf participants under-utilise lip-reading, thereby undermining their perceived need to lip-read as alternative source of information.

In the next section, the results derived from the SASL discussion are presented.

5.5 SASL discussion results

Immediately after the eye-tracking experiment, a discussion conducted in SASL took place at Unisa HCI laboratory on the 31st May, 2011. The Pretoria Deaf community was represented by Karina, Danie, Dewald, Hermanus, Japie, Herman, Zanita and Judith, who identified themselves as Afrikaans-speaking and using Afrikaans sign language. All have strong ties with the local Transoranje Skool vir Doves and attend a local Afrikaans Deaf church. Of the group, Hermanus, Karina and Judith were the most participatory. The Johannesburg Deaf community was represented by Rivaj, Ananias, Cindy, Lucas and Corlien. They prefer English as spoken language and use more standardised forms of SASL. Of this group, Ananias and Cindy were the most participatory. Apart from Lucas (who is deafened) and

myself (who am hearing), all were profoundly Deaf. The discussion was conducted entirely in SASL⁴. The group clearly understood that they were not to resort to simplified signing, manual signed systems or speech only, or stop the discussion in order to make sure I understood, but instead that Karina would act as my interpreter. It was also emphasised that the primary aim of the discussion was that Deaf people could discuss issues related to the interpreter between themselves and that my function was merely as observer and facilitator. As noted in Chapter 4.7.3, Karina interpreted simultaneously into (spoken) Afrikaans. However, if the discussion broke up into numerous simultaneous conversations, she would stop the discussion and interpret the main points of each smaller discussion consecutively. The group dynamics are succinctly demonstrated in the following excerpt, where Japie has just told the group that he met Deaf people in America but could not understand ASL:

Japie: I understood nothing.
Karina: Nothing?
Ella: The sign language there...
Karina: We want more words – this helps to understand the interpreter.
Hermanus: (is having his own conversation with Danie)
Judith (pointing at Hermanus): Stop...
Cindy: I know IA. He uses my sign language.
Judith: And he speaks.
Karina: Yes, and he speaks.
Judith: It's very important that the words are there too.
Cindy: The signs must be big. Also sometimes the interpreter understands wrongly, then when he interprets it doesn't make sense.
Hermanus (interprets Cindy's comment for the Pretoria group): The interpreter is listening and trying to sign together, but he doesn't understand [what he hears] fully... then he says something else. People don't talk about this, that interpreters don't understand correctly...
Hermanus: They (points at Cindy and Ananias) say the interpreter understands incorrectly...
Judith: Yes, yes. You ...
Hermanus: Wait, wait, let Ananias speak.

At this point, there are at three simultaneous conversations, namely Japie's understanding of ASL, Hermanus and Danie's private conversation and Cindy and Ananias's discussion on why they can understand interpreter A but not others. Judith initiates bringing the group to a single topic (Ananias and Cindy's), whereas Hermanus eventually achieves this by direct intervention.

The group identified five main themes, namely: language issues, difficulties in understanding the TV interpreters and interpreters in general, the role of Deaf culture, subtitling and picture size. A sixth theme (initiated by the researcher) on attitudes to Deaf TV interpreters is also included. The full transcript of the discussion is given in Appendix D. As noted in Chapter

⁴ For convenience sake and to reflect current practice in South Africa, use of natural sign language is still referred to as SASL, even though the discussion below makes it very clear that "SASL" is probably not one single unified language but a composite of numerous dialects, possibly even languages.

4.7.3, this transcript represents a composite English translation of the SASL discussion and its Afrikaans interpretation.

In the next section, participants' perceptions of languages used by Deaf groups are explored.

5.5.1 Language issues

The first issue raised by the Deaf participants was that of language. Issues pertaining to both spoken and sign languages were discussed. The group noted that until recently children attending schools for the deaf were taught either English or Afrikaans as spoken language. As a result, Afrikaans Deaf have very limited command of English, whereas other Deaf have limited or no knowledge of Afrikaans. Afrikaans schools had English classes, but the children were not encouraged to practice speaking English. Black deaf children were taught in English with an African language as second language, but were not taught Afrikaans.

Cindy: Deaf people went to different schools, they were taught in English and Afrikaans.
Karina (to Ella): Talk Afrikaans. They (pointing) can't understand you if you speak English.
Judith: Why don't I understand English? That's because even though we had English classes at school we never really spoke English in the classes.
Ananias: We learnt a little bit of Venda, but not Afrikaans at school.

Deaf children learn to sign at the schools. According to the participants, each school develops its own sign language, which is related to the spoken language taught at the school.

Herman: They learn at the schools.
Ananias: Each school had their own sign language.
Cindy: Different schools, they leave school and then don't understand each other.
Hermanus: At school, the language is Afrikaans and English, and their (pointing at Ananias and Cindy) school is just English and they learn that sign [language]. But many Deaf are Afrikaans. Afrikaans schools' sign language is Afrikaans [sign language] and they also learn Afrikaans [spoken] language, they don't know English.
Ananias: It is at the school where you learn the sign language and then they learn just either English or Afrikaans. When they come out of the school, then they don't know the other language.
Judith: Everyone has their own dialect.

According to the participants, in South Africa there is an English sign language, an Afrikaans sign language and a number of traditional African sign languages. That the participants are not referring to sign-supported language is reinforced by the signs used for "sign language"⁵ which can only refer to natural sign languages.

These languages are perceived by the Deaf as being different to each other.

Cindy: They're all different signed languages.
Karina: ... Hermanus understands the English sign. Look, now I am explaining the English messages for the Afrikaans people. And I am explaining the Afrikaans message for the other people.

⁵ Using the notation code developed in Chapter 4.7.4.3, "sign language" = B@B_mOr L_D@L_D_mX".

Karina: You can see the Black Deaf and the English don't understand because I have Afrikaans sign. Do you see? (points)

Ananias: I met IA⁶. He can understand Afrikaans and English sign language... see, Hermanus knows both [sign languages].

Karina: There seems to be a big difference between Afrikaans and the other sign languages.

Ananias: The older [Black] Deaf people were schooled in the more traditional sign languages, for example Venda sign language. They were taught using sign language. But the young people learn more English mixed language.

Hermanus: Most Deaf – about 40% speak pure Zulu or Xhosa sign language – if they don't mix, they don't understand each other.

Ella: ... we have eleven spoken languages, how many sign languages? Three? Four?

Karina: How many sign languages are there?

Zanita: I think there are about four.

Dewald: Three.

Hermanus: Two or three main ones...

Japie: There is Black sign language, English sign language and Afrikaans sign language.

Karina: Afrikaans sign language, Zulu sign language...

Hermann: The sign language of the Zulu and Sotho...

Cindy: There is also the sign language of the Venda.

Thus, contrary to the stance of a number of (hearing) South African academics, according to these Deaf participants, there are many sign languages in South Africa. Moreover, according to them, these sign languages are not mutually intelligible.

Ananias: I struggle to understand the Afrikaans deaf sign language.

Cindy: I can't understand the Venda sign language, and I can only understand some of the Afrikaans sign language. Some of the Black people understand some of the Afrikaans sign language.

Karina and others: What is that [sign]?

Hermanus: Zuma...

Karina: Oh, Zuma, that's Zuma.

That the participants were talking about different (mutually unintelligible) sign languages and not sign-supported speech forms is reinforced by the fact that (apart from Hermanus and Karina who have experience in communicating with different Deaf communities) the two groups could not understand each other's sign language and required Hermanus to act as interpreter between them. Both Karina and Ananias bring this to my attention:

Karina: You can see the Black Deaf and the English don't understand because I have Afrikaans sign. Do you see? (points at Ananias)

Ananias: (pointing at Hermanus) ... see, Hermanus knows both [sign languages].

Hermanus frequently interprets between the two groups, e.g.:

Cindy: The signs must be big. Also sometimes the interpreter understands wrongly, then when he interprets it doesn't make sense.

Hermanus (interprets Cindy's comment for the Pretoria group): The interpreter is listening and trying to sign together, but he doesn't understand [what he hears] fully... then he says something else. People don't talk about this, that interpreters don't understand correctly... They (points at Cindy and Ananias) say the interpreter understands incorrectly...

⁶ IA = interpreter A in the study.

Moreover, since the researcher learnt SASL in Johannesburg at the University of the Witwatersrand, she could understand the Johannesburg group quite well, but could not understand the SASL used by the Pretoria group except for a few isolated signs here and there.

The participants acknowledged that Deaf who socialise with other Deaf learn the other sign systems.

Hermanus: The Blacks and English and those who socialise more with other Deaf like me who preaches, they get to know the other sign languages, but those Deaf groups who don't mix with other Deaf groups don't understand them.
Cindy: Different sign languages, they teach each other.

This was reinforced dynamically as Hermanus and (to a lesser extent) Karina could communicate with both Pretoria and Johannesburg groups, whereas the other participants could only be understood by members of their subgroup.

One of the participants told of a meeting with American Deaf people. He regarded ASL as related to Afrikaans sign language, but said that he could not understand it. Apart from language difficulties, he also found the ASL production rate too fast.

Japie: I flew to America; there I met some American Deaf. They sign very fast. I struggled to understand them. Even though American sign [language] has a lot in common with Afrikaans sign language, I understood only a few words in the whole conversation. So I couldn't follow the conversation. I could only understand about five signs. I didn't understand, they spelt the English words too fast... I understood nothing.

Participants were unanimous that sign language should be recognised as a Deaf right. They felt that sign language was not given the same attention as spoken languages.

Hermanus: They must recognise sign language.
Danie: Sign language is our right. We must stand up for it...
Cindy: They are recognising sign language...
Hermanus: The Deaf should have a protest march. There needs to be recognition of sign language.
Dewald: They only recognise one sign language. They recognise the 11 spoken languages and they are supposed to recognise sign language as the 12th language. They put a lot of effort into recognising and developing [spoken] languages but they do nothing for sign language.

Some, like Cindy, are aware of government efforts to develop SASL. He noted that a SASL syllabus is being developed and that the government are promoting SASL at schools. Others (especially Afrikaans Deaf) were not aware or felt threatened by official efforts.

Hermanus: But it's been 10 years now and nothing is being done.
Danie: Since I have left school they have not done anything to develop sign language.
Cindy: They are busy writing a book for sign language to be used in the schools...
Hermanus: Now they are forcing everybody to learn sign.
Ananias: Zuma - the government - should do something about it.
Karina: They want to try and force it that everybody learns sign language at school.
Danie: That is so stupid... force it on everybody.

However, despite government recognition, they acknowledged that very little was done to improve the quality of life for deaf people at grassroots levels such as the workplace.

Hermanus: What is Unisa doing for deaf people or disabled people?
Dewald: What I don't like... At my work, the people – when I ask what is going on, they say they don't know, but only all the hearing know, the deaf people are excluded.

Although they supported recognition of SASL, most participants opposed the standardisation process. They do not want a single sign language. They feel that the new national sign language is artificial and threatens the purity of their sign languages.

Ananias: They are trying to make one sign language.
Danie: But it's too difficult to make only one sign language. We can't talk about one sign language – there will never be just one sign language.
Hermanus: They should rather just recognise each province. There are nine provinces, so they should recognise, for each province, one sign language.
Cindy: It would be different, they recognised American Sign Language, and that hasn't changed since.
Hermanus: They mustn't try to change our sign language. They didn't change the sign language in America, they just left it, why don't we try that? ... We must not change it. They must leave sign language, we must leave all the individual sign languages.
Cindy: Can you really get only one in South Africa? No we can't have just one.
Ananias: The government has been pushing ... but they shouldn't be pushing and forcing. The government is trying to push everybody, force everybody to speak English. This is having an effect on all the other languages. The older Venda Deaf people remembered to speak the language properly and signed the language properly. The old people had a pure language, now the young people come with the language that is mixed with English, and this has made everybody very confused.
Herman: Can you change the hearing people's language? Don't try and change the hearing people's language. People should also respect deaf people's language and not try and change it.

Instead, they propose that all existing sign languages in South Africa should be respected and represented:

Ananias: They should respect each other's sign language and put all the sign languages on the TV.
Judith: Yes, Afrikaans on TV2. They have Afrikaans [spoken language] and should put Afrikaans sign language on TV2 too.
Karina: There is no Afrikaans sign language on TV.
Judith: They should also put it on TV.

Deaf feel that the push for standardisation comes from hearing and not Deaf communities, which, they feel, have been excluded from language policy processes.

Karina: They don't listen, they just make their own decisions. Hearing people are the ones that decide there is only one sign language, even though the Deaf people say there are many.

In the next section, Deaf participants' perceptions of interpreters are explored.

5.5.2 Understanding interpreters

The second issue raised by the participants was their perceptions of the TV interpreters' skills. Participants felt that most Deaf people do not understand interpreters.

Hermanus: Everybody struggles to understand interpreters, how's that?
Karina: Everybody struggles to understand the interpreters.

They ascribed this lack of understanding to a number of factors, namely the sign language used, the interpreter's linguistic proficiency, unclear fingerspelling, incomplete interpreting, stiff body movement, lack of mouthing, inadequate training and the difficulties of SI. Firstly, the interpreters' sign language was regarded as problematic. Some perceived the interpreters' SASL as different to Deaf sign language, whereas others said that interpreters mix their sign languages and are influenced by English.

Hermanus: The interpreter doesn't use my Deaf sign language: that is not his sign language.
Cindy: I know IA. He uses my sign language.
Zanita: The interpreters mix the language. They do not use pure Afrikaans or clear English [sign language].
Ananias: TV 1 is a mixture of Zulu and Xhosa [sign], but then the English words, they use Xhosa dialect, some English is mixed with that and that leads to confusion.
Hermanus: If they mix the languages, when the deaf people look then they cannot understand. The old people have dialect.

Deaf participants also felt that the sign language taught at local tertiary institutes that offer interpreter training differed from the sign languages of the local Deaf communities. It was important for the Pretoria Deaf community, which is mostly Afrikaans, that Pretoria universities offered Afrikaans sign language. However, the SASL taught at the University of the Witwatersrand was also criticised as being different to that used by Johannesburg Deaf. Interestingly, participants failed to associate the sign language taught at institutions or presented on news channels with the national process of standardisation.

Japie: At Unisa, do they have sign? Do they teach Afrikaans [sign language]?
Ella: Here at Unisa?
Judith: Yes, where they teach the interpreters.
Ella: That is in Johannesburg, at Wits, not here...
Cindy: The interpreters that learn there, they learn a different sign language.

Secondly, participants recognised that interpreters are not always proficient in the spoken and sign languages used. They pointed out that interpreters should stick to languages in which they are proficient and also recognised specific language-pair problems.

Danie: I found out that interpreters, for example, are Zulu and then they're trying to interpret into English for English people, then they struggle.
Corlien: They should stick to the own language groups. If they are Zulu, then they should interpret from Zulu.
Hermanus: Also, if the interpreter hears English, but must interpret into Zulu [sign language], it is very difficult.

Thirdly, finger-spelling is regarded as problematic because it is too fast and indistinct.

Danie: They spell too fast, the word that he says, it's not clear.

Fourthly, interpreters were regarded as taking "shortcuts", i.e. signing only a few key words instead of full sentences.

Danie: Also, interpreters take shortcuts, they give like pidgin English, just saying one or two keywords and then they expect the deaf will understand what they are trying to say... It sounds like this: "fa-fa-fa one... fa-fa-fa two". How must we understand that?

Fifthly, interpreters are also perceived as being too stiff and making signs that are too small. Participants want to see more body movement and larger signs.

Dewald: Because he explains using large signs. The other interpreters are too stiff in appearance.
Cindy: The signs must be big.

Sixthly, clear mouthing was considered an important interpreter skill. However, only the Pretoria/Afrikaans Deaf contributed to the mouthing discussions. Although they did not contradict their Pretoria comrades, it was observed that none of the Johannesburg participants advocated mouthing.

Judith: They must use many words... It's very important that the words are there too.
Hermanus: He speaks too. It's very important that he speaks.
Karina: People on the news programme should speak clearly and openly mouth what is said, so that the Deaf people can lip-read.
Danie: The interpreters should open their mouth wide so that the Deaf people can lip-read.

The Pretoria Afrikaans Deaf felt that mouthing facilitates comprehension and helps Deaf people understand when they don't know a particular sign language.

Karina: Everyone understands IA. Why? Because he uses many words, mainly English.
Japie: If they use words, we can see what they mean.
Karina: We want more words – this helps to understand the interpreter.
Japie: I flew to America, there I met some American Deaf... I could only catch a few mouthed words that helped me to understand the signs.
Danie: The Afrikaans [Deaf] people find it difficult to understand the English [Deaf] people and often do not know English [sign?], so lip-reading is important.

Participants noted that the language of mouthing should coincide with the sign language system used.

Hermanus: It is important that they speak the words in that language: English, if you're signing English [sign language].
Ananias: The TV interpreters speak English even when they are using Zulu or Xhosa [sign language] and that's confusing.

A seventh factor contributing to weak interpreting skills identified by participants was the perceived inadequate institutional training of interpreters. Participants noted that some interpreters graduated from institutions with insufficient skills. Institutions were regarded as giving out qualifications too lightly without ensuring adequate interpreting proficiencies.

Ananias: They think they are interpreters because they have a paper [certificate]... They mass-print them – I've seen that.

On the other hand, Deaf participants appreciated the difficulties involved in SI. Participants identified insufficiencies in all three *efforts* (Gile 1995), namely listening and analysis, memory and production. These include insufficient memory, the need to adjust the register for the target audience, inadequate listening skills, incorrect understanding of the original message, the increased difficulty of deciphering very fast speakers, time constraints and the need to restructure the message to fit sign language discourse and syntactic patterns.

Hermanus: The problem with the interpreters is that they hear the spoken language but they can't quickly translate into sign language, they struggle, it's very difficult for them when they have to recall. Also they have to bring the message that is in high language down to a lower language. The interpreter has to work hard. That's why he doesn't make nice full sentences, just half-half interpreting. You can't blame the interpreter.

Cindy: If the interpreter doesn't hear correctly then he misses that part and the message is not transmitted.

Cindy: Also sometimes the interpreter understands wrongly, then when he interprets, it doesn't make sense.

Hermanus (interpreting Cindy's sign into Afrikaans dialect): The interpreter is listening and trying to sign together [i.e. simultaneously], but he doesn't understand [what he hears] fully... then he says something else. People don't talk about this, that interpreters don't understand correctly...

Hermanus: ... when Nicky sometimes spoke too fast, the interpreter misunderstood and then would misinterpret. But Nicky knew some sign language, so he would stop and tell the interpreter that he was wrong.

Ananias: On the TV they have to talk very quickly, they can't stop, then they lose the meaning.

Karina: Also because the sign language doesn't follow the direction of words.

They recognised the need for prior preparation, but did not always think it was possible for TV interpreters to prepare beforehand.

Hermanus: They must prepare.

Ella: They do. IA practises. He gets the time to learn, it's not immediate.

Judith: Yes, but not always, sometimes he flounders.

Hermanus: No, they have to do it straight away.

Karina: No, no, no, they do prepare. Before the time, they practise.

Hermanus: Yes, but when they do the parliamentary speeches then IA struggles.

Ella: Yes, that they have to do immediately, but for the news they have some time to prepare. IA always prepares.

Dewald: They [the interpreters] are lazy [and don't prepare properly].

In the next section, the importance of Deaf culture in interpreting and interaction with the Deaf is discussed.

5.5.3 Deaf culture

The third issue raised by the group was the importance of interpreters and hearing groups to understand and respect Deaf culture. Participants considered Deaf culture as different to hearing perceptions of culture. However, they felt that hearing people in South Africa understand the concept of culture well and with interaction would understand Deaf culture.

Judith: If they make an effort to talk with Deaf then they will understand what the Deaf culture is... Many people ask me, how is your culture, how? How do they learn to speak? How do they understand? Then I explain to them and they are amazed, because Deaf culture is different to that of hearing people.

Karina: Hearing people must respect Deaf culture; their culture is different to Deaf culture. They must understand, because they also have different cultures.

Participants regarded sign language as intrinsically related to culture. They considered themselves part of their ethnic groups and regarded the culture of these groups as a valuable constituent of the sign language. To them, Deaf culture incorporates, not excludes, ethnic culture.

Corlien: Culture – it's your culture. Mine is English, I understand English sign language. If the interpreters use English, I understand.

Hermanus: Because the culture is very closely linked to the language, you can't separate the language and the culture. If we only have one sign language, it will mean separating it from the culture. It will mean that the

culture will die. It is the Deaf culture of these minority groups, like the Venda or the Zulus or Afrikaans... If you're going to change the sign language, then you will change also the culture. If you break the sign language of the Venda, you also break the culture of the Venda people.

Karina: Yes, if you change the sign language, you will change the culture of the Venda and the Afrikaans [Deaf] people.

Participants acknowledged that having Deaf parents meant greater intrinsic understanding of Deaf culture. They perceived this as equally valid for hearing (e.g. IA and other CODA interpreters) and Deaf (e.g. Hermanus).

Cindy: IA's mother and father is also Deaf, he understands Deaf [culture].

Judith: The same with Hermanus, his mother and father are also Deaf, that's why he understands so well.

Cindy: If their parents are Deaf, then the children understand Deaf [culture].

Judith: If the [hearing] interpreters are born to Deaf people, they learn the Deaf culture and they learn the Deaf sign language. But if they come from outside, then they don't know [Deaf culture].

Danie: The Deaf children are different; the children born to Deaf parents are different.

Hearing people who fall outside the Deaf cultural paradigm are perceived negatively. Participants felt that hearing people do not respect deaf people and think that they are stupid.

Judith: I also want to say, hearing people must not oppress deaf people. They think that deaf people are stupid and can't do anything and that's not true.

Ananias: The community doesn't have respect for deaf either.

Hermanus: You heard what Dewald said, the hearing people at his work, they disrespect him.

Participants resented what they perceived as decisions imposed by hearing people onto the Deaf world.

Hermanus: There was no respect, they just forced us to do everything; they just push their own will onto you. We had to go to church and there was no interpreter. We just had to sit there watching them.

Judith: When I was at school - I'm talking about the 1950s and 60s - nobody had respect for the deaf. They forced us to do everything, even going to church. This is good, but it still made us very upset. There were no interpreters, but they expected us to listen, even though we did not understand them. There was no respect for us during that time, nothing... Hearing people are suppressing us and oppressing us and dictating to us.

Hearing people are perceived as withholding vital information.

Dewald: What I don't like... At my work, the people - when I ask what is going on, they say they don't know, but only all the hearing know, deaf people are excluded. I wanted to smack him [a colleague]... For a long time I said nothing. They exclude us from information. When you ask they still say they don't know. I never know whether to believe them. They ignore you... but if there is a problem, you would be unaware.

Judith: Because [they think] deaf are dumb (= don't speak), that's why.

Danie: When I tell them I don't understand, they just look through me and then carry on talking and ignore me, just exclude me from their conversation. Then I miss information, or misunderstand.

Hearing people, including interpreters, are perceived as callous. This demonstrates the value of empathy as an interpreting norm, confirming Stone's (2009) findings that interpreters are expected to be more than mere conduits of information.

Karina: Hearing people don't care for other people. They have no heart.

Ananias: The interpreters don't have respect for deaf people. They don't mix and get to know us.

Hermanus: Interpreters don't have any respect for the deaf clients.

Ananias: The interpreters misinterpret and I get very frustrated. When I tell an interpreter I don't understand, they just shrug their shoulders and carry on anyway!

Hermanus: The TV interpreters are more interested in their salaries; they care for the salary, not for the deaf people.

Danie: That's rude! (Laughs.)
Karina: But this is how deaf people feel.
Cindy: The interpreter does not have respect for the deaf.
Ananias: Interpreters and hearing should respect the deaf and their sign language.

Deaf participants want instruction on Deaf culture to be included in interpreter training programmes. Good interpreting skills were regarded as directly related to understanding Deaf culture. This confirms Stone's (2009) findings that reformulation of the message in terms of Deaf culture is a strong preliminary Deaf T/I norm.

Judith: ... The woman that trains people to interpret, does she teach them Deaf culture and are they familiar with the Deaf? Yes or no? ... Yes, but I want to ask you, do they teach the interpreters the Deaf culture?
Danie: ... Also, the interpreter should understand Deaf culture. If they don't understand the Deaf culture, then they will misinterpret.

Broadcasting companies are also considered as not being sensitive to their Deaf target audiences. Participants complained that the most popular interpreter appeared at an inconvenient time. It was also felt that aspects such as sign language variety, ethnicity (probably due to the perceived differences in the sign languages used by the different groups) and timing were not taken into consideration when placing interpreters.

Danie: Why do they put the good interpreter ... at 10 o'clock? Everybody's asleep, nobody watches then.
Corlien: They should put him at six o'clock. There is always an interpreter at six o'clock.
Danie: Where is the TV2 Afrikaans interpreter?
Karina: They put Black interpreters on for White programmes, and White for Black.

Relationships with hard of hearing people are warmer. The participants felt that deafened people understand Deaf culture. However, because they cannot understand everything, they are not regarded as reliable interpreters. They also noted that hard of hearing tend to prefer oral communication over sign.

Ananias: There is always a problem with the language with hard of hearing and Deaf. Hard of hearing prefer to use oral languages, spoken languages.
Danie: They should get hard of hearing to interpret, they know our culture, and they know the culture of the hearing people.
Ananias: No ways, I don't want that!
Hermanus: No, hard of hearing don't hear everything. They can't interpret in a meeting, they hear on and off, like a switch.

In the next section, the participants' opinions regarding subtitling are discussed.

5.5.4 Subtitles

The fourth main issue raised by the group was that of including subtitles on the bulletins. Participants insisted on the need for subtitles, preferably together with an interpreter.

Dewald: Put on subtitles! Subtitles are the most important; otherwise they [i.e. Deaf] misunderstand.
Corlien: I like to have subtitles.
Karina: There are many Deaf who want subtitles... I say they must put subtitles...
Cindy: You should have both interpreter and subtitles.

Hermanus: I want both subtitles and interpreter, both.
Judith: Both.
Danie: Therefore, there must be both; you must have interpreters and subtitles.

Subtitles were perceived as useful in overcoming differences in sign languages.

Danie: Because the sign languages are different, I think subtitles are best. Like Deaf TV. Like that.

There were mixed opinions on the language to be used for the subtitles. Some felt that it would be better to have all subtitles in English, whereas others want subtitles in the language of the bulletin or interpreter.

Hermanus: They must put subtitles in all the languages. Afrikaans, Zulu, Xhosa – the same as the news programme.
Cindy: Zulu programme, Zulu subtitles, Zulu sign language. English programme, English subtitles.
Zanita: All English.
Judith: Better in English.
Karina: Like IA who uses English sign language – English subtitles.
Ananias: The Black [Deaf] people say they prefer the subtitles in English, because when they go to school they are taught in English and not in Zulu or Venda. So they read the Black languages with difficulty.
Ella: Are you saying that if the interpreter is Afrikaans, then the subtitles must be in Afrikaans, but if the interpreter is Zulu, then the subtitles must be in English? So... one language for the interpreter and one language for the subtitles...?
Cindy: It confuses me if the signs are Zulu sign language and the subtitles are in English...
Japie: We Afrikaans people want to have in subtitles in Afrikaans.
Karina: They [the Afrikaans Deaf] say that the interpreter must have Afrikaans subtitles... But they must have subtitles, with the Afrikaans News there must be Afrikaans subtitles, but with the other languages they must be English subtitles... Both [interpreter and subtitles], we want both... but for the subtitles... we want Afrikaans.
Cindy: We don't understand Afrikaans subtitles. Make it English for all.

It was felt that subtitles should be short and reflect the actual words spoken.

Dewald: The news is very fast, you can only show the main points on the subtitles.
Hermanus: It must be the words that are actually being spoken, not different.
Cindy: The subtitles on now ... they confuse me, because they are not the same as the story.

A related issue within the subtitle discussion was the question of the interpreter picture size. This is explored in the next section.

5.5.5 Picture size

A fifth issue raised by the participants as part of the discussion on subtitles was the importance of an adequately large interpreter picture and text font sizes. Participants suggested that subtitles should be placed under the interpreter picture, but noted that the sizes of both the current subtitles and interpreter picture were too small and would have to be enlarged in order to be effective.

Cindy: The subtitles on now, I can't see them clearly, they're small...
Corlien: They must be under the picture.
Hermanus: ... How are you going to look at the picture and the writing?
Corlien: We have the picture [of the interpreter], then we put the subtitles underneath.
Hermanus: Yes, but then you must increase the size of the interpreter. Now, to put subtitles under the interpreter, we won't be able to read them.

Karina: They must also make the writing bigger for the subtitles.
Hermanus: I can hardly see the interpreter; the interpreter's so small. They must make the picture bigger. Long ago, I had an old TV. And I thought maybe [it was] because the TV was so small, so I went and bought a new TV. I still couldn't see the interpreter, the picture was still too small. They need to make the interpreter picture bigger.
Judith: You have to sit right close to the screen. They should make it that you can sit comfortably a distance away. They should make it half-half.

At the end of the discussion, the concept of having Deaf interpreters was introduced to the group. Their reactions and comments are discussed in the next section.

5.5.6 Deaf interpreters

Finally, the group was asked whether they thought Deaf interpreters could be used on news channels, as practiced in the UK (cf. Stone 2009). This was a new concept to most participants, who associated interpreting with the ability to hear.

Judith: Yes, but how? How can they hear?
Hermanus: It's not possible. They have to listen to the news in English or Afrikaans and then interpret... They need to hear when the music plays [to end the session].

Most participants were ignorant of the TV interpreting process. They were also uncertain whether Deaf interpreters would have sufficient reading skills to cope as interpreters. However, some thought that, with prior preparation, it would be possible. Similar to Stone's (2009) findings, restructuring in terms of sign language was also regarded as necessary.

Ella: No, they don't listen, they just read.
Karina: They can read. They have the words in front of them and they can just read.
Dewald: What they read is on a screen, they stand behind the screen and they read so that the people watching the news can't see the screen. Deaf could do that.
Lucas: You have to find some Deaf that can read well.
Judith: Yes, but he has to read really fast.
Ananias: Yes, but you have to do it immediately. Read and then sign. We could do it if we could see the words beforehand.
Karina: If the TV writes in Deaf language so that you can read it. I have seen how to make it so that you can write.

In the next section, the issues raised during the discussion are summarised.

5.5.7 Discussion summary

In the discussion, Deaf participants identified issues related to the sign languages of South Africa. They identified English, Afrikaans, Venda, Xhosa and Zulu sign systems and displayed mixed feelings regarding standardisation of SASL, which they felt was being imposed by hearing groups without their consultation. Participants regarded language as closely related to culture, and incorporated ethnic culture into their Deaf culture.

Participants regarded the SASL used by interpreters as different to theirs or a hybrid of different sign systems. They also felt that interpreters mixed sign systems and interpreted

from or into spoken and sign languages in which they were not proficient. They also felt that interpreters should increase body movement and sign size. The Afrikaans Deaf participants also expressed the need for mouthing to facilitate understanding when different sign systems were being used and wanted interpreters to mouth clearly in the language associated with their sign system. Participants also felt that the TV interpreters spelt too fast and only signed key words instead of whole sentences because of the fast pace. (Although interpreters probably regard the latter action as a summarising strategy, the effect on the Deaf audience is incoherent language use.) Participants also expressed dissatisfaction with training institutions, accusing them of producing graduates lacking in practical competences.

However, participants also expressed understanding of the difficulties of interpreting. These included misunderstandings due to not hearing or understanding ST segments, memory limitations, the difficulty of keeping up with a fast speaker, time constraints and the need to restructure the message in terms of syntax and register. They therefore regarded prior preparation as essential.

Participants considered an understanding of Deaf culture and reformulation of the message in terms of Deaf norms as vital to good interpreting practice. Interpreters, the government and the broadcasting companies are all regarded as belonging to the hearing world which is perceived as imposing its will onto Deaf people, lacking in respect and empathy and even deliberately non-communicative and non-cooperative. An understanding of Deaf culture was regarded as essential in countering such attitudes.

Subtitles were regarded as useful in overcoming difficulties caused by different sign systems. They should be short, reflect the actual words spoken and be placed directly under the interpreter. However, participants noted that larger interpreter picture and text sizes were required for subtitles to be effective. English was the most popular choice, but most Afrikaans Deaf indicated that they are only literate in Afrikaans and therefore want subtitles in Afrikaans, regardless of the programme language. On the other hand, Black participants indicated that they were not literate in African languages. Participants also complained that they found it confusing when mouthing and subtitles were in different languages, especially when these were not associated with the particular sign system used.

Finally, participants were ignorant of the role Deaf interpreters could play as TV interpreters. Good reading proficiency, adequate preparation time and a restructured text were suggested as requirements for Deaf interpreters.

In the next section, the findings presented in this chapter are summarised.

5.6 Conclusions

In this chapter, target audience expectancy norms were explored by means of three research procedures, namely analysis of a questionnaire, eye-tracking and a transcript of a discussion conducted in SASL in order to explore factors which might account for incomprehension of a signed interpretation of a news bulletin. Examination of Deaf respondents' perceived expectations as well as real viewing behaviour of Deaf participants found that comprehension difficulties related to all of the research variables, namely viewer communication factors, physical visibility, language variation, the interpreters' use of SASL and interpreter strategies. Moreover, a sixth variable, namely the role played by Deaf cultural norms, was also discovered. These are discussed below.

5.6.1 Means of communication

Firstly, audience communication competence was investigated in terms of four variables, namely literacy, orality, sign language proficiencies and ability to divide attention between various visual information sources in order to answer the first research question, namely:

- To what extent does the target audience rely on the service of the interpreter as information source compared to other available sources? (RQ1)

5.6.1.1 Literacy

The study showed that although the use of subtitles is a strong expectancy norm, the ability of deaf audiences to glean information from subtitles is undermined by low literacy levels. Estimates of literacy levels from the respondents' highest education level and assessed TWE score in the questionnaire indicated that many respondents had low levels of literacy and would experience difficulty in reading text at the level of sentences, even given that passive levels may be higher than productive levels. Discussion participants also alluded to the low literacy levels of most deaf people. Low levels of education also mean inadequate background knowledge and vocabulary to comprehend a news broadcast. Under-utilisation of textual information was confirmed in the eye-tracking experiment, which further undermined the effectiveness of subtitles as an information source.

Other factors found in the study detracting from the effectiveness of subtitles as an information source include low spoken language proficiency, lack of background knowledge, small subtitle fonts, inconvenient positioning and high demands on cognitive capacity due to divided attention.

5.6.1.2 Orality

Secondly, the ability of deaf respondents to glean information from lip-reading was investigated. The study showed that lip-reading is a possible alternative source of information for some groups, provided the respondent is familiar with the spoken language used. However, the association of spoken and signed language systems, limited spoken language skills, cognitive processing effort and small picture size preclude it as an effective means of information gathering. Thus, for most Deaf viewers, the interpreter is the only source of information apart from the main picture.

Questionnaire data revealed that Asian, coloured and White groups evidence high orality in communication with hearing persons, practice mouthing when signing with other deaf persons and expect the news interpreter to mouth as well. White Deaf especially explicitly expressed both mouthing and lip-reading as essential means of gleaning information. Unlike the majority of White respondents, most Asian and coloured respondents did not indicate that mouthing was important in order to understand an interpreter. The SASL discussion confirmed mouthing as a strong Deaf norm for Afrikaans Deaf, who regarded clear mouthing both as an alternative source of information for unknown signs as well as integral to their sign language system, but not for other groups. The study thereby initiated questions on the nature and relationship of mouthing languages to sign systems that have never been previously addressed and thereby opens up new avenues for future research.

On the other hand, the questionnaire analysis showed that orality does not play a significant role in communication or information gathering for most Black Deaf respondents. However, there appears to be a minority group of Black Deaf respondents for whom mouthing is important. This group also preferred mouthing in English or Afrikaans rather than in an African language, but, similar to Asian and coloured respondents, expressed limited reliance on lip-reading in order to understand interpreters.

The study also revealed that sign systems are strongly associated with specific linguistic characteristics; hence, if interpreters mouth in languages not associated with their sign system or code-switch, this may contribute to viewer incomprehension. The questionnaire analysis and discussion also confirmed that the use of both lip-reading and textual information is proscribed by weak spoken language proficiencies, especially in terms of African languages (commonly used in news broadcasts) and the fact that Deaf South Africans learnt either English or Afrikaans, but not both. The usefulness of lip-reading as a source of information was further undermined in the eye-tracking experiment by the low number of Deaf participant

mouth fixations on presenters and interviewees, indicating that lip-reading, like text reading, requires high processing effort and thereby competes for attention only as a tertiary source of information. Questionnaire analysis also revealed that lip-reading is difficult due to the small sizes of mouths on a TV screen.

5.6.1.3 Signing proficiency

The study showed that signing is a strong Deaf communicative norm and therefore that incomprehension of signed interpretation cannot generally be ascribed to weak signing proficiency, although this may be true of a minority of late learners. Notwithstanding the strong signing norm, the study revealed that Deaf viewers do not want an interpreter alone, but together with subtitles.

Questionnaire data showed that most respondents evidence signing competence and preference for sign as medium of communication with both hearing and deaf persons. In keeping with international statistics, ten percent of the respondent group can be regarded as native signers, one third as early signers, and another third as learning sign language during primary school. This, combined with a strong identification with Deaf culture, characterises at least two thirds of the respondent group as competent signers. Reliance on sign language is evident in that signing is even used with hearing persons. The SASL discussion confirmed signing proficiency even for two late signers. Similarly, the dedicated focus on the interpreter in the eye-tracking experiment confirmed sign language as the primary source of information and revealed that the attention given to the signer is only compromised if pictorial information content is high. The study also brought new understanding of the nature of SASL in that participants insisted that many sign systems are used in South Africa, thereby contradicting claims in the literature (cf. Chapter 2.2.4 and 2.4) of a unified sign language and opening new areas for future research.

Although non-signing deaf are rare, questionnaire data (which can be extrapolated to the population) reveals that approximately 13% are very late signers who may not comprehend specialised terminology on news bulletins. Black respondents experience an initial disadvantage compared to other groups in later initial signing age and are less likely to have Deaf parents, but compensate by greater involvement in Deaf culture and prioritisation of signing as means of communication.

5.6.1.4 Divided attention

Fourthly, the study revealed that Deaf viewers inadequately access other sources of information and therefore rely almost exclusively on an interpreter. Although questionnaire respondents perceived themselves as being able to look at both the interpreter and the main picture simultaneously, they acknowledged that it is difficult to do so and the eye-tracking experiment showed that Deaf participants concentrate almost exclusively on the interpreter, regardless of their level of comprehension. The issue of divided attention was not addressed in the SASL discussion; however, the suggestion that subtitles should be placed directly under the interpreter indicates a realisation that the eye is not able to stray far from the interpreter.

5.6.2 Physical environment factors

Secondly, physical environment factors were investigated in order to answer research question two, namely:

- Are there elements of the physical setting that hamper interpreter visibility and thus audience comprehension? (RQ2)

The objective of the investigation was to explore barriers to comprehension caused by poor visibility.

The study revealed that the current small size of the interpreter picture on all channels is perceived as highly detrimental to comprehension, competing with language variation problems as the most significant factor causing lack of comprehension. Questionnaire respondents also complained that the small picture size hinders comprehension of interpreter mouthing.

Related problems of visibility of the interpreters' hands and facial expressions also contribute to viewer incomprehension for the SABC bulletins. However, perceived visibility problems do not correlate to actual sizes of face or hand signing space, or to inappropriate clothing colour and instead possibly reflect the effort required by respondents to understand that particular bulletins' interpreters. Although picture visibility was not directly explored in the eye-tracking experiment, some respondents complained of the lack of visibility of S1 without giving specific reasons.

On the other hand, background colours of the interpreter picture or clothing and picture position were not perceived as problematic, although the low assessment for T2 suggests preference for placement on the right.

A further physical environment factor not related to visibility was the issue of bulletin times in that respondents noted that their favourite interpreter (A) is on too late in the evenings for them to watch.

5.6.3 Language variation

Thirdly, investigation of perceptions of the interpreters' use of SASL was undertaken to answer research question three:

- To what extent do the interpreters and their audience use standardised forms of SASL? (RQ3)?

The objective was to determine whether comprehension barriers caused by language variation existed.

The study revealed that the type of sign language used by the interpreters is perceived as the primary difficulty in comprehension. In particular, the sign language varieties used by interpreters on the SABC channels are perceived as being so different that they are regarded as different languages and thereby incomprehensible to approximately 80% of viewers. Interestingly, respondents and participants did not support the proposition that interpreters use contact sign, but insisted instead that interpreters use different languages, thus going beyond indications in the literature that dialects are prevalent due to incomplete standardisation of SASL. In the SASL discussion, participants listed at least seven different South African sign languages and traced their origins to the deaf schools, thereby confirming the questionnaire findings. The interrelationship between spoken and signed languages was also detailed. Government efforts to standardise SASL were largely regarded as impositions of both English (both spoken and sign language) and hearing people, leading to the destruction of subcultures within the Deaf communities. The discussion itself was an example of the non-intelligibility of the different sign systems in that two participants were required to act as interpreters between the Johannesburg and Pretoria groups. So different is the Afrikaans variety of SASL that it has been dubbed Afrikaanse Gebaartaal (AGT) by the researcher.

One type of variation detected in the study is the role of mouthing in SASL. Although it was initially assumed that requiring the interpreter to mouth key words indicated poor signing competence due to an oralist education, as the research progressed it became clear that many Deaf South Africans regard the word as an integral part of the sign. Another aspect related to language variation is the finger-spelling systems used. Older Deaf respondents learnt the two-handed (BSL) system and therefore do not understand the one-handed system currently in use.

5.6.4 Language use

Fourthly, investigation of the interpreter's use of SASL features was undertaken in order to answer research question four:

- Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters? (RQ4)

The objective of the research was to determine whether interpreters' incorrect use of SASL features impeded comprehension.

Questionnaire results showed that although problems in the quality of sign language in terms of production of the manual signs, use of facial expressions and correct SASL signing order exist, they are not viewed by respondents as comparable to the difficulty in comprehension caused by different sign systems and thus all bulletins except T1 were ranked above the 50-percentile. However, respondents noted that good scores refer only to certain interpreters. Moreover, Black respondents in particular rated inadequate use of facial expression as impeding comprehension and the weak signing skills of the T1 interpreters were identified as a significant factor hampering comprehension. Likewise, the subgroup of White respondents were highly critical of all interpreters' signing skills except E10 and also regarded unclear or no mouthing as significantly hampering comprehension.

Although interpreters' signing skills were not tested in the eye-tracking experiment, participants commented on the excellent signing skills of interpreter A on E10 and the weak signing skills of the T1 interpreter, thereby confirming questionnaire findings.

In the SASL discussion, interpreters' use of SASL features was discussed in detail, with participants again using interpreter A as benchmark for good signing skills. The following problematic areas were outlined: bodily stiffness, too small signs, unclear mouthing and mouthing in different languages. Interestingly, NMFs such as facial expression and head movements were not identified.

Hence, the study showed that interpreters' incorrect use of signing features is a factor hampering comprehension of the news broadcasts, but is considered minor compared to comprehension difficulties caused by language variation.

5.6.5 Interpreting skills

Fifthly, although interpreting skills (RQ5) were not explicitly investigated, participants in the SASL discussion perceived interpreters as leaving training institutions without necessarily

possessing adequate interpreting skills. They identified the need for TV interpreters to have good reading skills, to restructure both message and register according to TL norms, to understand Deaf cultural norms and to express empathy. Other problems identified include lack of prior preparation, misinterpretation caused by interpreters either not hearing or not understanding the source message, omissions due to time constraints, too fast and unclear finger-spelling, inadequate memory efforts and insufficient proficiencies in source or target languages.

5.6.6 Deaf norms

Finally, two strong Deaf cultural norms emerged from the study. Firstly, subtitles are considered important by Deaf viewers and constitute the primary criterion of programme selection, notwithstanding under-utilisation or inadequate literacy levels. Secondly, interpreters are regarded as fringe or integral (if CODAs) members of the Deaf community and are therefore expected to observe Deaf cultural norms. It is suggested that lively facial and body expressions, mouthing and restructuring of the message are constituents of Deaf culture as well as SASL grammar. More importantly, though, the interpreters need to create a sense of empathy with their Deaf audiences and not merely function as conduits of information. The study therefore confirms Stone's (2009) *identification* and *cultural gate-keeping* norms. Other underlying expectancy norms identified in this part of study include the importance of mouthing for Afrikaans viewers, the prioritising of visibility and the use of correct sign language syntactic and discourse features. These fundamental communication norms were taken as granted by Deaf respondents or participants and were often only noticed by their absence.

5.6.7 Summary

In conclusion, exploration of expectancy norms revealed comprehension difficulties in terms of all research questions.

Despite demands for subtitles and insistence on lip-reading, most Deaf viewers are not able to effectively derive information from sources other than the interpreter due to spoken language insufficiencies, poor literacy skills and the high cognitive demand of divided attention. The research also indicated comprehension difficulties caused by some viewers' late acquisition of signing skills and possible lack of general knowledge. For proficient signers, the biggest comprehension problems are caused by the small interpreter picture size and use of different sign varieties. To a lesser extent, interpreters' inadequate use of SASL features and weak

interpreting skills, exacerbated by failure to observe Deaf cultural norms, also contribute to viewer's lack of comprehension.

Apart from yielding insights into factors impeding comprehension of the sign language interpreters, this part of the study also revealed the continuing dependence of other sociological variables on race, affirmed the prevalence of dialects (and possibly different sign languages) and mouthing in SASL and yielded insights into visual cognitive capacities.

In the next chapter, the results of the analyses of a corpus of ETV news bulletin interpretations are discussed in accordance with the fourth step of the reception-oriented model.

Figure 5.25: Scene analyses – hearing participants



Figure 5.25: Scene analyses – hearing participants



Figure 5.26: Scene analyses – Deaf participants



Figure 5.26: Scene analyses – Deaf participants



CHAPTER 6: CORPUS ANALYSIS

The purpose of this chapter is to investigate a corpus of authentic interpretations of the TV sign language interpreters.

6.1 Introduction

In this chapter, the fourth step of the reception-oriented model described in Chapter Four is followed, namely the analysis of the interpretations and their comparison with the STs, using corpus analysis as research procedure. The purpose of the analysis is to answer research questions three to five (discussed in Chapter 1.2), namely:

- Do the interpreters use local SASL dialects or variants of signed language (RQ3)?
- Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters (RQ4)?
- Do the choices in selection of TL (target language) material employed by the interpreter adequately convey a coherent message (RQ5)?

Section 6.2 describes the process of transcription, manual analysis and annotation. As noted in Chapter 4.7.4, the corpus consists of ten transcriptions of ETV news bulletins interpreted into SASL by interpreter A (henceforth called IA) and interpreter B (henceforth called IB). These are analysed qualitatively in terms of Grounded Theory (GT) principles and quantitatively using descriptive statistics and the semi-automatic software tools available in the *Antconc* software package.

Sections 6.3 to 6.6 are devoted to analyses of the quality and nature of the sign language (in terms of the syntactic and discourse markers described in Chapter Two) used by the interpreters in order to answer research questions three and four. This part of the analysis is ST-independent since these variables are not related to the ST. Section 6.3 investigates the quality of signing in terms of visibility, completeness and speed of delivery. In Section 6.4, the type of language used is explored in terms of linguistic variation, iconicity, polysemy and fingerspelling. Section 6.5 explores discourse devices in terms of referencing, role-shift and topic marking, whereas Section 6.6 investigates three non-manual features (NMFs), namely mouthing, facial expression and head/body movement.

Section 6.7 is devoted to analyses of shifts in order to answer research question five. The analyses in this section differ from the above in that they are ST-dependent, i.e. the variables investigated are related to changes made by the interpreter to the ST message. These

phenomena occur both at and above sign level, i.e. the data represent a gradual shift from sign components to higher levels of discourse. *Shift analysis* of (skewed) substitutions, reformulations (also termed *paraphrase*) additions and omissions is followed by an analysis of interpreting errors, self-corrections and correlation of errors with shifts. Where applicable, *shifts* are related to interpreting *strategies*, described in Chapter 2.6.2 as problem-solving procedures. However, the primary purpose is to identify whether interpreters' manipulation of the ST material causes incoherencies in the ST and thereby incomprehension for Deaf viewers and not to identify interpreter strategies *per sé*. Because of this, Toury's (1995) model of identifying *shifts* in terms of differences in semantic meaning between ST and TT is adhered to; i.e. the emphasis is not on what *interpreters* think they are doing, but on whether empirical differences between ST and TT messages increase or hinder coherence (cf. Shlesinger 2000a). Unavoidably, interpreting phenomena (e.g. ST interference, normalisation, simplification, etc.) are intrinsically linked to ST-independent TL syntactic and discourse norms. This is reflected in the study in that error categories include both ST-independent and ST-dependent axial factors.

It must also be emphasised that the distinguishing mark of a DTS model is that it is descriptive, not prescriptive. Thus features of the TT are described as they *are* without imposing notions of what *ought* to be. For example, the norm-based practice of interpreting in the first as opposed to the third person is not judged as intrinsically right or wrong. Non-prescriptiveness also means that the TT is not evaluated in terms of its equivalence to the ST, which in an interpreting context means that norms of completeness or accuracy are not imposed on the interpretation. Instead, the researcher's task is the objective contextualisation of features within the broader framework of all the relevant (for a reception-oriented model – target language) norms acting upon the system in which the TT finds itself.

As noted in Chapter 3.1.4, data from the *Antconc* concordance software program is depicted as concordance plots, which creates a visual distortion for shorter transcriptions. As discussed in Chapter Four, the concordance plots display a time-based identification of tokens (displayed by black lines) that meet the search criteria. The concordance plots provide frequency counts, which are then calculated as a percentage of the number of signs used (% sign) as well as a percentage of the number of chunks or interpreting units (% IU).

Because the corpora are very small, Chomsky's accusation that they are not representative of their populations is valid (cf. Chapter 3.3). In view of this, any attempt to quantify statistically significant differences between the two interpreters using inferential statistics is meaningless. Therefore, while identified differences between IA and IB are valid from a *qualitative*

perspective if they provide adequate explanations of the phenomena under investigation, *quantitative* data is restricted to descriptive statistics. This does not detract from the main purpose of the study, which is to obtain a full set of *factors* affecting comprehension. Comparison of the two interpreters is only useful in exploring why IA is generally understood and IB not, in order to achieve the primary aim.

In the next section, the texts selected for transcription and annotation are discussed.

6.2 Manual analysis process

For the SASL TTs, eight steps of transcription, manual analysis and annotation were required. Firstly, the signs were transcribed using ID-glosses as described in Chapter 4.7.4 and the transcriptions annotated for features of repetition, sign execution quality, iconicity, reference and grounded blends. As noted in Chapter 4.7.4, sign glosses were tagged with the underscore delimiter in order to distinguish them and to count them, e.g. “first_”. Secondly, mouthings were transcribed and the glosses and annotations of the previous step checked. Thirdly, facial expressions, topic markers, movement and speed annotations were inserted and mouthing/sign correspondences checked. Fourthly, head and body movements were inserted and the annotations of the third stage checked. Fifthly, the video material was examined to check for completeness and correctness of all annotations and glosses and to insert time codes at the start of each new story and IU markers at the start of each sentence IU. The ST was then aligned with the TT in Word using the time codes and IU markers. In the seventh step, the manual analysis and annotation of shifts and errors was undertaken. Finally, the MS Word documents were converted to plain text files and checked for compatibility with the *Antconc* concordancer. If incompatibilities were found, new annotation codes were devised. Thus annotation is integrated into the manual analysis process. Since they comprise the results of the manual analysis, annotation codes are summarised in the relevant sections below. The results of the manual analyses are summarised in Appendix F.

Each file is assigned a unique filename. Metadata is stored in **file headers** enclosed in angle brackets. Because the <h*/ notation was used for head movements, file header information is tagged as <title-*>. The header includes (sequentially without spaces) the interpreter’s initials, the channel identifier, the source language, the date, a code for the type of transcription (e = spoken English transcription, s = SASL transcription), the transcriber’s initials, a keyword (in lower case) referencing the broadcast’s main story and the number of sign tokens, e.g. <title-IAE10E221010sJWsasol1591> is a transcription of 1591 signs by JW (the researcher) of a SASL interpretation done by interpreter IA for the ETV 10 pm English

news broadcast on 22 October 2010 in which the main story is the Sasol boat accident. For the sake of anonymity and conciseness, only the channel and date details are given in data tables.

The transcriptions selected for analysis are given in Table 6.1 below:

Table 6.1: Transcribed bulletins

Title	Time (min:sec)	Time (min)	Sign tokens	ST word tokens	Sign/ word	Interpreting units (IUs)
Interpreter A transcriptions						
E10E031110	8:27	8.45	657	1200	0.55	106
E10E051010	21:55	21.92	1649	3710	0.44	298
E10E161110	21:48	21.80	1702	3315	0.51	326
E10E171110	20:16	20.27	1574	3158	0.50	292
E10E221110	20:11	20.18	1591	3420	0.46	270
Totals	92:37	92.62	7173	14803	0.48	1292
Interpreter B transcriptions						
E10E061010	19:04	19.07	1548	2770	0.56	303
E10E081110	21:29	21.48	1757	3174	0.55	318
E10E091110	14:23	14.38	1148	2164	0.53	207
E10E101110	20:59	20.98	1718	3029	0.57	276
E10E290910	24:08	24.13	1884	3127	0.60	305
Totals	101:36	101.60	8005	14264	0.56	1409

Table 6.1 shows that the number of sign tokens used by both interpreters is roughly half the number of word tokens used in the original English text, but that IB has a higher sign-to-word ratio than IA, which in terms of Gile's (1995) model means that she uses more production effort than does IA. As noted in Chapter 1.1.4.3, increased attention to one effort may lead to individual deficit in the others (namely the listening and analysis effort, the memory effort and the coordination effort), especially in view of the increased difficulty due to the fast pace of the news broadcasts. Excerpts of transcripts are given in Appendices G and H.

The next section explores the quality of the manual signs used by the two interpreters.

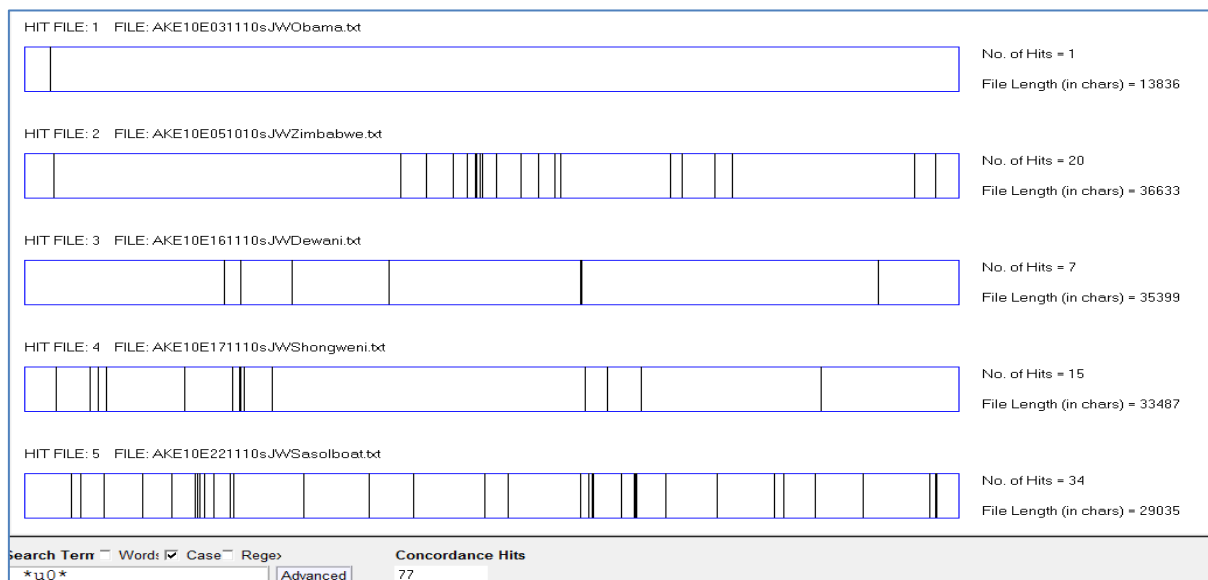
6.3 Sign quality

The first factor to be investigated is the visibility and quality of the manual signs executed for each interpreter. Axial categories of physical visibility ($u0$), clarity of articulation (x), partially-formed signs (q) and speed of signing (f) were identified and annotated. The data is summarised in Table F1 of Appendix F.

6.3.1 Physical visibility ($u0$)

All signs that were not clearly visible against the background (whether skin, clothing or background screen) and therefore difficult to decipher were annotated with the embedded tag “ $u0$ ”, e.g. “first_ $u0E2$ ”. (The zero distinguishes the tag from mouthing glosses.) The results for IA are presented in Figure 6.1 below.

Figure 6.1: Interpreter A poorly visible signs



Examination of IA’s 77 poorly visible signs showed that visibility problems occurred for the following categories: iconic signs (30); signs articulated too fast (27); fingerspelling (26); conjunctions (8); numbers (4).

The results for IB are depicted in Figure 6.2 below:

Figure 6.2: Interpreter B poorly visible signs



IB’s number of poorly visible signs (389) is much greater than for IA, but her main categories are similar, namely iconic signs (106), too fast signs (64) and fingerspelling (60). These three categories, together with the other two evidenced by IA, namely conjunctions and numbering, make use of detailed finger movements which need sharp background contrast to define them. Analysis of the video material showed that detailed signs and fingerspelling were often done in front of exposed skin or inappropriate clothing, as is depicted in Figure 6.3 below:

Figure 6.3: Interpreter visibility



When frequencies of poorly visible signs (u0) were compared with the interpreter’s dress for each bulletin, it was found that the number of poorly visible signs was greater when interpreters wore clothing that did not contrast strongly with their skin colour or that left the chest and/or arms open. These results are displayed in Table 6.2 below.

Table 6.2: Interpreter dress codes

	Title	u0	Clothing colour	Open/closed chest	Open/closed arms
Interpreter A	E10E031110	1	Black only	closed	closed
	E10E051010	20	Black suit and tie with brown shirt	closed	closed
	E10E161110	9	Black only	closed	closed
	E10E171110	15	Black only	closed	closed
	E10E221110	33	Black suit and tie with white shirt	closed	closed
Interpreter B	E10E061010	80	Light purple	open	open
	E10E081110	90	Pink dress with black open jersey	open	closed
	E10E091110	52	Black closed top over brown sweater	closed	closed
	E10E101110	81	Black only	open	open
	E10E290910	85	Black only	open	open

The higher incidences of poor visibility indicate that IB does not dress as appropriately as IA.

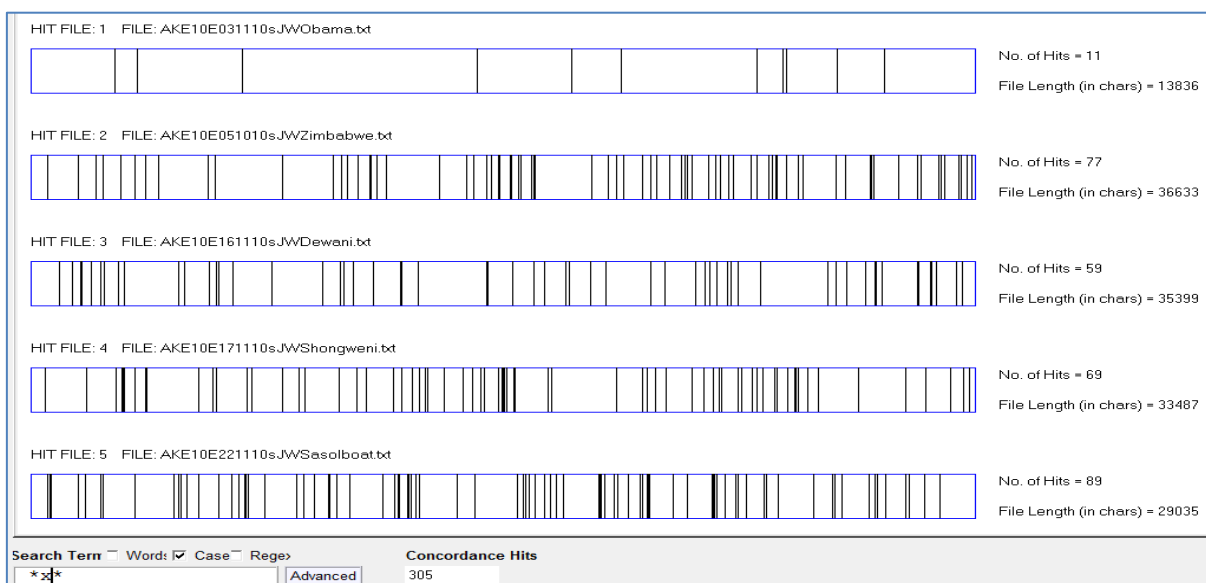
In the next section, poorly articulated signs are investigated.

6.3.2 Clarity of articulation (x)

Clarity of sign articulation was investigated by annotating poorly articulated (in terms of handshape, orientation or movement) signs with the embedded tag “x”, e.g. “first_xE2”. A subset of partially-formed signs identified was prefixed with “q” to categorise them as a separate sub-group and to exclude them from certain analyses (e.g. *iconicity*) and wordlists. (This data was adjusted to exclude normal words that begin with q, e.g. *qualifier*.) This subset comprises hesitations when the interpreter simply left his hands in signing space (glossed as qer_x) and truncated signs (e.g. “qgovernment_x police_v0”). Although these halted executions present a wealth of cognitive data, for the purpose of this study they are regarded as hindrances to comprehension. Analysis showed that they occur mainly in interviews or on-field reporting and may indicate periods where the interpreter is waiting for the next chunk with hands left in signing space. However, further research is needed to clarify this.

The results for IA’s poorly articulated signs (x) are depicted in Figure 6.4 below:

Figure 6.4: Interpreter A poorly articulated signs



Most of IA’s 305 poorly articulated signs consisted of iconic signs (112), partially formed signs (58) and fingerspelling (39). Less frequent items include too fast signs (18), deixis and reference (18), numbers (12) question words (11), the verb “have” (11) and conjunctions (8). As noted above, iconic signs, fingerspelling and numbering require fine finger movements, usually sequential, which take time to articulate clearly. The other poorly articulated signs may possibly have been additions of TL discourse elements.

Most of his partially formed signs were hesitations, i.e. qer_x (27) and truncated deixis, i.e. qindex_x (10). Since 35 partially formed signs occurred at the end of an IU or just before a head movement, it is suggested that these represent periods of listening and analysis before production. Seven of the partially formed signs occurred before an omission and therefore also indicate cognitive processing at the expense of production.

The results for IB are presented in Figure 6.5 below:

Figure 6.5: Interpreter B poorly articulated signs



IB’s 746 poorly articulated signs are more than double those of IA and consisted primarily of poorly articulated classifiers, the interpreter often inadvertently articulating a minimal pair (discussed under X1 errors in Section 6.7.4 below). Moreover, whereas IA's movements were deliberate and directional, IB’s signs were occasionally characterised by unusual movement, e.g. “department_xmS2” (the hands are brought down in a zigzag fashion) or sometimes a lack of movement in signs that normally have a motion component, e.g. “trade_xm0” (the circular movement is not executed).

Similar to IA, the main categories of IB’s poorly articulated signs consisted of iconic signs (261) and partially formed signs (98). However, whereas IB was more careful than IA in articulating fingerspelling (23), she was more careless in deixis and referencing (95), question words (42), too fast signs (36), conjunctions (23) and numbers (18). A number of chest-space signs (e.g. for, me, will, want) were also poorly articulated (35). Concordance analysis of IB’s partially formed signs revealed 46 *q-er_x* type hesitations, 11 aborted deixis and 42 aborted lexical items. Further analysis revealed that 64 of her partially formed signs were associated with head movements shortly before or after the sign, indicating cognitive processing.

In the next section, the signing speeds of the interpreters are investigated.

6.3.3 Signing speed

Non-average **signing speed** was assigned the embedded tag *_f* with category codes for signs executed faster than average (f1), slower than average (f2) or holds (f3). This enabled correlation between poor visibility and poor execution with signing speed. Signs executed at average speed were unmarked. The average signing speed was related to Windows Media

Player software's setting of half the normal playback rate, which was the rate that transcribers had to play the video material in order to distinguish signs clearly. Signs executed faster than average were only distinguishable on slower playback speeds, whereas slower than average signs could be deciphered at normal playback speeds.

Since too fast signing was one of the factors detected in the pilot study (cf. Chapter 5.2), the average signing speeds were calculated for three excerpts from each broadcast from scenes where a presenter or anchorman is speaking. The results are given in Table 6.3 below:

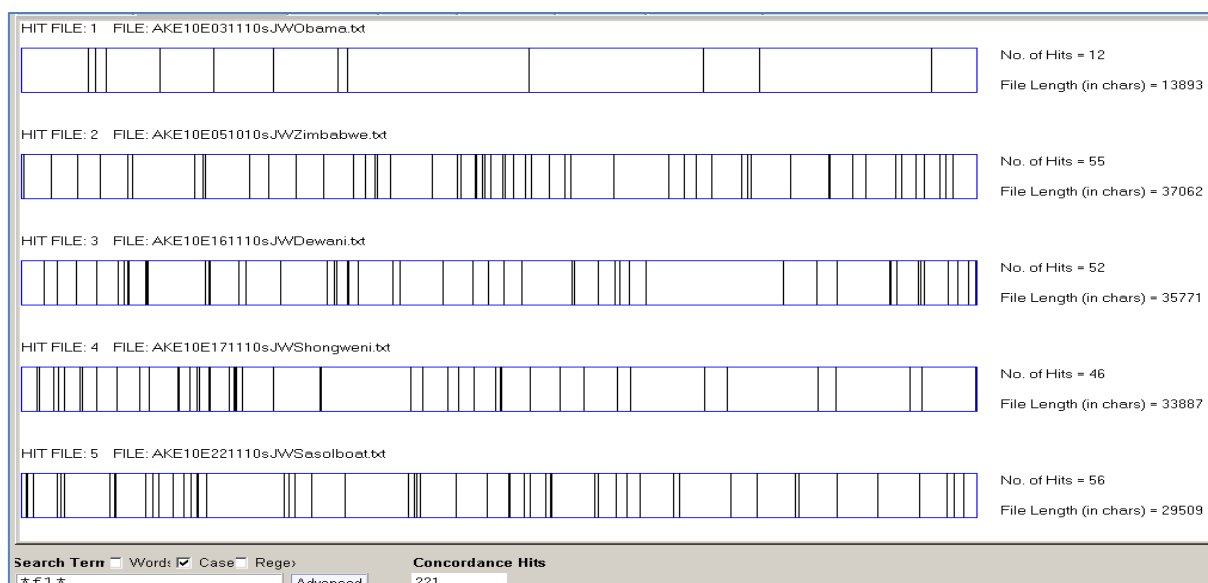
Table 6.3: Interpreter signing speeds

Interpreter A															
File	E10E031110			E10E051010			E10E161110			E10E171110			E10E221110		
Time	15	18	22	33	18	49	24	15	20	38	21	37	47	22	38
Signs	25	39	35	58	28	75	39	28	41	51	38	60	67	36	53
Sign/sec	1.6	2.7	1.6	1.75	1.56	1.53	1.63	1.86	2.05	1.3	1.8	1.62	1.43	1.64	1.39
Average	1.97			1.61			1.85			1.57			1.49		
Interpreter B															
File	E10E061010			E10E081110			E10E091110			E10E101110			E10E290910		
Time	31	41	45	18	31	18	41	21	22	36	50	39	23	26	44
Signs	56	78	74	34	43	32	81	42	47	67	86	81	45	51	87
Sign/sec	1.81	1.90	1.64	1.89	1.39	1.78	1.98	2.00	2.14	1.86	1.72	2.08	1.96	1.96	1.98
Average	1.78			1.69			2.04			1.89			1.97		

IA's average signing speed was therefore calculated as the average of 1.97, 1.61, 1.85, 1.57 and 1.49, i.e. 1.70 signs per second (= 102 signs per minute), whereas IB's average speed was similarly calculated as 1.88 signs per second (= 113 signs per minute). Thus, on average, IB signs faster than IA. Similar analysis revealed that a DTV presenter signed at 1.34 signs per second, i.e. much slower than the two interpreters.

The results of the analysis of too fast signs for IA are depicted in Figure 6.6 below:

Figure 6.6: Interpreter A too fast signs



The concordance plot shows that the distribution is not random but occurs in ‘bursts’ which may indicate catching-up strategies. 44 of these 221 fast signs also correlate with visibility (u0) or articulation (x) problems.

The results for IB are depicted in Figure 6.7 below:

Figure 6.7: Interpreter B too fast signs



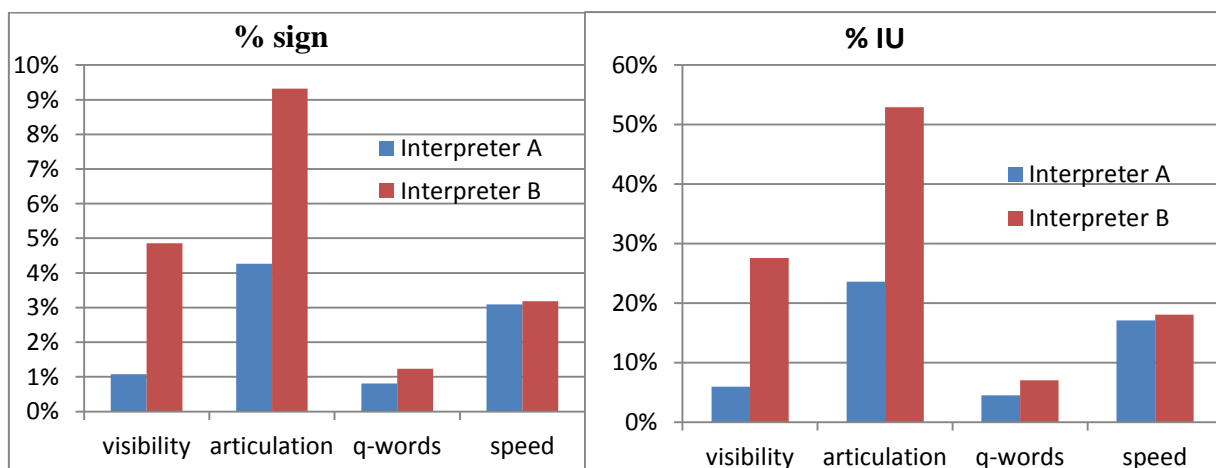
IB similarly displays intermittent bursts of fast signing indicative of catching-up strategies. 91 of these 255 signs correlated with visibility (u0) or articulation (x) problems.

In the next section, the two interpreters are compared in terms of sign quality.

6.3.4 Comparison of interpreters

The type-token ratios (% sign and % IU) of the above categories are compared for the two interpreters in Figure 6.8 below:

Figure 6.8: Comparison of sign quality



The main factor affecting sign quality for both interpreters is poor articulation. However, the percentages of poorly visible and malformed signs for IB are approximately three times more than for IA, indicating that phonological ‘noise’ in the form of poor sign quality and poor visibility affects audience comprehension for IB. The low occurrences of partially formed signs for both interpreters indicate that these should not significantly hamper audience comprehension. Although the percentages of too fast signs are small at sign level, they may contribute to incoherence at IU level. It must also be noted that transcribers could not decipher signs at normal playback speed for both interpreters, indicating that signing speed does hamper comprehension.

In the next section, lexical features of the interpreters’ SASL are explored.

6.4 Lexical features

In this section, lexical characteristics of the interpreters’ SASL are analysed in terms of language variation, iconicity, polysemy and finger-spelling. As noted in Chapter 2.5.3, the established lexicon consists of iconic signs and borrowings from other sign languages or from sign-supported speech systems, whereas the productive lexicon is marked by extensive use of iconicity and classifiers. Once the data had been cleaned of annotations, numerals and fingerspelling, the corpus yielded 1561 lexical and partially lexicalised *types* (i.e. unique signs) for IA and 1808 for IB, i.e. including both established and productive lexicons.

6.4.1 Language variation

In Chapter Five, language variation was found to be the primary reason for lack of comprehension of the TV interpreters and hence its identification in the interpretations was one of the main objectives of the corpus. Investigation of language variation requires some standard of comparison. Since SASL is not yet fully standardised, the standard variant was taken to be the first sign in Penn’s (1994) dictionary and/or the sign in the Johannesburg sign system taught at the University of the Witwatersrand because the researcher observed that this system is understood by all groups in Gauteng except the Afrikaans Deaf (cf. Chapter 5.5.1). Signs that differed from these “standardised” forms were tagged as “d1”. If an interpreter used more than two dialectal variants, the lesser known variant is tagged as “d2”, e.g. “woman_d1... woman_d2” indicates that the interpreter has produced two different signs for “woman”, neither of which is a standard form. Where these variations could be identified, they were also tagged as ASL (d1\$), BSL (d1B) or Afrikaans dialect (d1A). However, these annotations are incomplete and are only meant to give an indication of variant influences.

Signs not recognised by the transcribers were also tagged as dialectal (d1) and prefixed with “x”. A gloss was given if a possible meaning could be deduced from the ST, e.g. “xscience_d1”, otherwise the sign was glossed as “x_d1”. These signs are listed in Table 6.4:

Table 6.4: Unknown (x-) signs classified as dialect

IA	E10E031110	E10E051010	E10E161110		E10E171110		E10E221110	
		about	mall	strange	energy	messup	x_d	machine
	because	science	careful	chance	shuttle	details	fraud deal	
			remember	then	gangster		holiday	
			Namibia	alert	crime			
			Zambia	begin	notice			
IB	E10E061010	E10E081110	E10E091110		E10E101110		E10E290910	
	power	x_d	details		chair		municipality	interest
	rotate	cables	social		case		qualified	association
	look-out	main	Swaziland		friendly		allowance	wood
	ready		brave		wish		workers	literature
			insurance				top-up	

Most of the glosses above have established SASL equivalents. Only two signs could not be assigned to a possible meaning and are rendered “x_d”. These signs may belong to a particular dialect, but may also be neologisms or invented signs. Since they are uncommon, they would hinder comprehension. This was confirmed in personal correspondence with Deaf colleagues.

Where they could be distinguished from signs, gestures were also categorised as dialect and annotated as “d1g”, e.g. “Iholdthumbs_d1g” (= hoping for a good event to happen). If they depict the action expressed, they are also tagged as iconic.

The results of the language variation analysis for IA are depicted in Figure 6.9 below:

Figure 6.9: Interpreter A dialect signs



IA frequently uses variants. The 527 tokens account for 8% of all his corpus tokens and 44% of all his IUs. Of these tokens, 66% were mouthed. The following varieties were observed:

- Use of more than one variant (d2) – 20, e.g. instead of the ‘standard’ $\bar{B}_{I@chest_mG}$ for woman, IA uses $T_{@car_r}$ (d1), but occasionally also uses MARRY (= Px8_m-). These d2 variants possibly belong to a local dialect.
- Afrikaans dialect (d1A) – 11, e.g. “boy” is signed by pulling up the trousers.
- ASL (d1\$) – 7, e.g. WHAT = “whatshrug_d1\$” (= B_UB_U_mX(bs)).
- BSL (d1B) – 6, e.g. Pakistan_d1B, signed by repeating the British letter P.

The results of the analysis of IB’s language variation are summarised in Figure 6.10 below:

Figure 6.10: Interpreter B dialect signs



IB uses more dialect than does IA with less mouthing. The 838 occurrences (of which 60% are mouthed) account for 11% of her corpus tokens and 59% of her IUs. The following variants were recognised:

- ASL (d1\$) – 65;
- More than one variant (d2) – 35;
- Afrikaans dialect (d1A) – 33;
- Gestures (d1g) – 26;
- Signed English (d1s) – 7;
- BSL (d1B) – 3.

Hence IB’s sign language seems to be influenced by ASL, a local (Cape?) dialect (d2) and Afrikaans dialect. She also uses a number of common South African gestures.

T-testing corroborated that the difference between the two interpreters' use of dialect is just significant at 95% confidence level. The frequencies of occurrence for both interpreters are quite high at IU level (44% and 59% respectively) and therefore probably serve as hindrances to comprehension.

In the next section, the interpreters' use of iconicity is explored.

6.4.2 Iconicity

As discussed in Chapter 2.5.3, iconicity is a feature of both the established and productive lexicons. Unlike borrowings and dialectal variants which may obfuscate meaning, iconicity should serve to clarify meaning.

The results for IA are displayed in Figure 6.11 below:

Figure 6.11: Interpreter A iconic signs



IA frequently used iconic signs, the 3816 signs amounting to 54% of his corpus tokens.

The results of the analysis of IB's iconic signs are given in Figure 6.12 below:

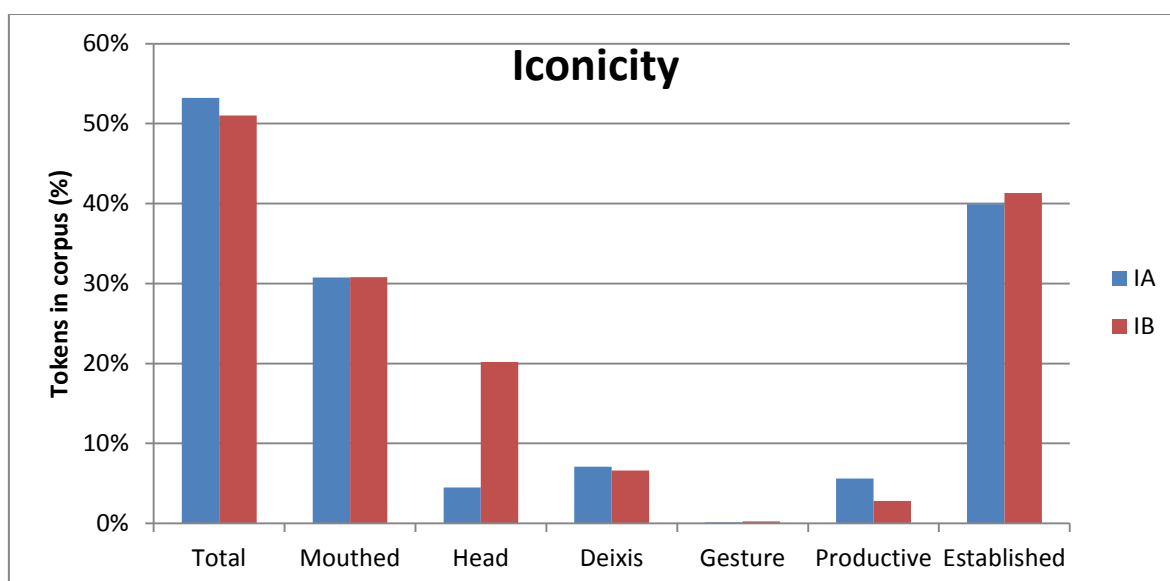
Figure 6.12: Interpreter B iconic signs



The thickness of the lines in the data above shows that IB also frequently uses iconic signs. The 4083 iconic signs amount to 51% of her tokens.

The distribution of iconic signs of the two interpreters is compared in Figure 6.13 below:

Figure 6.13: Comparison of iconic signs



IA made greater use of the productive lexicon than did IB, with 288 occurrences of figure-ground constructions (e.g. Isquish@book = incorrect record-keeping) and 114 occurrences of 43 descriptive verbs (e.g. “wriggle-under”), compared to 226 occurrences of productive constructions in IB’s corpus. Both made relatively equal use of deixis (510 occurrences of the four main deixis signs (glossed as Iindex@, Iyou@, Ithere@ and Ithey@) for IA compared to 530 for IB) and minimal use of gesture (e.g. “Inotbother” = can’t be bothered,

“Inomoney_d1g” = “I have no money”¹) (nine occurrences for IA and 19 for IB). However, the greater majority (2865 = 40% of IA’s corpus tokens and 3308 = 41% of IB’s corpus tokens) are established signs (e.g. “Icloud”, “Irain”). These corresponded to approximately 550 types for IA, compared to 300 for IB; hence IB used a smaller repertoire of iconic signs than did IA.

The interpreters made equal use of mouthing with iconic signs (57% for both), but differed in their use of head movement (<h*/>*&*I*_ = 323 tokens i.e. 8% for IA cf. 1617 i.e. 40% for IB). Since head movements function as prosodic markers, it could be that IB’s use of them in iconic constructions is mistaken by Deaf audiences as prosodic markers.

In the next section, the interpreters’ use of polysemy is discussed.

6.4.3 Polysemy

Thirdly, both interpreters use polysemy. Polysemy was investigated by annotating the first use of identical signs to reflect different items with =, e.g. “goal=aim”. Although it was not possible to determine this quantitatively since only the first occurrence was annotated, qualitative analysis produced at least 42 polysemic types with more than one meaning for IA and 83 for IB. The results are depicted in Table F2 of Appendix F. Sometimes more than three different meanings are attached to the same sign. These results indicate that IB relies on a small group of basic signs to transmit meaning instead of building up an adequate terminological vocabulary. Polysemy is a common feature of all languages, so its presence should not be problematic provided the context makes the meaning clear, especially if mouthing or mouth gesture aid the audience in selecting the correct meaning. However, IB did not always succeed in clarifying the meaning contextually. This is illustrated in the examples below:

Example 1 (E10E081110 line 90,95,100):

TT: MAYBE URINE USE FARM GROW... INDEX FAMILY WHO MONEY NO-MONEY HOW[?] CAN TOILET **FERTILISER/SPREAD_E2/(pr)** ... BUT FIRST INVESTIGATE PROVE CAN <omit-USE> FOR **FERTILISER/SPREAD_E3/9**.

ST: as to whether urine can be used as fertiliser ... families living below the bread line could make money by just going to the toilet... But this project will only be implemented should research prove that it can actually be used as fertiliser.

Line 90 is the first indication that the purpose of the urine is to make fertiliser, but IB paraphrases this information without using her sign for fertiliser, which is also the sign for SPREAD, hence its later use is decontextualised. The ambiguity is reinforced in that she also

¹ A common South African gesture to indicate to beggars that one has no small change.

first uses the mouth gesture associated with SPREAD, i.e. E/(pr), whereas in the second use, she adds to the confusion by using a mouth gesture associated with expansion, i.e. E/9 = puffed-cheeks.

Example 2 (E10E061010, lines 210-11):

TT: RUN FIRST WICKET=FIRST_v0 OUT OVER ... SEVEN WICKET=TARGET_v0 WIN.

In this example, polysemy is applied inconsistently in that “wicket” is initially signed as FIRST then as TARGET. The audience has to rely on the mouthing to supply the correct meaning.

In the next section, the interpreters’ use of fingerspelling is investigated.

6.4.4 Fingerspelling

As noted in Chapter Two, news reporting is information-dense in that it contains many names, places, dates and figures. Fingerspelling is therefore essential in communicating information. Fingerspelled words were prefixed with “z” and a category code, e.g. “z4SouthWest_”. Category codes were assigned for surnames (z1), other names of people (z2), names of organisations (z3), names of places or directions (z4), names of things or measurements (z5) and fingerspelled IF and SO (z6). Single letters were prefixed with z, e.g. “zA_”.

The results of IA’s fingerspelled words are summarised in Figure 6.14 below:

Figure 6.14: Interpreter A fingerspelled words



IA’s 368 finger-spelled tokens consist of 87 surnames, 103 place names, 86 organisation names, 49 names of things and concepts, 19 first names and 24 spelt conjunctions IF and SO. 28 tokens are poorly visible and 41 are poorly articulated. Moreover, only 138 are completely spelt. Usually only the first three initial letters or alternatively the first, middle and end letter

are spelt. These shortened spellings (typically used for place names) are not in themselves problematic and often become established lexical forms (cf. Leeson & Saeed 2012), but can be problematic if not used consistently and/or if the proper noun is not well known. The following serve as examples from IA’s corpus:

- Bangladesh: BANGLADSH, BNS;
- Afcon (the acronym for African Cup of Nations): AFCON, ACON, AFCN.
- Africanised place names, e.g. Bafokeng: BAFAKG, BFN, BAN.

Poor spelling is also evident, e.g. AGLIOTIE, DIDBET (Djibuti), LABYA (Labrador), CAHIXWA (Chihuahua), BEL (bail), LAXNE (Leone). The combined effect of poor spelling and irregular choice of which letter is spelt means that some names are spelt differently every time (e.g. “Agliotti”² is spelt AGL, AGLIOTIE, AGLIOT, AGIOT and ALITI). Only shorter items (e.g. IF, PE, PM, PIC, IMF, KPMG) are spelt consistently. The erratic spelling meant that the Wordlist tool could not display accurate frequencies of z-words, which would therefore first have to undergo a lemmatisation process to be recognised as the same word.

The results of IB’s fingerspelled words are summarised in Figure 6.15 below:

Figure 6.15: Interpreter B fingerspelled words



It is evident that IB also fingerspells intermittently throughout her interpreting. Analysis of the 339 tokens showed that they consist of surnames (56), place names (125), organisation names (93), names of things and concepts (43), first names (11) and spelt conjunctions IF and SO (9). 60 tokens had poor visibility and 23 were poorly articulated. She seldom spells in full, also preferring to follow the first-middle-end letter pattern. Of the 339 fingerspelled signs,

² A corrupt businessman accused of murder.

only 104 (mostly shorter items, e.g. PE, ANC, FEE, ODI etc.) were spelt fully. However, she is more consistent than IA in fully spelling longer items, e.g. MBOMBELA, IRELAND and is very careful in her spelling, only committing two spelling mistakes in all five bulletins, namely BLOKCK (= Block) and SitHoloS (=Sithola). However, there are inconsistencies in repeating names, e.g. “HaidEr” cf. “HAIdER”. This example indicates problems in audience comprehension if spellings are abbreviated, since it is doubted that anybody would be able to derive “Haider” from either “HE” or “HAIR” (the letters actually spelt).

In comparison, both interpreters used fingerspelling relatively sparingly. (This may have been due to the fact that the interpretations occurred in the period after the researcher had already made a recommendation to ETV and SABC that subtitles be used for names and titles so that interpreters do not have to spell everything.) However, IA’s use may be viewed as a hindrance to comprehension due to the speed of delivery, the variation in which letters are spelt and the spelling mistakes. In contrast, IB is a good speller and is therefore more accurate and more careful in terms of execution than IA, indicating that she is more comprehensible to Deaf audiences in this regard than IA. However, unless the abbreviated sequence (used by both interpreters) is well known by the Deaf community, it can cause comprehension difficulties.

In the next section, the interpreters’ use of discourse devices was investigated.

6.5 Discourse devices

Discourse devices studied in the corpus include reference, role-shift and topic marking (cf. Chapter 2.5.4). The corpus analysis showed that SASL discourse markers are affected by the act of simultaneous interpreting, in that interpreters have insufficient time to set up references (which are also important for role-shift) or pay attention to topical restructuring. The two interpreters differed in their frequency of use of discourse devices, as well as the quality of use. Whereas IA made less use of discourse devices, he tended to use them more successfully.

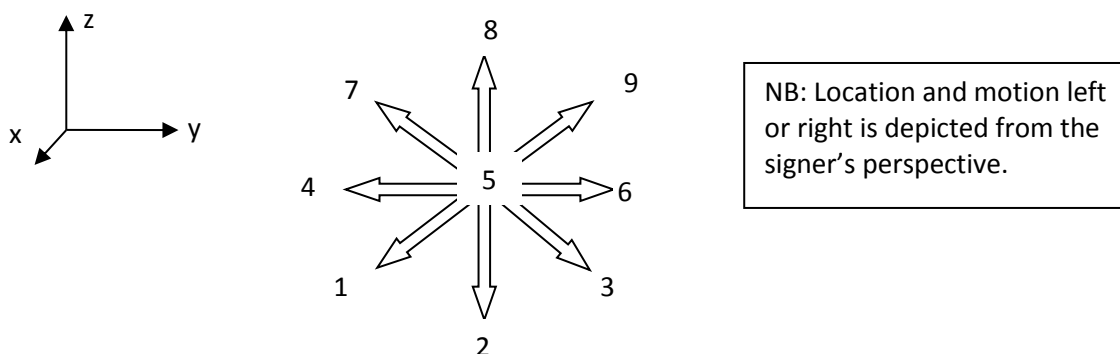
Each of these aspects is discussed in detail below. In the first part, the issue of referencing is addressed.

6.5.1 Reference

The interpreters’ use of referencing devices was investigated by tagging each reference to a location in signing space or on the body (cf. Chapter 2.5.4.3) with @. Since reference is always with respect to a direction, a directional code was also devised to describe location or movement. Locations are represented by direction codes only, whereas movement is

annotated by “m” together with a destination direction code. The codes used for compass directions in the vertical (yz) plane are illustrated in Figure 6.16 below:

Figure 6.16: Direction codes for vertical (yz) plane



For example, movement category m5 includes any motion towards the centre of signing space. Horizontal (x) plane motion was annotated as inwards towards the speaker (=m51) or outwards away from the speaker (=m50).

Other forms of motion categories were assigned the following annotation codes:

- Motion in an arc (mC), e.g. Iall_mC;
- Circular motion (mO), e.g. trade_mO;
- Wrist rotation (mG), e.g. pretoria@_mG;
- Random motion (mM), e.g. placepl_mM;
- Up-down alternating motion (mW), e.g. maybe_mW;
- Up-down together motion (mV), e.g. Iweightlifting_mV;
- Left-right alternating motion (mZ), e.g. compete_mZ;
- Left-right expansion motion away from centre (mX), e.g. leave_mX;
- Alternating motion away from speaker (mK), e.g. Ifly2h_mK;
- No motion (marked) (m0), e.g. trade_xm0.

These categories are used for notation as well as for glosses, but only assigned to glosses if the movement is marked.

Reference to points in signing space was suffixed with the symbol @³ followed by the location code, e.g. “Iindex@4_” means that the interpreter points to a reference which she has set up on her right. Unidirectional non-repeated motion in the x-plane, i.e. towards or away from the speaker, is considered to be referential, as are pronouns. References to far central signing space (1-f, see Chapter 2.4.5.3) were annotated with the default annotation only (i.e. @, e.g. “Igive@_”). Pronouns were also considered part of referential motion, e.g.

³ Because @ is a wildcard in *Antconc*, the relevant wildcard was changed to &.

“Index@_”. As noted in Chapter 4.7.4, **figure-ground references** are annotated by gloss-Rh@CL-Lh. If two classifiers performed the same action on each other, this was glossed as “@eo” (= each other), e.g. “Ishoot@eo_”.

Ideally, references are set up by first signing the referent, then indicating its location in signing space. Subsequent references are then done by pointing to the location in signing space. However, both interpreters simply introduced the referent without location in signing space, or set it up as a classifier on the non-dominant hand (e.g. “Police **shoot@personCL**, index@personCL ...”).

Both interpreters use referencing devices frequently when signing. IA uses these devices slightly (but not significantly) more than IB, but shows accuracy in setting up references in signing space, whereas IB is oftentimes careless in remembering where she set up her references. Thus, whereas IA’s use of referencing devices should facilitate comprehension, evidence suggests that IB’s use may hinder comprehension.

The results for IA’s use of reference are summarised in Figure 6.17 below:

Figure 6.17: Interpreter A references



It is evident from the above figure that IA frequently referenced items in signing space or indicated actions relative to each other. These 866 occurrences mostly consisted of deixis (500). The rest consisted of signs in a particular direction or figure-ground references. IA was very accurate in using references and only made four referencing errors. Unlike IB who primarily set up referents in signing space, IA mostly used his non-dominant hand as reference location, thereby making negligible referencing errors. The evidence therefore suggests that IA’s use of reference is a factor enhancing comprehension.

The results for IB are depicted in Figure 6.18 below:

Figure 6.18: Interpreter B references

HIT FILE: 1 FILE: MSE10E061010s.JWschoolstrike.txt	No. of Hits = 140 File Length (in chars) = 23804
HIT FILE: 2 FILE: MSE10E081110s.JWschoolrape.txt	No. of Hits = 160 File Length (in chars) = 26600
HIT FILE: 3 FILE: MSE10E091110s.JWnetcare.txt	No. of Hits = 125 File Length (in chars) = 18029
HIT FILE: 4 FILE: MSE10E101110s.JWJohnBlock.txt	No. of Hits = 224 File Length (in chars) = 27043
HIT FILE: 5 FILE: MSE10E290910s.JWMangane.txt	No. of Hits = 184 File Length (in chars) = 29343
Search Term <input type="checkbox"/> Word: <input checked="" type="checkbox"/> Case: <input type="checkbox"/> Reg: <input type="checkbox"/> Concordance Hits * (3) * <input type="button" value="Advanced"/> 833	

It is evident that IB also frequently referenced items in signing space, or indicated actions relative to each other. These 833 occurrences mostly consisted of deixis (530). The rest consisted of signs in a particular direction or figure-ground references. However, of these 530 occurrences of deixis, 125 (i.e. 24%) were inaccurate (see Section 6.7.4 below), e.g. she would set up a referent in one location but point to a different location in subsequent references. A further 5 of the remaining 303 reference signs also were also inaccurate. Thus, although IB uses SASL referencing devices approximately to the same extent as IA, she does not always apply them properly, which may hamper comprehension.

6.5.2 Role-shift

Using the theory of grounded blends, role-shift was tagged as <blend/> ... </blend> over the relevant discourse. If a fragment buoy (cf. Chapter 2.5.4.1) was used to anchor the discourse, this was annotated by inserting (buoy-CL) into the annotation, i.e. <blend (buoy-CL)/> ... </blend (buoy-CL)>. The corpus annotations did not distinguish between constructed action and constructed dialogue, which, in retrospect, was a limitation. All glosses within the blend were prefixed for iconicity.

Most constructed action occurred in short phrases using descriptive verbs. IB used role-shift more frequently than IA (171 times, whereas IA used it 113 times), but IA used more complex role-shift, using his upper facial expressions, mouth, torso and hands to convey multiple perspectives through judicious use of body-partitioning, whereas IB primarily used her whole body to depict a single character. This is illustrated in the examples below:

Example 1(E10E171110 line 279, IA):

Itree_tE2 Iindex@6_ <htR> Idecorate_r3E3/1, Idecorate_hE/9, <hn> Iindex@_E2 <hf> Imarchconverge_E2/8, <ht-hn> Itree_E/1
Back-translation: TREE(br) INDEX DV:decorate (fr,smile), DV:decorate-finish, INDEX(br) DV:march-and-converge-at(br, mm), TREE.

In this example, the context is at a zoo where children are decorating a Christmas tree, only to be surprised by a group of penguins waddling towards them. IA sets up the tree as topic, then role-plays the children happily (smile) concentrating (frown) on decorating the tree and their surprise (INDEX(br)) at seeing the penguins. In **Imarchconverge_E2/8**, AK's hands and mouth (mm) represent the unsuspecting penguins converging on the tree, whereas the rest of his face (raised eyebrows and widened eyes) and the movement of his hands towards himself represent the children's perspective.

Example 2 (E10E061010 line 16, IB):

"final_E2v0 IVwrite_rE2v0 <hL> Vfinish_E2v0 **Ime_** <hR/> IVlook_v0tell **IVlookpaper_**
Isurprise=vot@paper_E/6 Vhave@_" (E10E061010 line 16).
(Back-translation: FINAL WRITE FINISH (t) I LOOK DV:looks-at-paper DV:shock-at-this-on-paper HAVE...)

In this example, the context as signalled by the foregrounded topic is the final school-leaving exam results. IB signals the role shift with the first person pronoun. She uses facial expression and eye gaze to depict someone initially looking neutrally at a piece of paper (IVlookpaper_ has no facial expression markers) who is suddenly horrified (E/6 = open mouth indicating amazement, shock or horror). The portrayal is of a single individual; no multiple perspectives are offered.

Constructed dialogue was often signalled by the sign SAY (39 times for IA and 40 times for IB), followed by a first person pronoun and facial expression.

Example 3 (E10E161110 line 73, IA):

"... person_ Iindex@6_E2 **Isay_v0 <hf> Imy_E3v0 Ifarm_E3v0 Itake_E3v0takemy...**"
(Back-translation: PERSON INDEX SAY MY FARM TAKE (fr)...)

In this example, IA first references a person (to his left) then signals the change in perspective with the first person and frowning (E3).

Example 4 (E10E061010 line 19, IB):

"...person_E2 </ht>, **Isay_E2v0, Ime_E2 Ithink_E2v0 <hfl>** international_ Idecline_"
(Back-translation: PERSON, SAY, I THINK(br) (there is) INTENATIONAL DECLINE...)

In this example, IB maintains raised eyebrows to associate the change in perspective with the subject.

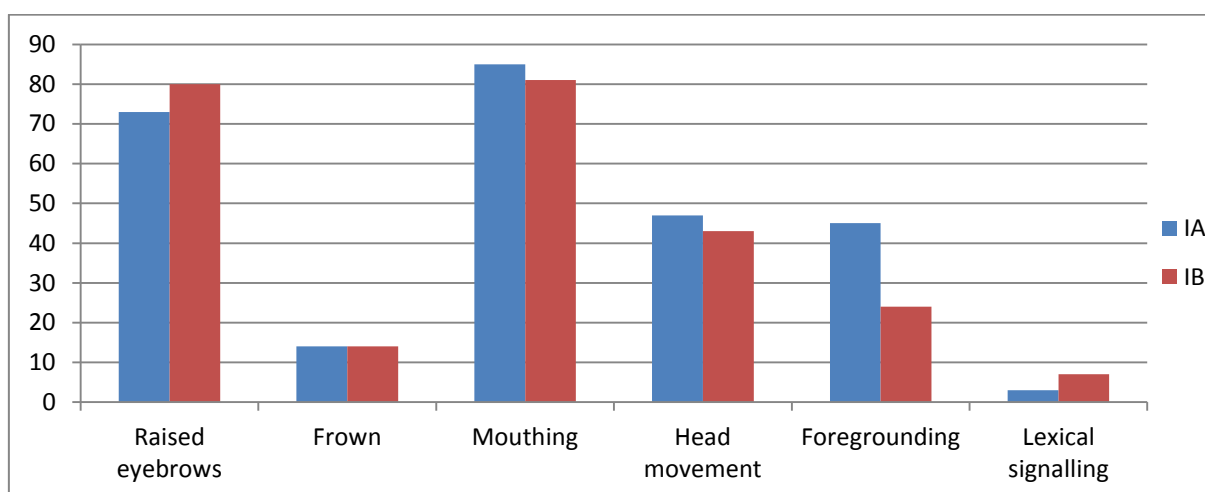
In the next section, the interpreters' use of topic-marking is explored.

6.5.3 Topic-marking

An analysis of topic (annotated by the embedded notation `_t`) was undertaken in conjunction with sentence starts, raised eyebrows (E2), frowns (E3), mouthing (v0/1/3) and head movement (`<h*/>`). Lexical signalling was investigated by searching NEXT (e.g. “NEXT LOOK FINANCE”), AFTER (e.g. “AFTER BREAK WANT LOOK SPORT”) and MOVE (e.g. “MOVE SOUTH COAST” = “moving to the South Coast...”). The last occurred especially in weather bulletins. Lexical signals originated from ST segments.

IA marked topic 1117 times, whereas 1343 instances of topic marking were annotated for IB. The results of the interpreters’ means of topic-marking are presented in Table F3 in Appendix F and illustrated in Figure 6.19 below:

Figure 6.19: Comparison of topic-marking devices



Both interpreters primarily relied on brow-raising and mouthing to mark topic. The main difference between the interpreters is that IA frequently restructured information in order to foreground the topic and present a more natural SASL structure, whereas IB seldom did. IA exhibits a slightly greater tendency to signal topics with concurrent mouthing or prior head movement, whereas IB is more likely to raise her eyebrows. However, although IB used brow-raising more consistently than did IA as a topic marker, she tended to use it over whole phrases instead of focusing on the topic as IA did. Analysis of E2-marked signs after the topic (`*_tE2*&*E2*`) in her corpus revealed 437 instances of prolonged E2 marking.

Because the simultaneous interpreter deals with small chunks of information at a time, it is difficult to recognise and establish topics, especially if this requires sentence restructuring. This is illustrated in the examples below:

Example 1 (E10E031110 line 11, IA):

TT: <X8/> <s4/> <hfR/> 30_ v0 <hn> percent_v0 </hfR> </s4> </X8> ... Itotal **E2**v0 <htR> 150_ **tE2**v0 thousand_v0 <hn> <hf> Iarrest_ **E2**v0prisoners <hn> Iprison_v0, <htR> 30_ **tE2**v0 <hf-> percent_ **tE2**- <hs> <hR> Inotyet_ <hs> court_ **E3**v0 <hf>.

(Back-translation: 30 PERCENT... TOTAL 150 THOUSAND ARREST (nod) PRISON, (tilt) 30 PERCENT NOT-YET COURT.

ST: "One third of the country's 150 thousand prisoners haven't been convicted yet."

In this example, IA realised that the 30% (of prisoners) topic must first be contextualised as a subtopic within the general topic of the total number of prisoners. This necessitated a restart, which, due to time constraints, places pressure on the interpreter.

Example 2 (E10E051010 lines 109-10, IA):

TT: <hR> **Irhino_tv0** Ione_u0v0 Irhino_v0 </hR> <hL> IVshootrifle_v3shoot, <hR> Irhino_ IVcuthorn_ **E38**, </s3> <hf> <omit-Ssummit> IVcomepl@5_ **E39** IVmeet_rv0, <hf> IVdiscuss_, Qwhat_ **E2**v0 **IVestablish_ **E2**** <hR> **IJfour_ **tE2**v0 special_ **tE2**v0 <ht> court_tv0** Iindex@6_v0for <hR> environment_ **E35**v0 crime_v0. <hR> <omit-SVdelegatesbriefed> **z3NPA_ **tE2**v0** <hn>
 Vplan_v0 <hn> <hfL> <s1/> Ifocus_ **E3** person_ <htR> IVcatch_ <htR> Qwho_v0 <htL> IVshoot_v0 Irhino_v0 </s1>, <hf> Iindex@1234_ **E38** legal_r3v0all IVput@_ **E38**.

Back-translation: RHINO(t) ONE RHINO SHOOT RHINO DV:cut-horn DV:all-come-together MEET, DISCUSS, WHAT ESTABLISH FOUR SPECIAL COURT(t) FOR ENVIRONMENT CRIME. NPA(t) PLAN FOCUS PERSON CATCH WHO SHOOT RHINO, THESE LAWS PUT.

ST: And the **summit** on rhino and poaching has plans to set up four specialised courts to deal with environmental crimes. Delegates were briefed on NPA plans to tighten the noose on poachers by using all the laws at their disposal to fight them.

This example shows that topic identification is complex and hierarchical. In the ST, the main topic is the summit, but there is a hierarchical nesting of topics, namely rhino poaching > summit > special courts. IA recognised the hierarchy but did not have time to express it. Looking for key words, he initially identified rhinos, then the special courts, then the NPA as topics. In the end, the summit is not topicalised.

Example 3 (E10E081110 lines 95-98, IB):

E2 Iindex@_ **E2** family_ **tE2**v0 Qwho_ **E2**v0 Imoney_ **E2**v0 Inomoney_ **E23**v0th, <ht> Qhow_ **E2**v0, <omit-Vomakemoney> Vcan_u0v3yes <omit-Vbygoingto> toilet_ **E2**v0 <ht> fertiliser=sread_ **E2**v0pr, <hn> all_ <hn> <hR> Vpay@_ **tE2**v0sell 30_ **E2**v0... Rand_v0 <hR> Ito_ **E2**v0 <htR/> 300_ **E2**v0 Rand_ **E2**v0 <hn>, Vwant_v0for <bL> Iurine_ **E28** IVgive_ **E259**(pr) </htR>...

Back-translation: INDEX FAMILY WHO MONEY G:no-money, HOW (br), CAN TOILET FERTILISER/SPREAD (br), ALL PAY 30 (br) RAND TO 300 RAND (br) WANT URINE GIVE (br) ...

In this example, IB not only marks the first whole phrase as topic, but also uses E2 to mark information in the comment. It appears that IB has a rather broad definition of the concept of *topic* and more of her raised-brow signs may be marking what she feels is part of a "topic". Alternatively, she may simply be using raised-brow to emphasise what she feels is key information rather than consciously marking topics. This deviation from stricter SASL usage may cause confusion regarding the topic.

Example 4 (E10E290910 line 28-9):

TT: Uwith_v0 Itwo_v0 partner=brother_drv0deputies, now_E2v0 boss_tE29 police_tE2v0 <htL>
Iyou@4_E2, <hs> missing=false_E3(w) <ht> where/vot_E3v0wh.
(Back-translation: WITH TWO PARTNER, NOW BOSS POLICE (br) (head tilt) YOU, MISSING WHERE?)
ST: "... along with two deputies in the absence of a Metro police chief."

The above example shows that head movements (used in SASL as topic markers) can be suppressed by the nature of the topic sign. In this example, the natural forward inclination while bringing the hand to the head to sign “police” suppressed the head tilt till *after* the topic, whereas other topic signals (raised-brows, lexical signals, mouthing) were not suppressed. Moreover, in 339 instances in the corpus, sentence-initial topics were not accompanied by a head tilt and in 20 cases the head was even brought forward, suggesting that the act of raising the hands back into signing space also suppresses the head tilt. This natural suppression and the fast nature of SI may account for the limited use of head movements as topic markers in the corpus.

In the next section, the interpreters’ use of non-manual features (NMFs) is investigated.

6.6 Non-manual features

In this section, three NMFs are explored, namely the use of mouthing, facial expressions and head/body movements. Correct use of these elements is essential in constructing good syntax in SASL. Although the use of these NMFs is explored in this section, the primary aim of the investigation was to determine *to what extent* interpreters made use of non-manual markers, in order to address accusations made by some respondents that interpreters make insufficient use of NMFs.

6.6.1 Mouthing

Mouthed words or part of words were tagged as “v” together with the following category codes assigned to phenomena discovered in the manual analysis:

- mouthing simultaneously with sign (v0), e.g. “first_v0”;
- mouthing after the sign (v1), e.g. “first_v1”;
- unclear simultaneous mouthing (v3), e.g. “first_v3”;
- unclear consecutive mouthing (v13), e.g. “first_v13”;
- Afrikaans mouthing (A), e.g. win_v0Awen.

Words mouthed without signing are tagged as v0 (or as v0A if Afrikaans) without a prior sign gloss, e.g. “v0first”. Words mouthed before the sign are tagged with the sign executed at that time, e.g. “ran_v0first first_”. If the mouthed word is identical to the gloss, the mouthed word

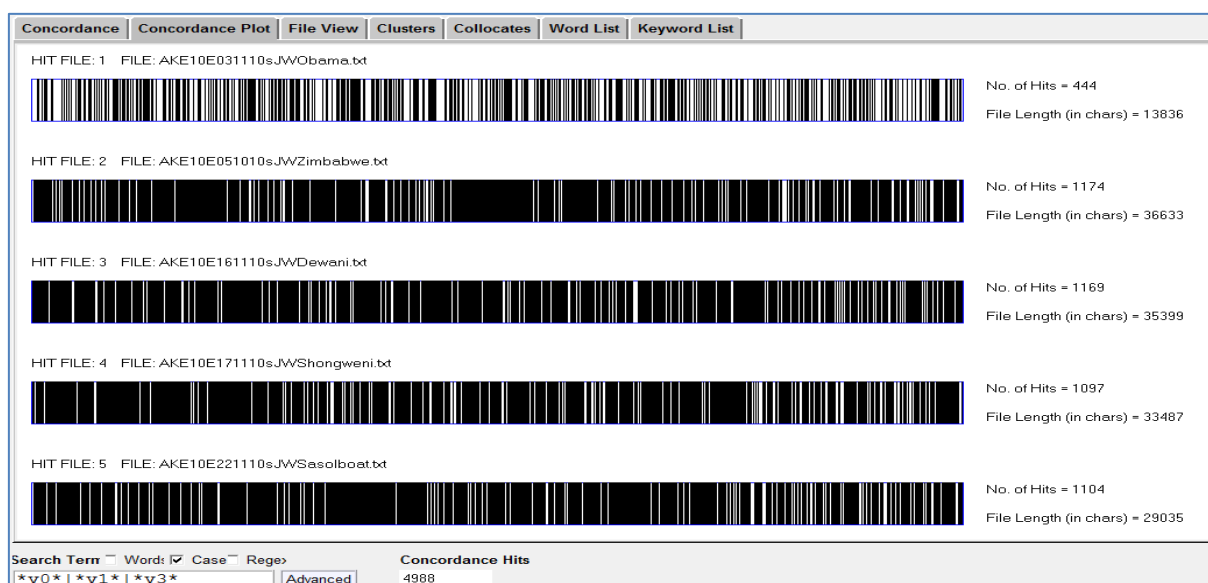
is not annotated, e.g. “child_v0”. Mouthing that differs from the gloss is annotated without spaces, e.g. “child_v0youth”. If the mouthed word differs from the sign only in grammatical category, only the modifying suffix is given as the mouthing, e.g. “child_v0ren”. As noted in Chapter 3.5.3, mouthing is usually annotated by transcribing the whole mouthed word. However, in the present study, only the part of the word actually mouthed is transcribed.

In retrospect, the mouthing annotation system had limitations. Firstly, the v0 tag was insufficient in allowing distinctions between annotations and mouthed words in search operations. For example, in identifying instances of topic (by searching *_t*), unwanted mouthing entries (e.g. “and_v0then”) had to be weeded out manually. Secondly, it was oftentimes difficult to determine whether partial word forms (e.g. “wh” in “Iwind_v0wh”) should be considered mouthings or be classified as mouth gestures (since they often functioned as both), as well as whether they should be considered identical to the sign or different (since they were neither). As Bickford and Fraychineaud (2008) note, part of the difficulty lies in the flexible nature of mouth morphemes in general.

Apart from reinforcing the meaning of signs, mouthing was also used to reflect the English ST and to disambiguate signs. For example, in “not_v0so-un fair=level_v0fair”, the mouthing both reflects the English ST (“so unfair”) and also disambiguates the sign “level”, which can mean “fair”, “equal” or “level”.

Mouthing data are tabled in Table F4 in Appendix F. The overall results for IA are depicted in Figure 6.20 below:

Figure 6.20: Interpreter A mouthing



IA uses mouthing consistently throughout his signing. The 4988 occurrences correspond to 70% of all IA’s corpus tokens, i.e. an average of 3.86 mouthed signs per IU. 59% of his

corpus tokens are mouthed simultaneously (i.e. 3.28 signs per IU), with 46% accompanied by identical mouthing (i.e. 3.28 signs per IU) and 13% (i.e. 75% of IUs) different to the sign.

The results for IB are presented in Figure 6.21 below:

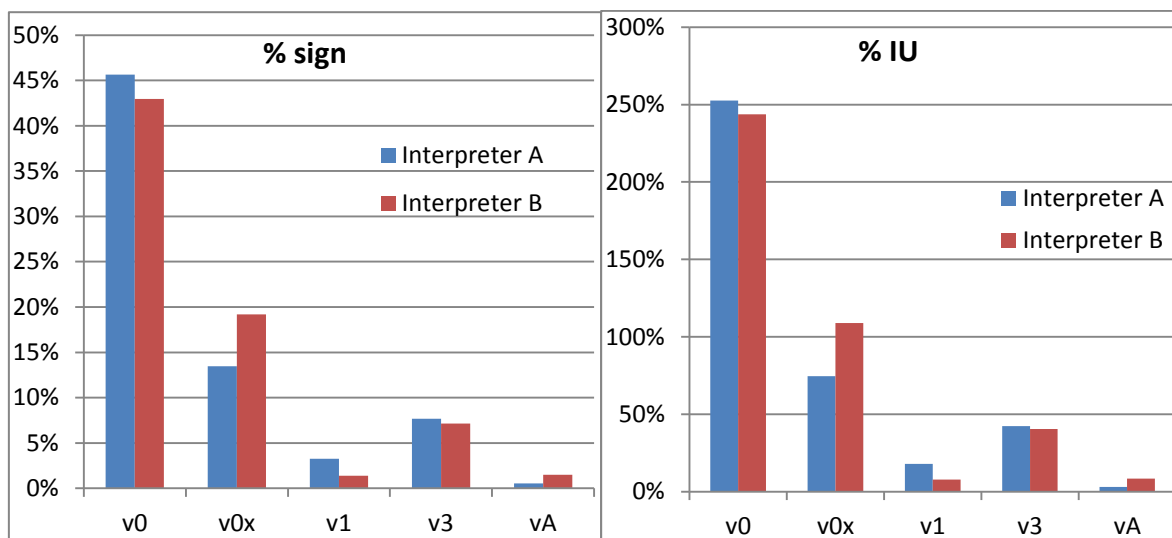
Figure 6.21: Interpreter B mouthing



IB mouths 71% of her signs, (i.e. 4.04 mouthed signs per IU). 62% of IB’s corpus tokens are mouthed simultaneously (i.e. 3.55 signs per IU), with 43% accompanied by identical mouthing (i.e. 2.45 signs per IU) and 19% different to the sign.

The interpreters’ use of mouthing is compared in Figure 6.22 below:

Figure 6.22: Interpreters’ use of mouthing



IB showed greater disparity between mouthings and signs (v0x), but both are similarly affected by incoherent mouthing (v3 = 42% of IA’s IUs and 41% of IB’s IUs, i.e. approximately one sign every third IU). Sometimes the sign involved is unambiguous, e.g. “sleep_v3”, whereas at other times the incoherence may affect comprehension, e.g.

“win_v3reach” (in E10E051010 line 13: “CANNOT WIN” vs “CANNOT REACH”). Finally, although consecutive (v1) and Afrikaans (vA) mouthing occurrences are low for both interpreters, IB was more inclined to use Afrikaans mouthing, whereas IA was more inclined to mouth consecutively.

To determine significance, raw frequency data for mouthing was divided into v0 (simultaneous clear mouthing), “other mouthing” (v0x, v1, v3) and “no mouthing”, i.e. IA = (3265, 1717, 2169) and IB = (3452, 2277, 2276), giving a chi-squared value of 38.545 at two degrees freedom which is significant even at $p < 0.001$. T-tests at % IU levels also showed differences between the interpreters to be statistically significant for disparate (v0x) and Afrikaans (v0A, v3A) mouthing at 95% confidence level.

In the next section, the use of facial expression by the two interpreters is explored.

6.6.2 Facial expression

In this section, the results of the facial expression analyses for the interpreters are reported. As discussed in Chapter 2.5.5, facial expression is used as syntactic and prosodic markers in sign languages. Facial expression was tagged as “E” with the following categories identified during the manual GT analysis: smile (E1), raised eyebrows (E2), frown (E3), grimace (E4), closed eyes (E5), open-mouth as in amazement or surprise (E6), snarl with bared teeth (E7), tight-mouth (E8) and puffed-cheeks (E9). The category E5 is not a component of sign language but was observed especially for IA and is regarded as a hindrance to comprehension. The E7 category was eventually subsumed under the E4 category because only three instances occurred. A delimiter (/) was added in front of mouth-related categories to facilitate search operations, e.g. “bad_E/4”. Mouth morphemes related to spoken language phonemes were transcribed using the phoneme, e.g. E/(pr). However, as noted above, it was often difficult to determine whether these should be regarded as mouth gestures or mouthing of partial words and hence the quantitative analysis is restricted to the axial categories E1-E9. Combinations are expressed in a top-down hierarchy, starting with eyebrows (i.e. E2 or E3), then eyes (E5), then mouth gestures, e.g. “Ibig_E25/9” indicates that the interpreter simultaneously raised her eyebrows, closed her eyes and puffed her cheeks. Sometimes the facial expression changed during the sign. This was conveyed by separating the codes with a hyphen, e.g. “Iindex@_E2-3” indicates that the interpreter changed her initial raised eyebrow expression to a frown while executing the deixis sign.

In order to identify functions of facial expressions, verbs, information and questions were tagged. **Verbs** were prefixed with “V” (e.g. “Vinvestigate_”) and if also iconic, with IV, e.g.

“IVlook@_”. **Information** (such as names, places and quantities) not fingerspelt or in numerical format was prefixed with “J”, e.g. “JJohannesburg”, or if also iconic, with IJ, e.g. “IJone_”. **Questions** were prefixed with “Q”, e.g. “Qwho_E3”.

Both interpreters made extensive use of facial expression. The results for IA’s overall use of facial expression are displayed in Figure 6.23 below:

Figure 6.23: Interpreter A facial expressions



IA used a total of 5087 facial expressions throughout his interpreting. However, there were periods where he was less consistent in using facial expression.

The results for IB are displayed in Figure 6.24 below:

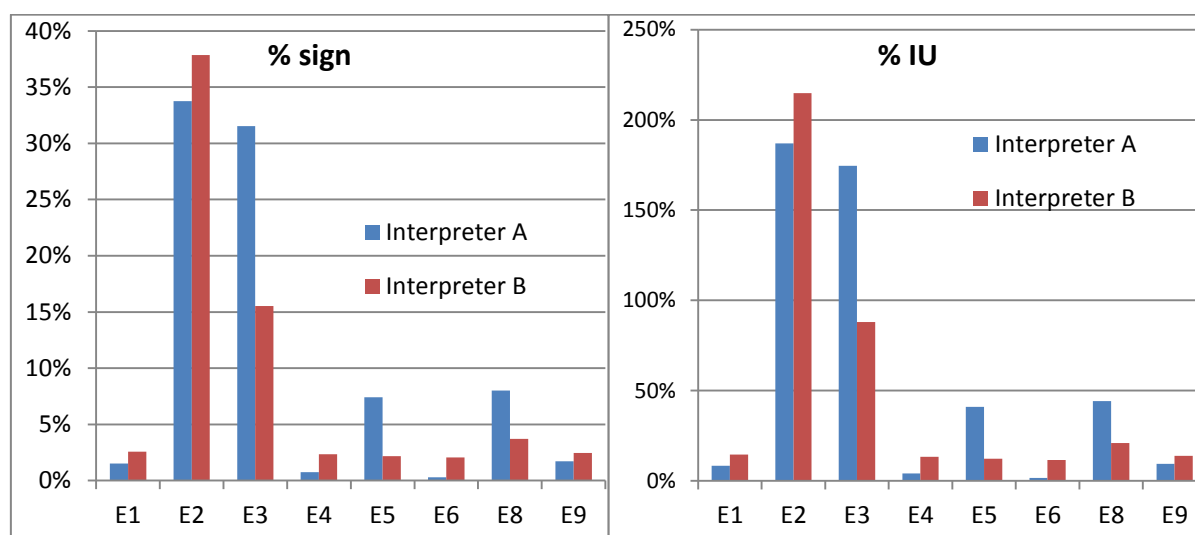
Figure 6.24: Interpreter B facial expressions



It is evident that IB also used facial expression extensively (4858 signs) throughout her interpreting. However, there were also periods where she was less consistent in using facial expression. A striking difference between the two interpreters' use of facial expression is that IB also used facial expression when she was not signing. (The statistics in this section represent only those facial expressions employed together with signs.) In total, IB exhibited another 286 instances of grimaces, raised eyebrows and smiles not attached to a sign. For example, IB often started sentences with E2/6 (i.e. raised eyebrows and open mouth) and ended them with E1 (i.e. smiling).

The axial categories identified in the GT analysis were then explored for each interpreter. The results are tabulated in Table F5 of Appendix F and are depicted in Figure 6.25 below:

Figure 6.25: Interpreter facial expressions



As can be seen from the data above, the most common facial expressions used by both interpreters are raised-eyebrows (E2), followed by frowning (E3). Both interpreters made much less use of mouth gestures. IA made greater use of frowning, closed-eyes and tight-mouth than IB, whereas IB made greater use of other mouth gestures than IA.

6.6.2.1 Raised eyebrows (E2)

IA used raised eyebrows (E2 = 2415 signs – i.e. an average of 34% of signs and just under twice every IU) throughout his interpreting; but not always regularly, exhibiting periods in which he did not raise his eyebrows. He used raised eyebrows primarily to signal information (numbers, places, times, dates and fingerspelling) (1629 tokens), iconic signs (1098 tokens), topic signs (813 tokens) and other discourse devices, e.g. deixis and reference, sequential ordering of items and conjunctions (355 tokens). Similarly, IB uses raised-eyebrows throughout her interpreting (3044 tokens) to mark iconic signs (1459), topic signs (1082),

information (608), verbs (564) and discourse devices (430). Although a full quantitative study was not possible with the present annotations, it was also found that IB marked certain signs intrinsically with raised eyebrows, e.g. “but”, “for”, “how”, “government”, “court”, “danger”, “police”, “say”, regardless of whether they were topical. As observed in Section 6.5.3 above, IB also raises her eyebrows to mark points of emphasis.

6.6.2.2 Frown (E3)

Although less frequently than raised eyebrows, IA frowns throughout his interpretations with varying degrees of consistency (E3 = 2256 signs, i.e. 32% of signs and just under twice every IU), mostly to mark iconic signs (1268), verbs (422), information (333), discourse devices (294) and topic signs (151). There is therefore overlap between the E2 and E3 categories in terms of information and structure marking. There was also fairly strong correlation between verbs and E3 with concomitant mouthing, which suggests that IA uses frowning to signal predicates (or the comment part of the topic-comment sentence structure). However, his use of frowning is not unambiguous. It was also not always related to the sign and may be due instead to external factors such as strong studio lights.

IB also frowns (E3 = 1250 signs) throughout her interpretations with varying degrees of consistency, less frequently than raised-eyebrows and much less frequently than does IA. She uses frowning mainly to signal iconic signs (711), verbs (409), information (85), discourse devices (158), interrogative questions (76) and topic signs (70)⁴. However, equally strong correlation was observed between IB’s use of raised eyebrows as opposed to frowning with verbs and interrogative question signs. Thus, while it appears that IB uses frowning primarily for predicate marking, modality and questions, the variation observed in her use of frowning indicates that the marker is not assigned a clear function, which may hamper comprehension. Topics, nouns and adjectives marked by frowning often had negative connotations, e.g. “Irain”, “crime”, “difficult”, indicating that she uses frowning as adverbial modifiers as well as syntactic markers.

6.6.2.3 Closed eyes analysis

An analysis of instances in which the interpreters closed their eyes was done since eye contact is a Deaf norm and loss of eye contact in Deaf culture signals ending a conversation. These occurrences therefore present impediments to comprehension. The results for IA are presented in Figure 6.26 below:

⁴ Unfortunately, the complex embedded annotations did not allow for accurate use of the collocation tool in order to do quantitative analyses of these categories. The frequencies given are based on the most frequent signs only and therefore present minimum values.

Figure 6.26: Interpreter A closed eyes



As can be seen from the data, the distribution is not regular. The occurrences can be partly explained by tiredness, but it is suggested that the frequent occurrences in files three and four may be due to too bright studio lights. If so, these may tire an interpreter and may also account for IB's greater use of frowning.

The results for IB are presented in Figure 6.27 below:

Figure 6.27: Interpreter B closed eyes (E5)



IB closes her eyes much less frequently than IA and is mainly caused by her looking at her hands rather than at the audience.

6.6.2.4 Mouth gestures

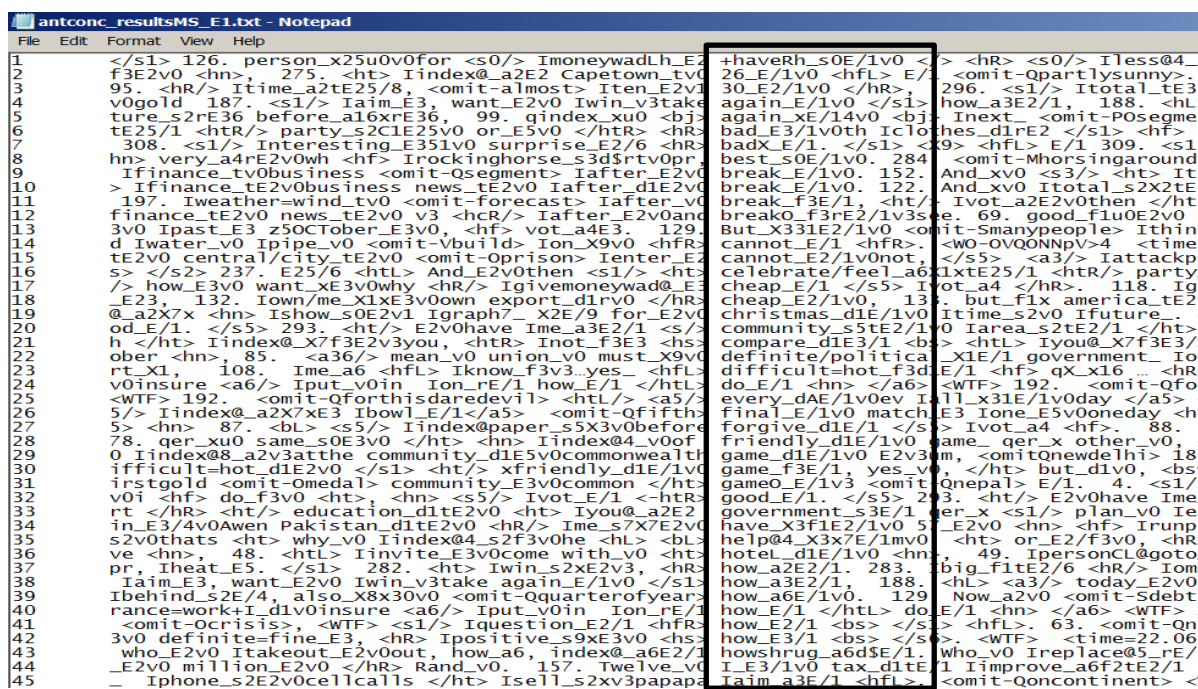
Mouth gestures that could be quantified from the corpus annotations included E1 (smile), E4 (grimace), E6 (gasp), E8 (tight lips) and E9 (puffed cheeks). As can be seen from Figure 6.25 above, compared to their use of eye-brow related expressions (E2 and E3), both interpreters make minimal use of mouth gestures. Hence, the accusation made by Deaf respondents in Chapter 5 that the interpreters do not use expression is true with respect to mouth gesture.

IA's most frequent mouth gesture is tight lips (E8). Although many signs were related to directional aspect (e.g. "Imove_E8"), reference (e.g. "Iindex@_E8"), intent (e.g. "Iwrite_E8") or tense (e.g. "future_E8"), the tight mouth may also simply reflect recent policies in certain Deaf circles to do away with mouthing. Analysis revealed that IA smiles (E1) to express warmth in greeting and to signal happy or funny stories. In contrast, he grimaces (E4) to signal verbs such as "investigate", "look" and "compare", often with critical or negative connotations. The puffed-cheeks mouth gesture (E9) was primarily used to express intensity (e.g. "Imarch", "Icloud!", "Ilightning") or increase over time (e.g. "establish", "Itemperature"). Sometimes these functions combined, e.g. "Ipressure_E2/9" indicates both intensity and magnitude. Although he made minimal use of mouth gestures, IA showed consistency in their use.

Although IB similarly seldom used mouth gestures in comparison to eye-brow related facial expressions and similarly mainly used tight-lips (E8), she displays a wider range and more frequent use of mouth gestures than IA. Tight-lips (E8) was used predominantly for iconic signs (e.g. "Irain_E3/8") and reference (e.g. "Iindex@_a2E2/8"), but also appeared to be inherent to certain signs, e.g. "Icontinue_s0E3/8". Smiling (E1) was mainly used to express amusement or friendliness, e.g. "Iwelcome_E2/1v0", but was also used randomly. Grimacing (E4) was mainly used to express negative emotion together with frowning (E3), e.g. "Iattackpl@1CL_E3/4". Open-mouth (E6) was mainly used to express reference (e.g. "Iindex@_a2E2/6") or intensity (e.g. "struggle_E2/6"), but the use was not consistent. Puffed-cheeks (E9), however, was consistently used to mark intensity, e.g. "Iwind!_tE3/9". As noted above, IB also often opened her mouth and raised her eyebrows (E2/6) while raising her hands from the folded position to start a new sentence, and often remained smiling with hands in folded position at the close of a sentence (E/1). She also used phoneme-related mouth gestures to a much greater extent than did IA. For example, of the 66 instances of the mouth gesture "pr", 62 were performed by IB.

However, she showed less consistency than IA in using mouth gestures. This is illustrated in the first 45 concordance search results for E/1 (smile) in Figure 6.28 below:

Figure 6.28: Interpreter B smile (E1)



(The words in the grid are the result of the concordance search.) While some signs e.g. “celebrate” (line 16), “good” (line 32), are usually accompanied by a smile, the excerpt shows instances where smiling is unjustified, e.g. its use while signing the interrogative “how”, the auxiliary “cannot” and the adjective “difficult”. In these cases the smile suppresses the natural facial expressions as well as contradicting the semantic meaning conveyed by the sign. In the latter two examples, it may be that IB intends to produce tight-lips (E8) but over-emphasises the gesture into a smile. However, that she tends to produce an emotional expression instead of semantically relevant mouth morphemes is demonstrated in the frequent use of smiling in the formula “after (the) break”, e.g. “FINANCE AFTER BREAK (smile)”, as well as in signing “how”, e.g. (line 37) “WIN HOW? BIG OMELETTE...” initiates an amusing story.

Similar unusual uses were also observed for the other categories of mouth gesture, for example IB tended to use open-mouth (E6) frequently to signal deixis and reference (e.g. “ASK AMERICA_E/6 INDEX_E2/6 ENGLAND HELP”) or lists (e.g. “KG OF SUGAR INDEX@1234_E/6”). Inconsistencies were also observed, e.g. she sometimes signed “how” with a smile (as noted above) and sometimes with open-mouth.

In the next section, the interpreters’ use of head and body movements are discussed.

6.6.3 Head and body movements

As noted in Chapter 2.5.5, **head and body movements** are important prosodic, grammatical and syntactic markers. In the corpus, they are annotated with coded descriptives in angle

brackets. As is customary in sign languages, directions are given from the signer's perspective. The codes for head and body are as follows: h = head, b = body, t= tilt, f = forward, c = cock to one side but face still forward, n = nod, s = shake/shrug, sway, L = eyes left, R = eyes right. Centre position is default and therefore unmarked. For head movements, L and R indicate the direction that the eyes turn. Thus <htL> means the head is tilted back so that the eyes look to the signer's left. Similarly, <hR> <bL> means that the face is turned to the signer's right whereas the body is turned to the signer's left. For <htL>, <hL> and <hfL>, the eyes are turned to the signer's left, but the first represents a head tilt, the second a simple head turn, and the last represents the signer looking down towards her left. However, <hcL> means that the head is cocked to the signer's left, whereas the eyes still look straight ahead. Likewise, <hn> indicates a head nod (as in affirmation), <hs> a head shake (as in negation) and <bs> a shrug (shake) of the body. The term <bsway> was also devised to depict swaying movement. Although derived independently, these codes are similar to those used in the SOI corpus described in Chapter 3.10. The results of the interpreters head and body movements are presented in Table F6 in Appendix F.

Both interpreters made extensive use of head movements. IA makes more head movements (3455 = 48% of corpus tokens and 2.7 per IU) than IB (3137 = 39% of corpus tokens and 2.2 per IU). However, these differences are not significant, since the results of one interpreter fall within the standard deviations of the other. Analysis of IA's concordance list revealed that head movement was used 467 times to signal topic, 764 times to initiate a new IU, 562 times to initiate signing after other logical pauses and 564 times to close off an IU. These results indicate that IA uses head movements as punctuation in order to emphasise sentence structure, thereby facilitating comprehension. Analysis of IB's head movements similarly revealed that head movement is used 782 times to signal topic, 745 times to initiate a new IU, 397 times to initiate signing after other logical pauses and 692 times to close off an IU, i.e. that she similarly uses head movements to signal discourse and syntactic structure. 1454 of IB's head movements are associated with mouth gestures expressing emotion, indicating that she used head movements to express emotion rather than theme-rheme structure. Other correlations with head movements included other forms of punctuation (apart from beginning IUs) (495), omissions (136), substitutions or additions (131), iconic signs (1065) and fingerspelling (127). Textual analysis revealed that IA is more consistent in co-ordinating head movements with logical pauses, thereby facilitating comprehension, whereas IB's head movements do not correlate strongly with sentence structure. This is illustrated in the following examples which have been structured according to head and body movements:

Example 1 (E10E051010 lines 23-28, IA):

```
23. <hn> Ifirst_d1E2v0 JZimbabwe_v0
    <ht> Usecond/first_X1xrE2v0 which_rE2v0 country_E2v0, <hs> dontknow_v0 </ht>.
24. Index@6_a2E2 <hn>,
    <hf> IpaperO@me_r3E25v0applications <hn>
    <hfl> IVwrite_a3E2/8 <omit-Qapprox> IJsix_tE2v0
    <ht> Jthousand_tE2 namepl_x9tv0name <hn> Zimbabwe_tE2v0zim Index@_a2v3babwea
    25. <hfR/> Ipast_v0last week_v0
    </hfR> Isofar_s2 IJsix_E2/1v0 Jthousand_E2v0thou. 26. IJsix_E2v0 Jthousand_E3v0
    <hL> few_E3v3little <hn>, Imore_E3v0 <hR> Jmillion=000_Ed3rv0 ItheyM@_rE3.
27. <htL/> Iindex@4_v3there department_v0depart </htL>
    <hL/> <hf> Vinvestigate_rE/8 IVthink_v0 Iregion_E3/8
    </hL> IJone_tE2v0 Ipoint_tE2v0 IJfive_tE2v0
    <ht> Jmillion_tE2v0 JZimbabwe_tE2v0
    </ht> <hn> person_ <hn> Ihere_s2d1 <hn>.
    28. <hfR> Iall@1234_tE2v0 Vmust_tE2v0
    <hf> SA_a3x11f1tE2v0 Vneed_v0 Ipaper_v0.
```

Back-translation: (nod) FIRST ZIMBABWE (ht) SECOND WHICH COUNTRY, DON'T-KNOW. INDEX (hf) DV:give-paper-to-me (nod) (hfl) WRITE SIX (ht) THOUSAND NAMES (nod) ZIMBABWE INDEX (hf) LAST WEEK (returns head to central position) SOFAR SIX THOUSAND. SIX THOUSAND (hL) FEW (nod), MORE-THAN (hR) MILLION THEY. (ht) INDEX DEPARTMENT (hL) INVESTIGATE THINK REGION (returns head to central position) ONE POINT FIVE (ht) MILLION ZIMBABWE (nod) (returns head to central position) PERSON HERE (nod). (hfR) ALL MUST (hf) SOUTH-AFRICA NEED PAPER.

The example shows that IA uses head movement consistently to mark the beginning of new interpreting units as well as marking topic-comment structures with head tilts. In fact, each phrase is signalled by head movement. He also frequently uses head movement to emphasise information (e.g. thousand, million) and to provide affirmation (e.g. line 25: “few (nod), more-than million they”). The head movements serve to increase both coherence and cohesion.

Example 2 (E10E081110 lines 41-44, IB):

```
41. Council_E2v0
    <htR> IVsay_s2tE2v0 Iindex@_a2 <htL> IVbuild_u0E2v0 <bj> Ihouse_u0E2
42. <hcR/> Iunder@land_E2v0under <bj> Ipipe@_E9
    </hcR> water_v0 Ipipe_E9 IVconnect_E9 Ito_f1u0v0 water_s2X2f1u0 Idam_Cs0v0, 43. Ime_a2 IVthink_a6E4v3
    <htL> afraid_d1E4v0th, z6IF_E2v0
    <hf> Ipipe_v0
    <-ht-> IVburst_E29-v1pow,
44. <-hf> Ihouse_E3v0 Isquish_s2E34v0th Ivot_a4E1.
```

Back-translation: COUNCIL (htR) SAY INDEX (htL) BUILD HOUSE (hcR) loc:under-land PIPE (returns head to central position) WATER PIPE CONNECT TO WATER DAM, ME THINK (ht) AFRAID, IF (hf) PIPE (ht) BURST (hf) HOUSE DAMAGE THAT'S-HOW-IT-IS.

The example shows that IB uses head movements to effect topic-comment divisions in line 41: “COUNCIL (topic) SAY (comment)” and line 44: “... – HOUSE SQUISH VOT (comment)”. She also uses head movement to initiate new interpreting units, e.g. the beginning of lines 42 and 44. However, she is not consistent in applying head movements. She sometimes keeps her head in the same position even when initiating a new IU, as seen in the beginning of line 43: “WATER DAM, ME THINK AFRAID”, the coherence of which would have been greatly improved

had she used a head movement to mark the new path of logical thought. At other times, she changed head or body position after every word, as seen in line 41-42: “<htL> BUILD <bj> HOUSE <hcr> LOC:under-land <bj> PIPE </hcr> WATER” and in line 43-44: “<hf> PIPE <ht> BURST <hf> HOUSE”, thereby damaging coherence in terms of syntactic and prosodic markers.

Both interpreters make minimal body movements that appear to be random, although IB (176 = 2.2% of sign tokens and 13% of IUs) makes double the use of body movement than does IA (79 = 1.1% of sign tokens and 6% of IUs). She occasionally uses body together with head movements to punctuate her sentences and certain signs are consistently used with body movement, e.g. “WHAT” (shrug) and “HOW” (jerk or shrug).

In the following sections, the transcriptions are explored as interpreting products in order to be able to describe the competencies of the interpreters in their professional capacity, thereby answering RQ5.

6.7 Interpreting choices

As discussed in Chapter Four, in a DTS-based model, features of the interpreting process are identified and quantified using Toury’s (1995) three categories of substitutions, additions and omissions, i.e. *shifts*. As noted in the introduction to this chapter, shifts should not be confused with *strategies*. Shifts are identifiable, quantifiable features of the TT, the empirical results of (both conscious and unconscious) decisions made by the interpreter during the interpreting process. Their identification can lead to deductions regarding the interpreter’s possible underlying norms and strategies (although this is not the primary focus of the present study) as well as to an understanding of possible points of misunderstanding when the TT is mapped onto the TL worldview. Strategies, on the other hand, are motivations which exist in the interpreter’s head.

As noted in Chapter Four, there are three kinds of shifts, namely *additions* (i.e. TT elements that have no corresponding ST element), *omissions* (i.e. ST elements that have no corresponding TT element) and *substitutions* (i.e. TT elements that have a corresponding, but not necessarily equivalent ST element) (cf. Shlesinger 2000a). *Substitutions* include *equivalents* (i.e. corresponding to Delabastita’s (1993) use of the term), *skewed substitutions* (cf. Cokely 1992; Strong & Rudser 1985) and *reformulations* (Bartłomiejczyk 2006) (i.e. substitutions above lexical level, also termed *paraphrase* (cf. Cokely 1992)).

In the following sections, an exploration of shifts (substitutions, additions and omissions) is followed by analysis of interpreter errors and self-corrections and correlation of shifts and error categories.

6.7.1 Substitutions

The following substitutions were identified and tagged during the manual analysis:

- s0: A synonym, related word on the same semantic level or iconic representation is used instead of an equivalent, e.g. “murdered” (ST) → “SLITTHROAT” (TT);
- s1: The ST phrase/clause is replaced by a phrase/clause of similar meaning but different form, e.g. “not been convicted” (ST) → “STAND INDEX COURT NOTYET” (TT);
- s2: The TT element has a more general or condensed meaning than the ST element, e.g. “insist” (ST) → “SAY” (TT);
- s3: The TT element has a more specific meaning than the ST element, e.g. “we” (ST) → “SOUTHAFRICA” (TT);
- s4: The TT element has a similar form to the ST element or a spoken language equivalent but is unusual in the TL, e.g. “fire line” (ST) → “FIRE LINE” (TT);
- s5: the TT element has a different meaning to the ST element, e.g. “12 months” (ST) → “TWO YEAR” (TT);
- s6: The corresponding TT element’s content is meaningless or incoherent, e.g. “it’s time for the latest forecast” (ST) → “LOOK YOU HOW LOOK WHAT HAPPEN” (TT);
- s7: The TT element differs from the ST element in perspective, tense or modality, e.g. “they’re happy to move” (ST) → “ME CLAP ME MOVE” (TT);
- s8: The TT element corresponds to an element in a previous or future ST IU (i.e. matricial shift);
- s9: Multiple TT elements correspond to a single ST element, e.g. “informing” (ST) → “ASK WARN SAY” (TT).

Comparing shifts to the interpreter strategies elicited in Chapter Two (cf. Bartłomiejczyk 2006; Caymayd-Freixas 2011; Katan 1999; Kalina 1998; Wallmach 2000), it is evident that:

- s0 can be related to *adequate approximation* and *resisting transfer* strategies;
- s1 to *syntactic reformulation* and *paraphrase* strategies;
- s2 to *chunking up*, *condensation* and *neutralisation* strategies;
- s3 to *chunking down* strategies;
- s4 to *reproduction*, *transfer*, *instant naturalisation* and *transcoding* strategies;
- s5 to *syntactic* and *parallel reformulation* strategies;
- s6 to *continuous output* strategies;
- s7 to activation of the *first-person interpreting norm*;
- s8 to *compensation* strategies;
- s9 to *repair* strategies.

(In other words, the existence of these strategies may be deduced from the empirical evidence of the TT transformations.) However, as noted above, the primary focus of the study is not to deduce strategies but to determine whether shifts facilitate or destroy textual coherence.

Substitutions may occur at sign or higher discourse levels (in this study defined as shifts at IU level). The following excerpt (from E10E221010 line 25) contains substitutions at sign level:

TT: all_ charge_ shoot_s3rv1 , take_s2v0rob , index@1234_s2v0 ... (Back-translation: ALL CHARGE SHOOT, TAKE, LIST.) ST: They've all been charged with murder, robbery with aggravating circumstances and kidnapping.

This excerpt contains three examples of substitutions. Firstly, “murder” (ST) is interpreted as “SHOOT”, which is more explicit than the ST and therefore carries the s3 tag. Secondly, “robbery with aggravating circumstances” has a more specific meaning than “TAKE”, which therefore carries the s2 tag. Thirdly, “kidnapping” is interpreted as a “LIST” of unspecified charges. This is less explicit than the ST and therefore carries the s2 tag.

The following excerpt (from E10E051010 line 5) contains a substitution at IU level:

TT: ETV <s5/> GREET WELCOME, THANK LOOK </s5/>. ST: This is enews late edition, I'm Amy Brooks, good evening.
--

The s5 annotation indicates that the interpreter changed the source message by substituting his own greeting instead of translating the ST message (possibly due to sensitivity to Deaf cultural norms). This change occurred at the level of clause.

It must also be noted that because of the time constraints and the often unstructured nature of the ST, interpreters seldom managed to restructure sentences into O (topic) – SV structure typical of SASL (cf. Chapter 2.5.5.3), instead retaining the ST subject as topic at sentence level, as is demonstrated in the following excerpt (from E10E171110 lines 19-21:IA):

19. <u>BRITISH TOUR PERSON</u> (t) PAST DIE SHOOT INDEX WHAT GuGuLETU CAPETOWN 20. THINK <u>CAR</u> (t) LOC:index@car IMPORTANT. 21. <u>MAN</u> (t) PERSON 26 OTHER CHARGE FOR HIJACK (br) ALSO DV:slit-throat INDEX LOC:index@person DEWANI.
--

Strictly speaking, the whole story should have been restructured around a single main topic, which, given the unstructured nature of the ST version, could only have been achieved with thorough prior preparation. Instead, the interpreter chose to adhere to the subject-foregrounded sentence structures used in the ST. However, in fairness to the interpreters, given the difficult nature of their task, such retopicalisations were not marked as s4, which was only assigned if the resulting TT structure was highly unusual.

The results of the analysis of IA's substitutions are displayed in Figure 6.29 below:

Figure 6.29: Interpreter A substitutions



IA regularly made changes to the original message. Most of the 1199 substitutions occurred at sign level, whereas 406 substitutions occurred at IU level. At least 17% of all signs and 93% of all IUs involve a substitution.

The results of the substitution analysis for IB are displayed in Figure 6.30 below:

Figure 6.30: Interpreter B substitutions

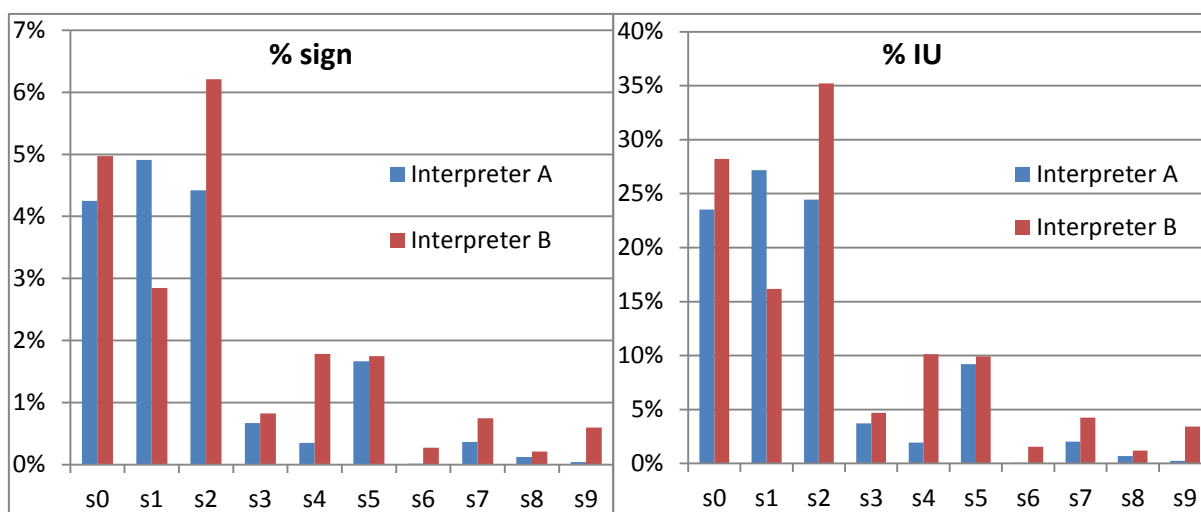


IB regularly makes changes to the original message, even more so than does IA. At least 19% of all IB's signs and 109% of all her IUs involve substitution, i.e. just over one substitution per IU.

The data for each axial category for the two interpreters are presented in Table F7 in Appendix F and compared at sign and IU levels in Figure 6.31 below. The frequencies given

in the table are the sum of both *_s#** (at sign level) and *<s#/>* (at IU level) occurrences. Since IU substitutions involve at least two signs, the “% sign” represents minimum values.

Figure 6.31: Interpreter substitutions



Most of IA’s changes involve reformulation (s1), simplification (s2) or choosing a different word at the same semantic level (s0). These choices suggest that IA does not follow the ST but interprets the sense instead. This is corroborated by the minimal duplication of ST collocations (s4). Although his not following the ST results in meaning changes or different data in 9% of all IUs, only once did this lead to incoherence (s6). IA seldom uses a more specific meaning (s3) and rarely offers a second interpretation (s9), thereby not placing demands on the already tight time constraints. The low frequency of s8 occurrences also indicates that IA prefers to interpret chunk by chunk, with minimal anticipation or compensation from other chunks, thereby not placing extra demands on memory capacities. Thus it may be deduced that IA attempts to translate the meaning of the text, regarding the ST form as replaceable. This is in accordance with accepted interpreting norms (Jones 1998:88) and especially with Deaf interpreting norms (Stone 2009). His product is simpler than the ST.

IB’s most frequent substitutions (in order) are simplification (s2), choosing a different word at the same semantic level (s0) and reformulation (s1). She reformulates less than IA and is more inclined than he is to follow the ST (s4). Meaning changes (s5) are similar for both interpreters, but IB’s incoherent substitutions are slightly greater than IA’s. She is also more inclined to alter perspective (s7) or repeatedly interpret elements (s9). Like IA, she seldom compensates (s8), although she does so more than he.

It is evident from the above that IA prefers reformulation (s1), whereas IB is more inclined to simplification (s2). For both interpreters, the frequencies of the first three types of substitutions are far greater than the other types. Hence, although adherence to the ST

structure (s4) or altering information (s5) may affect audience comprehension, the above data indicates that the greatest substitution effect contributing to comprehension or lack thereof must come from s0, s1 and s2. Correlation of interpreter substitutions with error categories is further explored in Section 6.7.5 below.

The transcriptions were also analysed for all occurrences of the first person (i.e. ME, MY) as an indicator of a hearing SI norm of interpreting in the first person, which, as discussed in Chapter Two, may conflict with Deaf expectations. However, first-person direct quotes (e.g. in interviews) are not regarded as s7 shifts if the ST also has the first person, e.g. “I don’t know...” (ST) → “ME NOT-KNOW” (TT) is not an s7 shift. Analysis revealed that IA interprets in the first person 80 times, i.e. in 6% of his IUs, whereas IB interprets in the first person 170 times, i.e. in 12% of all her IUs. However, IA used perspective changes meaningfully, whereas those of IB’s often had little justification. IA consistently restricted the first person to interviews (thereby mirroring ST personal perspective) and to adequately signalled (using eye-gaze, facial expression and head movements) constructed action and dialogue during presenter scenes (thereby also mirroring ST personal perspective in interpreting the scenes primarily in the third person). In contrast, IB frequently changed to the first person in presenter scenes, e.g. (E10E061010, lines 20-30):

TT: CAPETOWN AREA COMMUNITY TWO ANGRY WHY COUNCIL AREA SAY INDEX@LAND DV:off@land H-A-N-G-B-E-R-G_(t) INDEX@CL SAY@6 WANT COURT ME ORDER INDEX@ DV:off@land FIRE LINE OFF WARN THESE-TWO I-M-A-Z-A-M-O SECOND Y-Etu SECOND AREA SAY DANGER AREA WATER PIPE ON CANNOT. FIRST H-A-N-G-B-E-R-G GOVERNMENT COURT DV:go-with@4 ME ASK WARN, SAY ASK COUNCIL THERE SAY ENTER COURT TRY OFF. ST: Two Capetown communities are enraged that the city wants to evict them. Officials today informed residents of Hungback that the council intends applying for a court order to remove them from structures built on the fire line. The city also set its sights on the nearby Enzemuyetu settlement where they say people have built their homes on dangerous grounds that houses a major water pipe. There was no resistance in Hangberg as the Sheriff of the court moved in, informing residents that council is going to court to try and have them evicted.
--

The changed perspective could be attempts at constructed dialogue or role-play (she takes the perspective of the Hangberg residents), but this is not signalled. Moreover, in the same story the perspectives of the city council and the Enzemuyetu residents are also conveyed in the first person, also without signalling changes in perspective and while it was still used to maintain the Hangberg residents’ perspective.

In the next section, interpreter additions to the ST are examined.

6.7.2 Additions

The following categories of addition were identified and tagged in the manual analysis:

- a1: repetition, e.g. “INDEX@ YES INDEX@_a1 HOUSE BAD”;

- a2: addition of SASL discourse markers, e.g. “INDEX@” (reference), “FIRST... SECOND” (hierarchical ordering of information);
- a3: explicitation and explanations, e.g. “<a3/> FINANCE GROUP </a3> DELOITE”;
- a4: affirmations and other statements of emphasis, e.g. “YES”, “VOT”;
- a5: new information not linked to a corresponding ST element, e.g. “SA FOOTBALL ASSOCIATION <a5/> SAY ANGRY </a5> ...”;
- a6: meaningless, non-functional or incoherent TT content not linked to a ST element, e.g. “SAME STORY VOT... INDEX@ SAY_a6 ME_a6 COMMUNITY DOntSE”;
- a8: anticipations, e.g. “NEXT_a8 LOOK BAND”.

Originally, SASL discourse marker additions were distinguished as directional (a2) (i.e. pertaining to references, e.g. “INDEX@4”) and non-directional (a7) (e.g. “FIRST... SECOND”), but because the latter only had a few elements, it was subsumed under the a2 category.

The results of the analysis of additions for IA are displayed in Figure 6.32 below:

Figure 6.32: Interpreter A additions



The 853 additions amount to 66% of IA’s interpreting chunks and at least 12% of his signs.

The results of the analysis of IB’s additions are displayed in Figure 6.33 below:

Figure 6.33: Interpreter B additions



It is evident from the above figure that IB makes more additions than does IA. The 1110 additions amount to 79% of IB’s interpreting chunks and at least 14% of her signs). However, IB’s additions often contain errors and increase incoherence. Correlation of additions with errors is explored in Section 6.7.5, but the example below illustrates that IB’s additions contribute to textual incoherence and overload her capacities.

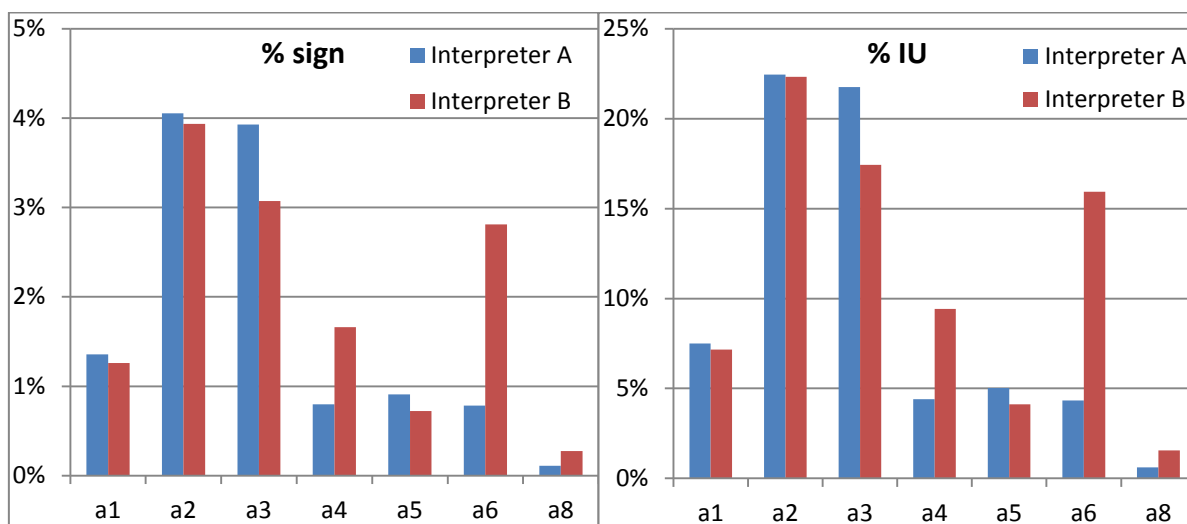
Example 1 (E10E290910 lines 176-77):

TT: GHANA, BANK U-T <a3/> NAME WHAT </a3> <WO> qer_x (nod) <omit-Vmayconsider> IN_a6 JSE PUT ON <WO> THERE-IT-IS_a4, <omit-Qchiefexecutive> <omit-SkoffiAmorebank> INDEX TAKE_a6 SELL <a6/> SAY GROUP ME FEEL BUY_X3 MY OWN </a6> <WTF> <WO> 20 PERCENT OFFER FOR INTERNATIONAL PARTNER MAYBE.
 ST: Ghana’s UT Bank may consider listing on the Johannesburg stock exchange. The company's chief executive, Koffi Amore Bank says the group is also interested in selling up to 20% of the bank to foreign partners...

The above excerpt contains five examples of additions. Firstly, the placing of the explicitation NAME WHAT after BANK U-T is incorrect (<WO>) and the hesitation (“qer_x”) indicates that it presents a disruption to IB’s train of thought. Secondly, both additions IN JSE and TAKE SELL are functionless and grammatically incorrect. IB indicates that she realises the first is insufficient by re-interpreting with PUT ON. Thirdly, she adds an emphasis, THERE-IT-IS_a4”, which also adds nothing to the interpretation. Finally, the aborted explanation SELL <a6/> SAY GROUP ME FEEL BUY MY OWN </a6> is incoherent. The omissions and factual error (X3) betray the pressures of time constraints and capacity overload.

Axial categories of additions for the two interpreters are tabulated in Table F8 in Appendix F and the results compared in Figure 6.34 below. As above, “% sign” represents minimum values.

Figure 6.34: Interpreter additions



IA's most frequent additions are explicitation (a3) and the addition of SASL discourse devices (a2). IA includes more explicitations than does IB, although IB's explicitations tend to be longer, i.e. she mainly adds phrases rather than single signs. Of IA's 281 explicitations, 48 comprise explicitation of implicit topics, (e.g. "CLOTHES_a3 WHITE DRESS") and thus could be viewed as necessary additions in terms of SASL structure. Therefore, the results indicate that IA mainly adds to the ST message when the SASL structure demands it or when he thinks it necessary to explicate implicit ST information. The lack of other additions indicates that IA adheres to the reliability norm.

Similar to IA, IB's most frequent additions are in order to incorporate SASL discourse markers (a2), followed by explicitation (a3). Both interpreters make relatively the same amount of additions to incorporate SASL structural elements. Of IB's 315 a2 additions, 204 (i.e. 65%) are added reference signs (e.g. "INDEX@_a2"). Although, like IA, most of her explicitations relate to information implicit in the ST, she occasionally adds information or action taking place in the main picture, e.g. in "<a3/> DV:breakegg, DV:eggflow DV:put-in </a3/>" she lexicalises (using role-play) chefs cooking an omelette as depicted in the main picture. However, IB's tendency to add meaningless or functionless elements (a6) (her third most frequent category of addition which affected 16% of her IUs) constitutes the main difference between the two interpreters in terms of additions and can be considered a factor hampering audience comprehension. These primarily consisted of aborted explanations. She also inserts more affirmations (a4) than does IA, thereby placing demands on time constraints.

In the next section, interpreter omissions are explored.

6.7.3 Omissions

Following Toury's model, omissions were also examined. Since *Antconc* does not cater for a parallel corpus, omissions are annotated in the TT as <omit-Rx>, where R is the category code and x represents the omitted material. For example, in "<omit-Vwasasked>", R = category V (predicate verb) and x = "was asked". Omitted ST words are rendered in lower case in order to avoid confusion with codes, and also written as single words (separated by hyphens if necessary) in order to reduce erroneous word counts. In the case of sentence, clause or list omissions, only the gist is transcribed. In cases where the anchorman continues to speak but the interpreter is removed from the screen (e.g. sports listings), the IU is transcribed as <omit-blocked>. Moreover, since interpreters never interpret the names of anchormen, these segments are transcribed in the TT as <omit-namereporter>.

The following categories of omissions were found in the manual analysis:

- V: omission of predicate verb (i.e. verb phrase head), e.g. UNION <omit-Vsign> PAPER;
- S: omission of subject (i.e. sentence noun phrase), e.g. <omit-Sunions> SIGN PAPER;
- O: omission of predicate objects on which meaning depends, e.g. UNION SIGN <omit-Odocument>. This category was expanded to include indirect objects upon which meaning depends as well as direct transitive objects.
- L: omissions of items in a list, e.g. <omit-Lmbombela>;
- Q: omission of adjectival or adverbial modifiers which contained information but not vital elements of sentence structure, e.g. BOSS <omit-Qmangane>;
- T: omission of topic that is not also a subject, e.g. <omit-Telections> MANY-PEOPLE OUT YESTERDAY;
- U: omission of conjunction, e.g. <omit-Uand>;
- P: omission of proposition or propositional clause, e.g. <omit-Ppretoria27>.

The annotations were based on subject/verb/object patterns (rather than NP and VP patterns according to generative grammar) because SASL exhibits flexibility with regard to grammatical categories, which makes it difficult to assign unequivocal parts of speech (POS).

Qualitative analysis revealed that there were basically three types of omissions. Firstly, information was omitted without affecting vital sentence structure. These included information-carrying adjectival and adverbial modifiers (Q), whole propositions or propositional clauses (P) and list items (L). These omissions result in less information being transmitted, but do not damage sentence structure and therefore should not hinder comprehension. Secondly, elements vital to sentence structure (i.e. subjects (S), objects (O), predicate verbs (V), conjunctions (U) and topics (T)) were omitted. These omissions are

regarded as hindering comprehension. Thirdly, ST discourse devices and phrases not containing vital structure or information were omitted. These were collectively analysed under the category “o-bits”.

The results for the omissions analysis for IA are displayed in Figure 6.35 below:

Figure 6.35: Interpreter A omissions



The above figure shows that IA omits ST elements frequently throughout his interpreting, with 51% of his interpreting chunks or one omission for every ten signs containing omissions.

The omissions analysis for IB is displayed in Figure 6.36 below:

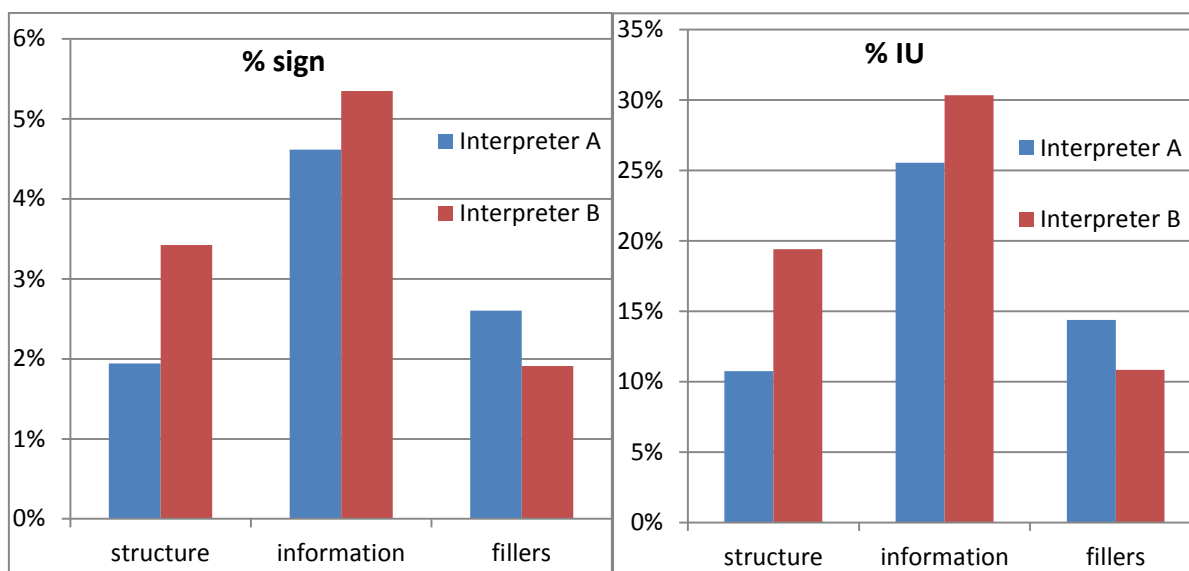
Figure 6.36: Interpreter B omissions



It is evident that IB also omits ST elements frequently throughout her interpreting. She omits more elements than does IA, i.e. in 61% of her IUs.

The proportional frequencies of the axial categories for each interpreter are presented in Table F9 in Appendix F and are compared in Figure 6.37 below:

Figure 6.37: Interpreter omissions



The main result of both interpreters' omissions is loss of information, which implies simpler texts with loss of detail, but these omissions should not impede comprehension. It is suggested that the interpreters omit non-essential elements as a means of coping with time constraints. IB loses more information (omit-Q=22%, omit-P=6%, omit-L=2%) than does IA (omit-Q=18%, omit-P=5%, omit-L=3%). IA's second type of omission are bits not containing information or structure (o-bits=14%). These are often ST discourse elements. IB is slightly less likely to omit these (o-bits=11%).

However, it is evident that IB differs from IA primarily in the greater omission of vital structural elements, which would hinder comprehension. She omits vital structure in 19% of her IUs, which amounts to 1.7 vital signs per 50 signs, i.e. approximately two vital omissions per scene. In contrast, IA omits vital structure in 11% of his IUs (just under 2% of his sign tokens), which amounts to one vital omission per 50 signs, i.e. approximately one vital omission per scene and it is suggested that this loss is probably not enough to cause incoherence. Both interpreters are more likely to omit subjects or objects (i.e. nouns) than predicate verbs, possibly relying on the audience's ability to deduce the (now implicit) noun from the context. However, the percentages of IB's IUs exhibiting predicate verb or subject omissions are more than double those of IA. Correlations of omissions with interpreting errors are further explored in Section 6.7.5 below.

In the following section, errors made by the interpreters are analysed. In accordance with the reception-oriented model, an interpreter was deemed to have made an error if the

interpretation resulted in incoherence due to significant loss or distortion of meaning or to severely damaged sentence structure.

6.7.4 Interpreting errors

As noted above, errors were assigned where TT elements contributed towards textual incoherence and not on the basis of equivalence with the ST. Each error type is discussed in detail below. The last four error categories primarily reflect errors at IU rather than sign level.

An **X1 error** was assigned when the interpreter incorrectly used an incorrect sign, either due to confusion of classifier, orientation or movement (i.e. the interpreter inadvertently confuses a minimal pair), e.g. “percentage” (= Fo⁵_m2) instead of “lightning” (= X_m2), or due to similarity of concepts, e.g. “now” (temporal indicator) instead of “here” (spatial indicator).

X2 errors were assigned when the TT element too general or ambiguous to convey even a simplified version of the ST meaning. For example, the substitution of “kidnapping” (in “murder, robbery, kidnapping and other crimes”) by “index@1234” (= several) in “Ishoot_, rob_, Iindex@1234_s2”, was not considered an X2 error since a list of crimes had already been provided. However, the substitution of “Bangladesh” with “vot_index_” (= “here-you-go, this one”) in reporting a cricket game was considered an X2 error since the audience would not be able to derive any information from the TT element. Similarly, the substitution of “Citibank” with the letter “C” was considered an X2 error since without the simultaneously mouthed word, the meaning of the ST element cannot be derived from the TT element. Therefore X2 errors indicate s2 substitutions above superordinate categories of lexical items.

X3 errors were assigned in cases where meanings conflicted between ST and TT due to misinterpretations, e.g. “America” instead of “Angola”. Incorrect tenses or perspectives (originally categorised as X5 errors) were also subsumed into this category. All X3 shifts therefore derive from s5, s7 or a5 categories. Numerals signed incorrectly were represented by glossing each sign separately, with error (and possibly correction) annotation and attached (endnote) comment, e.g. “four_X3 five_C3” (comment: IB starts to sign “4” and corrects her mistake by signing “5”).

X4 errors were assigned when too close adherence to the ST or a spoken language produced combinations that contravened SASL collocations or sentence structure. For example, interpreters often ended sentences with the auxiliary verb “have”, which is characteristic of spoken Afrikaans. X4 errors therefore arise from s4 or a6 categories.

⁵ Fo-CL= thumb and index in O-CL position, with remaining three fingers in F-CL.

X7 errors were assigned to incorrect use of SASL discourse devices, for example, if an interpreter sets up a reference in a particular location in signing space but subsequently refers to that reference in another location. Also subsumed under X7 errors were incorrect use of non-directional SASL discourse devices, such as the repeated use of “second” instead of “third”, “fourth”, etc.

X8 errors were assigned for false starts, i.e. incorrect anticipations of the next interpreting chunk. Thus X8 errors arise from a8 additions. In some cases, interpreters skillfully incorporated the false start into the new segment. These were then not considered errors, because they did not lead to incoherence in the TT. An example of the above occurred when IB incorrectly assumed that the news broadcast had come to an end and began to sign “thank you for looking tonight”, when she suddenly realised that the presenter was moving onto the weather. She skillfully transposed the false start into “<s5/> THANKLOOK SPORT </s5>, <ht> <a5/> AFTER BREAK </a5> LOOK WEATHER”.

X9 errors were assigned when a propositional clause was interpreted by one or two signs (usually keywords), i.e. pidgin sign. Although severely limiting sentence structure and information density, the error does not necessarily imply structural incoherence. An example of an X9 error is given in E10E091110, lines 12-13:

TT: INDEX PERSON(Rh) PERSON(Lh) LOC:pay@person 42 THOUSAND RAND YOU GOOD_a6X9 ST: in which people were paid as little as 42,000 Rand to donate their kidneys to Israeli patients.
--

In this example, IB omits the purpose of the kidney operations, instead offering a cryptic “you good”, a pidgin representation of the transaction between the hospital and the kidney donor. However, the addition does not detract from the meaning of the primary clause.

Illogical pausing or lack of a logical pause was marked as <punct>. These were often due to the fast pace, when interpreters did not have time to conclude sentences before starting the next sentence. This is illustrated in E10E290910, lines 188-189 (IB):

TT: SA SWIM INDEX MAN FOUR TIMES 100 M WIN 2006, MEDAL AIM, WANT WIN AGAIN HOW_a3, TODAY_a3 PLAY_a5 <punct> POOL CLEAN FINE, START, STRONG ... ST: South Africa’s swimmers set the men’s four by hundred metre freestyle record in 2006 and were eager to defend it. After a brief delay to clear some debris from the pool, they got off to a strong start.
--

In the example above, the interpreter was busy with an added explanation when she appeared to run out of time. Instead of concluding her sentence, she simply moved onto the ensuing chunk regarding the pool cleaning, resulting in propositional incoherence.

Sometimes the logical flow of thought was broken by the interpreter pausing, possibly to think of an equivalent, e.g. “SA MEDAL ME BIG, <punct> OMELETTE HAVE ...” (E10E061010

line 276). The pause after “big” implies that the medal, not the omelette, was big, which was not the case.

WO errors were assigned when propositional word order resulted in incoherence. As noted in Section 6.7.1 above, it was not uncommon for SASL news interpreters to favour SVO word order, so the error code was only assigned where sentence structure was severely compromised. An example of incorrect word order is given in the following excerpt from E10E061010 (lines3-4):

TT: MAYBE ME YES WILL IMPACT FOR YEAR <u>ME LOOK</u> . <WO> ST: and so we... <u>we do expect</u> that certainly that will have an impact at the end of the year.

In this example (besides a number of other errors), the segment corresponding to “we do expect” (i.e. “ME LOOK”) is moved to the end of the sentence, but since “YES WILL IMPACT FOR YEAR” has its own predicate, no link is created between the two clauses. WO errors were also assigned where there was no clear relationship between signs, often as a result of pidgin signing, e.g. “INDUSTRY BUSINESS TREE_X9 SAVE” (E10E081110 line 2, IB).

WTF errors were assigned where the discourse at IU level was too incoherent to be able to derive meaning, i.e. coherence had broken down completely due to the absence of either a principal noun phrase or predicate verb phrase, e.g.:

TT: BUT INDEX POLICE BOSS QUALIFIED HOW, <s6/> <u>WHY ALL, HOW TAKE HATE-ME TAKE</u> </s6> <WTF> BUT SAY INDEX CANNOT DO THAT’S-HOW-IT-IS (E10E290910 lines 9-10). ST: With the Metro police chief position still vacant, the duty falls on Mangane to act in that position, one the opposition says he is not qualified to do.

In the example above, the information on the DA’s opposition to Mangane’s position as acting police chief is omitted. Instead, IB launches an emotive question in mid-sentence. The triple verbs, juxtapositioning of sentence fragments and subsequent omission of subject destroy the sentence’s structural coherence.

Finally, an **XD error** was assigned when an interpreter was insensitive to Deaf culture. In the six instances noted, IB added the sign “hear” even though the item is not in the ST. Each time the sign is associated with information, thereby creating an unequal power association between knowledge and the ability to hear, e.g. E10E290910 line 32:

TT: DANGER INVESTIGATE HEAR_XD UWE GambaLA DIE, HOW HEAR_XD BAD INDEX. ST: Gruesome new details of Uwe Gambala’s last few moments have begun emerging.

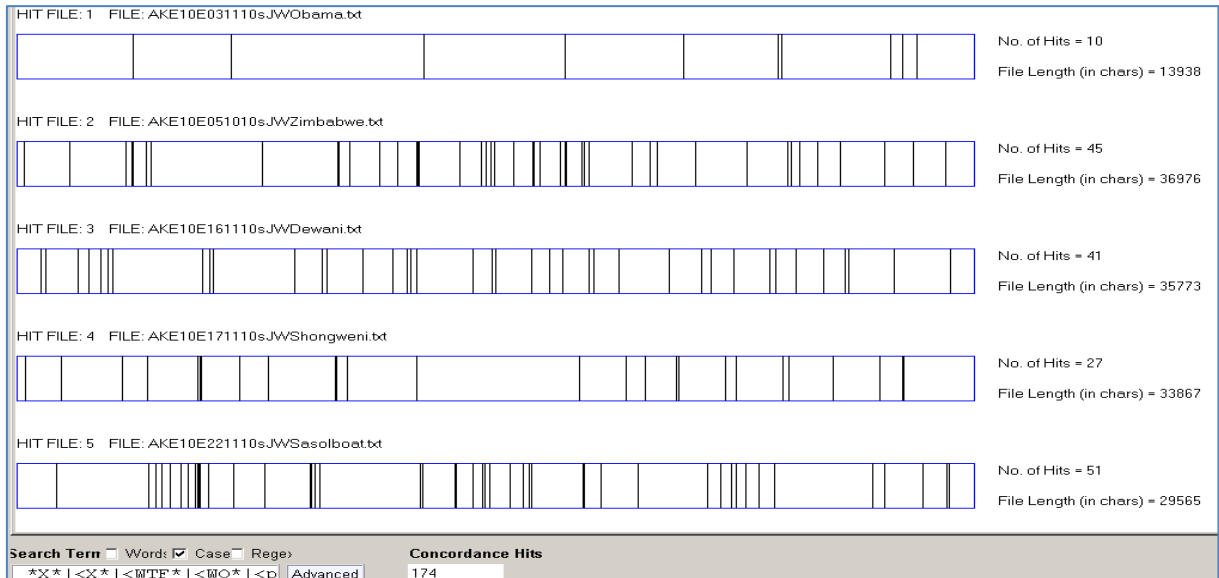
In the above example, the information gleaned is twice interpreted as obtained through hearing, despite no ST equivalent.

The interpreters occasionally corrected their errors. **Interpreter self-corrections** were tagged as “C” with codes corresponding to the relevant error codes, e.g. “fire_X1x fire_C1”. Other

corrections of poorly articulated signs (x) were tagged with the default “C” and corrections for <punct> errors with “<Cp/>...</Cp>”.

The results of the error analysis for IA are displayed in Figure 6.38 below:

Figure 6.38: Interpreter A errors



IA intermittently made 174 errors, but the percentage of errors at both sign and IU level are very low; hence IA can be considered an excellent interpreter. He made only 19 self-corrections, the paucity of corrections probably due to the fast interpreting pace. 11 are corrections of misinterpretations (X3), three of spoken language interference (X4), two of incorrect signs (X1), two of careless hand classifiers (x) and one of inadequate equivalence.

The results of the error analysis for IB are displayed in Figure 6.39 below:

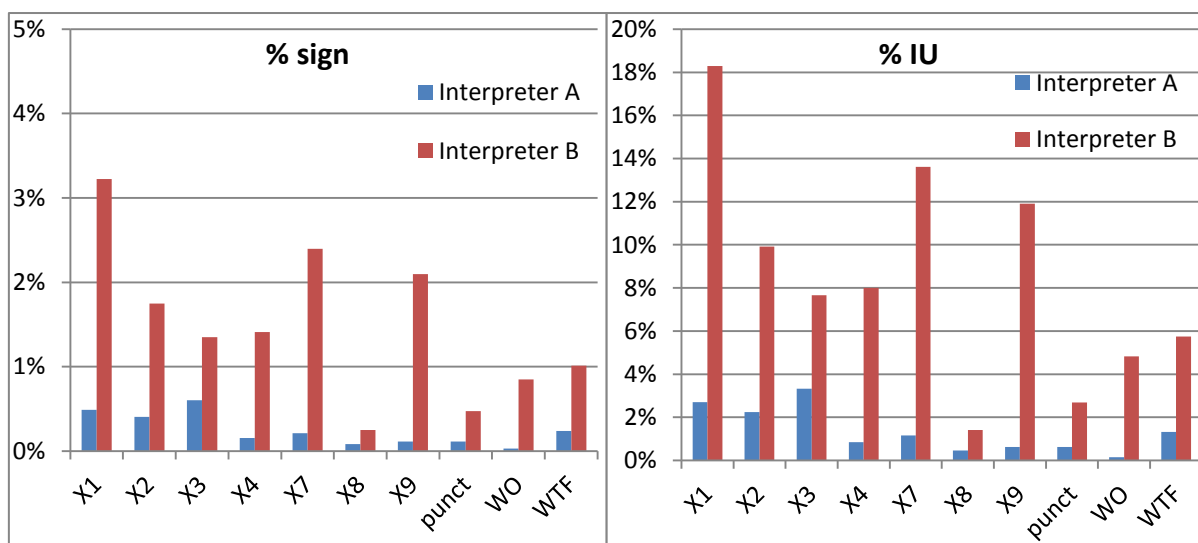
Figure 6.39: Interpreter B errors



IB frequently made errors (1141) in her interpreting, affecting coherence at sign level (13%) and at IU level (72%), which could result in audience incomprehension. Most of her 71 self-corrections were corrections of misinterpretations (X3). Although more in number than IA, they are proportionally fewer in relation to her percentages of errors. More frequent corrections increased time pressure and interrupted the flow of interpretation.

The data for the two interpreters is summarised in Table F10 in Appendix F and compared in Figure 6.40 below:

Figure 6.40: Interpreting errors



IA's biggest source of error is mistranslation (X3=43), but even this is at negligible scale. He also exhibited an Afrikaans influence in his use of "have" as the auxiliary verb "het". A further three errors were due to the incorrect use of auxiliary verbs which skewed meaning (e.g. his comment that small dogs "must bite" instead of "are known to bite").

IB made approximately ten times more errors than IA. The greatest differences are noted in the X1, X7 and X9 error categories; however, T-testing showed that the differences between the two interpreters were significant for all error categories at 95% confidence, and for X1, X2, X3, X4, X9 and WTF at 99% confidence. IB's most frequent errors are incorrect signs (X1=258), incorrect SASL discourse devices (X7=192) and pidgin sign (X9=168). Ortiz (2011), investigating errors in Spanish sign languages, found that these types of errors were typical of novice interpreters or language learners. This indicates that the sign language used by IB on the news broadcasts possibly differs from her own (she is a CODA from Afrikaans background). Less frequent (but still significant) errors include inadequate equivalents (X2=140), misinterpretations (X3=108) and SL interference (X4=113).

In retrospect, the error categories identified in the TTs through GT analysis may be described as violations of Grice's (1975:41-58) conversational maxims. **X1**, **X4**, **X7**, **WTF**, **punct** and **WO** errors violate the maxim of manner, which states that the discourse must be coherent in terms of both information and structure. **X3** errors violate the maxim of quality which requires the interpreter to transfer information truthfully. **X8** errors, s6 substitutions and a6 additions violate the maxim of relation which states that information must be relevant to the topic under discussion. **X2** and **X9** errors violate the maxim of quantity which requires that information should be sufficient for the meaning to be clear. Finally, **XD** errors (insensitivity to Deaf cultural norms) violate the maxim of politeness.

In the next section, error categories are correlated with the most common substitutions, additions and omissions investigated in this chapter.

6.7.5 Correlation of errors with shifts

As noted in Sections 6.7.1-3, errors were correlated with shifts in order to ascertain whether the interpreters' shifts contributed to incoherence. This was only done for IB since IA had very few errors.

Correlation of all IB's substitution categories with all her error categories showed that 421 substitutions (i.e. 26% of all IB's substitutions) are associated with some error. Correlation of the three most frequent substitution categories (s0, s1 and s2) discussed in Section 6.7.1 above with error categories showed that 21% (105) of all IB's s2 shifts, 7% (15) of all her s1 shifts and 20% (79) of all her s0 shifts contained errors. Errors associated with s2 substitutions consisted mainly of inadequate equivalents (X2=37), pidgin sign (X9=24) and incorrect referencing (X7=23), whereas s0 substitutions were mainly associated with inadequate equivalents (X2=47), pidgin sign (X9=10) and incorrect phonology (X1=9). Very few s1 error correlations were detected, the highest being inadequate equivalents (X2=4) and pidgin sign (X9=5). It is therefore evident that IB's three most common substitutions correlate mainly with errors of oversimplification and sacrificing of sentence structure.

Correlation of all IB's addition categories with all error categories showed that 251 additions (i.e. 23% of all her additions) were associated with errors. Correlation of the two most frequent addition categories (a2 and a3) with error categories revealed that 28% of her a2 additions and 11% of her a3 additions contained errors. Incorrect referencing accounted for 21% of all a2 additions (X7=65), whereas the errors in category a3 were primarily due to pidgin language (X9=9), punctuation errors (punct=5) and incorrect signs (X1=4). Therefore, incorrect additions primarily affected SASL discourse structure.

Correlation of omissions with interpreting errors showed that omissions caused relatively few errors in comparison to the frequencies of their occurrences. In total, only 61 (7%) omissions were associated with errors, mainly pidgin sign (X9=19), incoherence (WTF=15) and word order (WO=14).

In the next section, the main findings of this chapter are summarised.

6.8 Conclusion

In conclusion, this chapter has attempted to explore and categorise both the sign language of the two interpreters selected for comparison and the choices made by them while interpreting. Five transcriptions were analysed for each interpreter, taken from recordings of the 10pm ETV news bulletins from September to November 2010. From analysis of the ratio of TT sign tokens to ST word tokens, it was already evident that IB used more signs to translate than did IA. This, together with her faster signing speed, indicated that she was putting a lot more effort into production than IA, which according to Gile's (1995) model, already implied strain on other effort categories.

The interpreters' SASL was investigated in terms of sign quality, lexical features of the interpreters' sign language, use of discourse devices and use of non-manual features. This was followed by an examination of the interpretations in terms of substitutions, additions, omissions, errors and correlation of errors with shifts. Firstly, the quality of the interpreters' sign language was explored in terms of physical visibility, clarity of execution, occurrences of partially executed signs and speed of execution. The analysis showed that IB made more mistakes in all four variables compared to IA. The greatest area of error in terms of quality of sign for both interpreters was carelessness in sign articulation, which affected 4% of IA's signs and 9% of IB's signs. This partially correlated with signing speed. IB's signs also suffered from visibility problems which appear to be related to her choices of clothing.

Secondly, the sign language used by the interpreters was analysed in terms of language variation, iconicity, degree of polysemy and fingerspelling. Both interpreters incorporated high degrees of dialect in their sign language, IB more so than IA. These dialectal forms therefore constitute factors that could hamper comprehension. Both interpreters incorporated high degrees of iconicity in their sign language, mainly in the form of established signs, which should facilitate understanding. However, IB relied on a small set of iconic representations, indicating possible insufficiency of appropriate terminology. This, together with a greater tendency to imbue signs with multiple meanings, suggests a degree of ambiguity in her signing which could hinder audience comprehension. In contrast, it was IA

who evidenced poor spelling, whereas IB seldom spelt words incorrectly and was more consistent when spelling longer words or repeats of the same word. Nevertheless, both interpreters adhered to a principle of only spelling a few letters of a longer word, which caused multiple spellings of the same words and rendered insufficient data for comprehension of lesser known names.

Thirdly, the interpreters' use of discourse devices was investigated in terms of referencing devices, role-shift and topic-marking. Both interpreters made frequent use of referencing devices, but IB committed more referencing errors than did IA. IA avoided error by often using his non-dominant hand as reference point, whereas IB preferred to reference in signing space. Interpreters made less frequent use of role-shift. IA employed multiple perspectives during role-play, whereas IB preferred to portray a single individual. IB was more inclined to mark topics than IA and was also more consistent in signalling topics using raised eyebrows. However, IA was more frequent in foregrounding topics and also more successful in narrowing topic signalling devices (such as raised eyebrows and head movements) over one or two signs, whereas IB tended to spread them over entire phrases, thereby possibly blurring the topic.

Fourthly, three types of non-manual features of sign language were investigated, namely mouthing, facial expression and head/body movements. Although both interpreters used mouthing frequently, IB showed more disparity between sign and mouthing than did IA. Similarly, both interpreters made extensive use of facial expressions related to eyebrow movements, but comparatively few related to mouth gestures. However, while IB used more and more varied mouth gestures, she was not as systematic in their use as IA. On the other hand, probably due to too bright studio lights, IA evidenced greater frowning and closing of the eyes which detracted from the coherence of his message. Thirdly, although both interpreters made frequent head movements (and limited body movement), IA was more systematic than IB in using them as to create cohesion and coherence in sentence structure.

Fifthly, differences (*shifts*) between source and target texts due to the interpreting process were explored by analysing substitutions, additions and omissions made by the interpreters. In terms of substitutions, both interpreters tended to simplify, reformulate or choose alternatives at the same semantic level. IA was more likely to rephrase the ST information, whereas IB was more likely to simplify it. Moreover, IB was twice more likely than IA to interpret in the first person. Analysis of additions found that both interpreters mainly add sign language discourse devices (a2) or explicate implicit ST information (a3), but that IB made significantly more errors in adding discourse devices and also tended to add meaningless or

incoherent segments, possibly as aborted explanations. Thirdly, although both interpreters mostly omitted information resulting in simplified TTs, IB omitted more information than IA, resulting in more simplified interpretations. She also omitted more vital structural elements than did IA, which decreased coherence. Hence, the results indicate that IA changes, adds and omits elements strategically in a manner that adheres to Deaf interpreting norms while also attempting to observe Gile's norms of optimising completeness of information transfer against fluency, whereas IB appears to prioritise reducing production effort.

Finally, errors made by the interpreters were analysed. Whereas IA made minimal errors apart from a few misinterpretations, IB made approximately ten times more errors in every category. Both interpreters made minimal self-corrections. IB's main errors were incorrect phonology, incorrect referencing and pidgin sign. Substitution categories (s0, s1 and s2) were mainly associated with coherence problems due to oversimplification, whereas errors in additions were mainly associated with incorrect discourse markers. Omissions caused comparatively few errors and primarily affected sentence structure.

In conclusion, it is deduced that both interpreters adopt similar patterns in their use of SASL as well as in their interpreting strategies. However, IA was more consistent in the use of the variables described above and was less likely to make random mistakes. In contrast, IB showed less consistency in applying SASL features and tended to oversimplify the TT at the expense of coherence. She was also less careful in the quality of her sign production and choice of clothing. It is expected that these factors have a negative impact on audience comprehension.

The effects at IU level are much more significant than those at sign level. It is suggested that as the interpreter interprets meaning chunk by chunk rather than word by word, so does the receiver. Deriving meaning from chunks contaminated by errors increases the viewer's listening and analysis effort and decreases relevance (cf. Gutt 1992).

A full summary of all variables identified in this chapter, together with their frequencies and both type-token ratios (% sign and % IU), is presented in Table F11 of Appendix F. Variables that affected at least 10% of at least one interpreter's IUs are correlated with the research questions as follows:

Problems regarding SASL language variation (RQ3):

- Use of local dialects or foreign signs (d);

Problems due to the quality of the interpreters' sign language (RQ4):

- Carelessness in articulating manual signs (x);
- Confusion of sign components (X1);

- Signing too fast (f1);
- Careless spelling (z-);
- Incorrect referencing (X7);
- Inconsistency between mouthing and sign (v0x);
- Incoherent mouthing (v3);
- Inconsistent facial expressions (E1-9);
- Inconsistent head and body movements (<h*>, <b*>);
- Inadequate vocabulary (I-, polysemy).

Problems due to interpreting choices (RQ5):

- Oversimplification of lexis (X2);
- Oversimplification of sentence structure (X9);
- Meaningless additions (a6);
- Omission of vital elements of sentence structure (omit-vital).

Problems due to the physical environment (RQ5):

- Visibility problems due to inadequate clothing choices (u0);
- Glare from studio lighting conditions (E3, E5).

Their identification gives rise to a series of testable hypotheses on their relevance to Deaf comprehension of signed TV news interpreting. The study thereby provides a broad platform for further research.

In the following chapter, the results derived from the analyses of all four research instruments are summarised and compared, enabling the drawing of conclusions and recommendations.

CHAPTER 7: CONCLUSION

In this chapter, the findings of the study are summarised and evaluated, and the contributions and limitations of the study outlined.

7.1 Research overview

The purpose of the study was to ascertain possible reasons for Deaf viewers' incomprehension of interpreted TV news bulletins. The research aimed to identify factors both in terms of viewer expectations and features of interpretations. To this end, a two-fold approach was adopted. Viewer expectations and behaviours were investigated by means of questionnaires, eye tracking and discussion, whereas features of interpretations were investigated by constructing a corpus of authentic interpretations. The main objective of the study was not to test comprehension but to identify barriers to comprehension of interpreted broadcasts in order to draw up research-based guidelines and thereby contribute to the implementation of a better quality of service to the Deaf community.

The analytical framework of the study was based on Grounded Theory (GT), which allowed factors affecting incomprehension to be explored using an emergent approach through open and axial codifying of incoming data through a mixed-methods approach that incorporated the collection and analysis of both qualitative and quantitative data. GT principles were integrated into a reception-oriented model developed from similar models in Translation Studies (TS), especially the sub-discipline of Descriptive Translation Studies (DTS), for the analysis of the interpretations in the light of the target audience expectations. The resulting model grounded the research in real-world practice, allowing the study to function as an advocacy vehicle for Deaf rights. The model developed for the present study differs from other DTS-based models in three main ways. Firstly, a predetermined and therefore imposed TC is replaced by a dynamic, iterative GT process which allowed for a more comprehensive exploration of factors. Secondly, a translation-oriented perception that all T/I phenomena are norm-based was rejected and instead a more pragmatic model which acknowledges interpreter errors as well as strategies was proposed. A third difference was the participation of the target audience in determining the research variables, thereby grounding the study in empirical reality and social responsibility.

After an initial open-ended pilot study, four different research procedures were triangulated in order to answer the research question. Firstly, a questionnaire was sent out to as many Deaf respondents as possible. Answers from the questionnaires were categorised qualitatively using

GT open and axial coding procedures. These categories were then analysed quantitatively using descriptive statistics. Secondly, eye-tracking data of Deaf participants watching excerpts from the interpreted news bulletins was compared to that of a control group of hearing participants. The data was analyzed quantitatively in terms of frequency and duration of fixations on specified areas of interest (AOIs) to ascertain real viewing behaviours. Thirdly, a discussion in SASL with the Deaf eye-tracking participants was analysed qualitatively using GT open and axial coding. These three procedures enabled the compilation of Deaf viewers' expectations.

The fourth research procedure involved qualitative and quantitative analysis of a corpus of transcribed interpretations of two TV sign language interpreters in terms of linguistic features and interpreting choices. Qualitative analysis of data was conducted manually using GT open and axial coding procedures, whereas quantitative analysis in terms of descriptive statistics was conducted semi-automatically using concordance software. The analyses involved the creation firstly of notation and transcription codes for reducing interpretations to plain text and secondly of a complex set of category annotations.

The research involved extensive canvassing of the Deaf community of South Africa and the construction of a sign language interpreting corpus. As a foundation for the study, secondary data from previous research in the literature on interpreter comprehension, features of sign language and corpus construction was used as a framework for the present study.

This chapter consolidates and summarises the findings of the study. In section 7.2, the research question posed in Chapter 1.2 and Chapter 4.2 are revisited and answered by integrating the findings from the four triangulation procedures as well as the literature research. The study elaborates upon these findings in the construction of a set of guidelines in Section 7.3. Section 7.4 presents the contributions of the present study. This is followed by an assessment of the reliability and validity of the results in Section 7.5 and the limitations of the study in Section 7.6. Section 7.7 suggests directions for future research. The study is summarised and concluded in Section 7.8.

7.2 Summary of findings: the research questions revisited

This section revisits the research questions. The main research question is:

- What factors contribute to Deaf South Africans' lack of comprehension of signed interpretations of TV news bulletins?

The study attempted to provide an exhaustive set of factors that account for viewer incomprehension of signed TV news interpretation. Using the data from the literature review and the four triangulation procedures, sections 7.2.1 to 7.2.5 answer the five supporting research questions before returning to the main question. The most relevant findings from the literature are also summarised in each subsection.

7.2.1 Research question one: means of communication.

An investigation of target audience communicative competencies was undertaken in order to answer the first research question, namely:

- To what extent does the target audience rely on the service of the interpreter as information source compared to other available sources? (RQ1)

The objective of this part of the study was to explore whether members of the target audience relied solely on the interpreter or could supplement or replace her with other sources and to determine the abilities of the Deaf audience to access different types of information sources.

The literature review (Chapter Two) revealed that Deaf audiences in other countries also experienced difficulties in understanding interpreters in general and TV news interpreters in particular and because of this, the demand for subtitles together with or instead of an interpreter is a strong Deaf norm (c.f Woll 1991; Kyle 2007). However, findings reported in the literature indicated that this norm was consistently undermined by low literacy levels (DeafSA 2009, 2012; Ganiso 2012; Morgan 2008). The literature also indicated that possible inadequate signing skills for White viewers due to an oralist legacy, weak lip-reading and spoken language skills for Black viewers due to inadequate schooling, lack of background knowledge and the difficulty in dividing attention between the interpreter and other sources would further limit comprehension of a news broadcast for Deaf audiences (cf. Aarons and Akach 2002; Marschark et al. 2004). Thus comprehension difficulties were expected in all communicative variables.

The analysis of target audience means of communication and viewing patterns using the data derived from questionnaires, eye-tracking and a SASL discussion was reported in Chapter Five. The results confirmed that the primary Deaf norm for accessing information from the news bulletins is the use of subtitles together with an interpreter. However, analysis confirmed low literacy levels, difficulties in understanding and reading spoken languages and under-utilisation of current on-screen text due to the high effort required to process textual information, undermining the demand for and effectiveness of subtitles.

Similarly, exploration of oral competencies in the questionnaire and SASL discussion revealed that while White and Indian Deaf adults had acquired lip-reading skills through oralist educational policies which could allow them to lip-read as an alternative to following the signed interpretations, the neglect of Black and Coloured education under *apartheid* resulted in these viewers lacking lip-reading skills and having inadequate command of spoken languages, thereby precluding lip-reading as an alternative information source on news bulletins for them. The effectiveness of lip-reading as an alternative source is also generally undermined by the small picture size and the high processing effort. The study also revealed that most deaf adults know only one spoken language, which implies that lip-reading can only compete as an alternative source with the sign language interpreter on a particular news bulletin provided the Deaf viewer is competent in the particular spoken language presented.

Moreover, the eye-tracking results confirmed that Deaf viewers do not successfully divide their attention between an interpreter and any other sources of information, including the main picture, and therefore inadequately access information from these other sources. Thus the study revealed discrepancies between *perceived* communication competencies (Deaf respondents believed that they could access other information sources, White respondents in particular indicated that they could lip-read to gain information) and real behaviours in terms of literacy and lip-reading skills. Thus, it can be concluded that the average Deaf South African is therefore dependent on a signed message.

In contrast, the study found that most Deaf South African viewers are proficient signers and that native statistics conform to international norms, i.e. that lack of signing skills does not account for incomprehension for the majority of Deaf viewers. However, approximately 13% of the Deaf audience are very late signers who may not have the signing proficiency required to understand the specialised terminology in a news broadcast.

The following issues also emerged from the research:

- The investigation also revealed a lack of secondary education for more than half the respondents, which means that these Deaf viewers lack sufficient general knowledge in order to understand a news bulletin, despite signing proficiency. Adequate education for deaf learners is an issue that needs to be addressed at national level.
- The research also shed light on visual cognitive capacities of Deaf and hearing, thereby also providing a platform for future research.

7.2.2 Research question two: physical environment factors

An investigation of visibility and other issues of the physical environment were undertaken in order to answer research question two, namely:

- Are there elements of the physical setting that hamper interpreter visibility and thus audience comprehension? (RQ2)

The objective of this part of the study was primarily to determine how physical factors hampered comprehension. This question arose as a result of the pilot study.

The literature study showed that Deaf TV audiences consistently complained of the small interpreter picture (cf. Kyle 2007). The study also revealed that interpreter visibility of hand and face, contrasting clothing and background colour and adequate front-lit lighting are Deaf cultural norms (cf. DeafSA 2009).

The present study confirmed that the small size of the interpreter picture was perceived by viewers as one of the most significant factors hampering comprehension, especially in terms of visibility of the interpreters' hands and facial expressions, but found that picture position and background colour were not perceived as problematic. However, the corpus analysis found high occurrences of poorly visible signs due to poor skin/clothing contrast for the less understood interpreter, especially affecting signs that required fine-control finger work such as finger-spelling and certain aspects of role-playing. The analysis also showed that visibility problems were related to the interpreters' fast pace of signing prompted by the constraints of simultaneous interpreting.

Therefore, in conclusion, the main visibility factors were found to be the small interpreter picture size, with secondary visibility problems caused by fast signing pace, insufficient clothing and incorrect clothing colour. Since most Deaf people are not native signers (the questionnaire sample reflects international statistics for native signers), these physical factors represent distracting visual "noise".

Moreover, the following issues regarding the physical environment also emerged from the research:

- The questionnaire investigation revealed that program timing affected viewing patterns, preventing access to the most understood interpreter for many viewers.
- The corpus analysis indicated that studio lighting was sometimes too bright, causing interpreters to frown and close their eyes, thereby affecting coherence.

7.2.3 Research question three: language variation

An investigation of language variation was undertaken in order to answer research question three, namely:

- To what extent do the interpreters and their audience use standardised forms of SASL?
(RQ3)

This research question arose as a result of the findings of the pilot study, in which respondents intimated that incomprehension was due to the existence of different sign languages. The objective of this part of the study was to determine comprehension barriers caused by language variation.

The literature study revealed that the subject of language variation in SASL was a matter of debate since the publication of the SASL dictionary (Penn et al. 1992), but that it was normal for dialects to coexist with so-called standardised versions of a sign language and that linguistic variation in other countries was linked to gender, educational, religious and regional divisions in schools and communities (cf. Aarons & Akach 2002; Bidoli 2009; Leeson 2005b). Thus the division of deaf schools in South Africa on religious (mainly Catholic and Protestant), ethnic, language and geographical barriers therefore strongly suggested the possibility of dialects. The literature also indicated that SASL is in the process of standardisation but is not yet fully standardised (cf. Reagan 2008).

The study confirms the existence of dialects as a factor that impedes comprehension, but also finds evidence that poor interpreter signing may be a contributing factor. Members of the Deaf communities strongly affirmed the existence of what they perceived to be different sign languages in South Africa, mainly originating at the different schools but also related to race, region and culture, and perceived interpreters' use of different sign systems as one of the main sources of incomprehension on the news broadcasts. This perception was most keenly held regarding interpreters on SABC. Without stringent sociological study on language variation in South African Deaf communities, it is not possible to say whether these perceptions refer to varieties of SASL that have not yet been described or indeed to different, co-existing signed languages. The corpus analysis confirmed that the two interpreters investigated frequently used variants that differed from the main entry in the SASL dictionary (Penn et al. 1992) and/or the Johannesburg sign system taught at the University of the Witwatersrand, the variants adopted as standard for the purpose of the study. Although borrowings from ASL and BSL were found in the interpretations, the greatest contribution appears to come from a local dialect and the Afrikaans dialect (AGT). The study also found evidence of poor interpreter

signing (especially regarding phonological errors and pidgin sign) which may also contribute to perceptions of different sign systems.

Moreover, the following issues also emerged from the research:

- Mouthing appears to be integral to certain SASL dialects but absent in others. The issue of mouthing in SASL is neglected in the literature and is recommended as an avenue for further research.
- Older respondents stated that they learnt the two-handed BSL finger-spelling system and do not understand the ASL one-handed system currently in use. This augments the need for information to be subtitled.
- The difference between the Afrikaans variety of SASL and other varieties is so marked that it has been dubbed *Afrikaanse Gebaretaal* (AGT), since these participants in the study were not able to understand other forms of SASL. These viewers especially indicated major difficulties in understanding the TV interpreters' sign language.
- Deaf Afrikaans participants indicated that they are also not able to adequately comprehend English (mouthing or subtitles) on the TV news channels and therefore are effectively marginalised. At present no attempt is made by TV channels to accommodate them.

7.2.4 Research question four: language use

An investigation of SASL features was undertaken in order to answer research question four, namely:

- Are there peculiarities in the nature and occurrences of lexical, syntactic and discourse elements used by the interpreters? (RQ4)

The objective of this part of the study was to determine barriers to comprehension caused by interpreters' incorrect use of SASL syntactic and discourse features. The third research question arose partly as a result of the pilot questionnaire and partly because of the researcher's own awareness of the phenomenon which the late Miriam Shlesinger has dubbed *interpretese*. Evidence of ST and source language interference on translations and interpretations is well documented in the literature (cf. Laviosa 2002; Leeson 2005a; Olohan 2004; Shlesinger 2008; Toury 1995), and it was proposed that the process of interpretation would influence the present TTs. The study found that members of the target audience perceived that the interpreters' sign language lacked features such as NMFs, mouthing and body movement, whereas the corpus analysis showed that interpreters incorrectly or inconsistently apply these features and also make errors in phonology, word order and

omission of vital sentence structure due to inadequate interpreter strategies, thereby confirming findings in the literature.

The literature review revealed that signed languages utilise a number of devices to signal grammatical categories and to organise syntax and discourse coherently, facilitating comprehension of a signed message (cf. Baker-Shenk & Cokely 1981; Leeson & Saeed 2012). However, the literature indicated that interpreters do not always use these features correctly, either because of inadequate signing skills, ST interference or over/under-compensation of these features during the interpreting process (the so-called T/I universals) (Savvalidou 2011; Stone 2009; Stratiy 2005). Moreover, the literature research also showed that interpreters make phonological errors (cf. Bendazzoli et al. 2011; Ortiz 2011; Wallmach 2000). Hence, there were grounds for suspecting similar misrepresentation of SASL features in the TV interpreters' outputs.

The study found irregularities in the interpreters' language use. The corpus analysis revealed incorrect application rather than the lack of linguistic features perceived by members of the target audience, thereby confirming findings in the literature. However, since the corpus consisted only of transcriptions of two E10 interpreters (therefore, according to questionnaire respondents, two of the best interpreters), it is possible that (as the researcher observed recently) lack of features (e.g. NMFs) may mark other TV interpreters' signing. Notwithstanding, except for the T1 interpreters whose poor sign language skills were perceived as a primary reason for their incomprehension, interpreters' inadequacies in sign language skills were not perceived to be as severe a hindrance to comprehension as that caused by dialectal variants.

The study identified the following factors relating to the type of language used by interpreters that potentially hindered comprehension.

1. Questionnaire respondents identified unclear signing as a secondary reason for incomprehension and especially identified the sign quality of T1 interpreters as inadequate, whereas discussion participants noted that signs were difficult to distinguish because interpreters made them too close to their bodies. These statements indicate that clarity and unambiguity of manual signs are Deaf norms. Although the small picture size allotted for interpreters is partly to blame, the corpus analysis found that unclear signing was also correlated with too fast signing and inappropriate and insufficient skin/clothing contrasts. High occurrences of carelessly formed signs and incorrect phonology (in terms of classifier, movement and orientation) were especially evident for the less understood interpreter, thereby confirming these as problematic for comprehension.

2. Investigation of audience expectancies revealed a strong Black Deaf norm for adequate facial expression as requirements for comprehension and identified lack of facial expression as one of the main reasons why respondents did not understand the T1 interpreters. The corpus study of the E10 interpreters confirmed that while both interpreters used eye-brow related expressions frequently, minimal use was made of mouth gestures, thereby confirming both findings in the literature that mouthings affect mouth gestures (cf. Leeson & Saeed 2012; Militzer 2009) and respondents' accusations above, at least in terms of mouth gesture. The study also revealed a lack of consistency in the ways facial expression was used, especially by the less understood interpreter, thereby confirming literature reports of non-typicality.

3. Target audience evaluation revealed a strong White Afrikaans Deaf norm for mouthing. This group regarded the interpreters as using insufficient mouthing, unclear mouthing or code-switching. The corpus analysis found that interpreters mouthed frequently, but found high occurrences of disparities between mouthing and sign, and to a lesser extent, of non-simultaneous mouthing, unclear mouthing and code-switching between Afrikaans and English for the less understood interpreter.

4. Participants in the discussion complained that interpreters display too stiff body movement. In the corpus analysis, it was found that while interpreters used head movements frequently, they displayed very little body movement, thereby confirming participant observations. Moreover, it was also found that the less understood interpreter did not consistently coordinate head and body movements with sentence structure.

5. Analysis of target audience expectancies confirmed literature findings that restructuring in terms of sign language discourse and signing order was a strong Deaf norm. Incorrect signing order was perceived as especially characteristic of T1 interpreters, although Black respondents also indicated dissatisfaction with that of the ETV interpreters. The corpus analysis revealed that the better understood interpreter was more likely to restructure his sentences in order to foreground discourse topics, whereas the less understood interpreter adhered more to the ST sentence structure, thereby confirming target audience expectations. However, because of the difficulty of simultaneous interpreting, both interpreters frequently retained each ST sentence's subject as topic and focussed primarily on structuring discourse at the level of sentence. In fairness to the interpreters, signing order errors were also only annotated at sentence level and not at discourse level. With this proviso, occurrences where incorrect signing order impeded or destroyed coherence were infrequent.

6. Discussion participants complained that interpreters' finger-spelling was too fast and also unclear. Corpus analysis confirmed that many finger-spelled items were associated with

poor visibility, careless execution, spelling mistakes and different spellings or abbreviations for the same item, even within a single transcription. Although very few extra-fast finger-spelled items were found, the average rate of signing in the interpretations was much faster than normal conversational discourse, which also has repercussions for finger-spelling.

Other sign language features analysed in the corpus that were identified by the literature but not by members of the target audience included analysis of iconicity and discourse features.

7. Both interpreters incorporated approximately the same amount of iconic signs, but that the less understood interpreter used less iconic *types* than those of her counterpart. Coupled with a higher degree of polysemy, it is suggested that duplication of signs increases the effort required by Deaf audiences to process information. She also made less use of the productive lexicon, which indicates that the better understood interpreter may have used more succinct ways to express himself.

8. Both interpreters incorporated referencing and SASL discourse structure in approximately the same measure, but that the lesser understood interpreter did not always apply these devices correctly.

9. Both interpreters used role-playing sparingly, which accords with findings in the literature that excessive role-playing is not considered good interpreting by Deaf audiences if lexical equivalents exist. The two interpreters use of role-playing differed, however, in that the more understood interpreter incorporated multiple perspectives, whereas the other portrayed a single perspective.

7.2.5 Research question five: interpreter choices

An investigation of interpreting shifts was undertaken in order to answer research question five, namely:

- Do the choices in selection of TL material employed by the interpreter adequately convey a coherent message? (RQ5).

The objective of the research was to determine barriers to comprehension caused by poor interpreting choices. This research question arose partly as a result of answers to the pilot study and partly from the constraints of the grant and study direction. The study confirmed expectancy norms reported in the literature of restructuring, accuracy of information transfer and adherence to Deaf cultural norms. It also showed that interpreters used the same strategies, but not with equal efficiency, and that the better understood interpreter adhered more to Deaf interpreting norms, whereas the less understood interpreter ignored these and

resorted to a strategy of simplifying ST chunks instead, with more adherence to the ST and generally showing less strategic management of information and time.

The evidence of interpreter errors arising as a result of inappropriate strategies is well documented in the literature, primarily in the form of previous case studies for both signed and spoken interpretation (cf. Bendazzoli et al. 2011; Savvalidou 2011; Shlesinger 2000; Wallmach 2000). Findings reported in the literature also showed that the constraints of the SI process mean that interpreters omit, add to, paraphrase or even change the discourse. Although some of these shifts are strategic, interpreters also make real errors at phonological, syntactic and discourse levels due to ST interference, fatigue or time constraints. This provided strong argument for relating audience lack of comprehension to interpreter omissions, additions and skewed substitutions.

Literature findings also indicated that both signed and spoken language interpreting prioritise norms of fluency, near-native language use, accuracy in information content and domestication, but that norms of professional detachment were not always acceptable to Deaf audiences, who preferred interpreters to create a sense of empathy with their audiences and play an active role as information gatekeepers in restructuring and retelling (rather than interpreting) the message in a Deaf context and not to act as mere conduits of information (cf. Stone 2009).

Although expectancies regarding interpreting strategies were not explicitly investigated in Chapter Five since the target audience has no access to the ST, participants in the SASL discussion identified the following qualities required for good interpretation: prior preparation, good reading skills and proficiency in both spoken and sign languages, as well as the following problems: misinterpretation caused by interpreters either not hearing or not understanding the source message, omissions due to time constraints, inadequate memory efforts. The latter variables confirm the Deaf norm of accuracy of information transfer reported in the literature. Participants perceived interpreters as leaving training institutions without possessing adequate interpreting skills. They also identified that adherence to Deaf cultural norms (including an empathetic attitude) and restructuring of the message in terms of Deaf discourse norms and registers were strong Deaf expectancy norms regarding interpreting strategies, thereby confirming findings in the literature.

In the corpus studies, substitutions, additions and omissions made by the interpreters were analysed in correlation with identifiable interpreter errors. Firstly, analysis of substitutions revealed that the interpreters mainly relied on reformulation, simplification or substitution with an iconic representation or synonym at the same semantic level. The interpreter most

understood by respondents mainly reformulated, thereby adhering to the restructuring norm elicited by the discussion group and found in the literature (cf. Stone 2009). Instead, the less understood interpreter relied mostly on simplification strategies, and in doing so, evidenced frequent errors due to choosing inadequate equivalents, adherence to the ST and the use of pidgin sign which sometimes resulted in incoherence. She was also more inclined to interpret in the first person. Secondly, analysis of additions revealed that both interpreters mainly added information and sign language discourse markers, but that the less understood interpreter frequently added incorrect reference and discourse markers and also added many functionless or meaningless signs and phrases which might have been aborted explanations. Thirdly, analysis of omissions confirmed participant perceptions that interpreters omit elements, but also showed that errors due to omissions were less than those due to substitutions or additions and that mostly information and source language structure were discarded. However, sometimes essential structural elements were omitted, which negatively affected coherence. The less understood interpreter evidenced a greater tendency to omit vital structure and information, but was less inclined to omit ST discourse structure probably due to her greater ST adherence. It is therefore suggested that the better understood interpreter employs a strategic approach to omissions which evidences conformity to the restructuring norm in the omission of ST elements, whereas the less understood interpreter's higher omissions of vital structure and information indicate rather a coping strategy of minimising production effort due to over-saturation (cf. Gile 1995).

Fourthly, error analysis confirmed participant perceptions that interpreters occasionally misinterpret, which also violates the accuracy of information norm. However, although misinterpretations accounted for a significant category of error, the number of affected IUs was nevertheless relatively low and therefore misinterpretations can be regarded only as a secondary factor affecting comprehension. In contrast, phonological errors, incorrect application of SASL discourse markers, pidgin signing and inadequate substitutions constituted the greatest sources of errors in the interpretations.

Moreover, the following issues also emerged from the research:

- Evidence of the Deaf cultural norm of empathy noted in the discussion (corresponding to Stone's (2009) norm of identification) was not explicitly sought in the corpus part of the study. However, the low occurrences of smiling in the transcriptions suggest lack of awareness of this norm by the interpreters, confirming Stone's (2009) findings that hearing interpreters distance themselves from their target audience and suggesting that interpreters are influenced by conduit models of interpreting. Nevertheless, further

research on this norm is needed, as there may be other ways that the interpreters use to express identification with the audience. The absence of a live audience may also account for the low degree of emotive interaction.

- Evidence of awareness of a gate-keeping norm was only found in the corpus analysis in terms of added explicitation. However, this awareness also appears to be lacking in the expectancy norms derived from respondents and participants.
- Analysis of additions also revealed five instances of cultural insensitivity in which knowledge is equated with the ability to hear, thereby violating Deaf cultural norms.

7.2.6 Main research question

Based on the answers of the five supporting questions, the main research question can now be addressed in that a list can be drawn up of factors that contribute to Deaf South Africans' lack of comprehension of the signed interpretations of TV news bulletins.

While the eye-tracking experiment unequivocally emphasised audience dependence on the interpreter as primary source and the inefficiency of other sources, it was evident that each research procedure highlighted different sources of incomprehension. Questionnaire respondents perceived the main problems to lie with the picture size and the use of dialect, i.e. research questions two and three, but also confirmed low levels of education (i.e. poor background knowledge) and weak signing proficiency for some respondents. On the other hand, discussion participants highlighted language variation and inadequate interpreting strategies, i.e. research questions three and five. The corpus study found the most significant features to be inconsistent mouthing, interpreter errors, dialect, carelessly formed signs, poorly visible signs, inadequate interpreting strategies and incorrect use of SASL discourse devices, i.e. research questions two to five. It can therefore be concluded that all five main variables indicate significant comprehension problems, namely: mutually unintelligible dialects, incorrect and inconsistent language use, inadequate interpreting choices, poor visibility and inadequate background knowledge.

Although at this stage it is not possible to establish a hierarchy of factors with certainty, it is proposed as an answer to the main research question that the following hierarchy of factors (based on a factor obtaining either greater than 10% IU occurrence frequencies in the corpus analysis or negatively affecting more than 50% of respondents in the questionnaire analysis) are the main variables that impede target audience comprehension of an interpreter:

- 1) The use of dialects;

- 2) The small size of the interpreter picture;
- 3) Inconsistency in using NMFs;
- 4) Non-simultaneous, unclear or different mouthing, including code-switching;
- 5) Carelessness in sign articulation;
- 6) Poor hand visibility against skin and clothing;
- 7) Omissions of vital sentence structure;
- 8) Too fast signing;
- 9) Incorrect sign phonology;
- 10) Adherence to ST/SL structure;
- 11) Meaningless additions;
- 12) Incorrect referencing;
- 13) Over-simplification and shortening;
- 14) Loss of eye contact with audience;
- 15) Insufficient target audience background knowledge;
- 16) Unjustified first person perspectives.

A full set of all variables negatively affecting perceived target audience comprehension of an interpreter or coherence in the transcripts is tabled in Table 7.1 below:

Table 7.1: TC variables

EVALUATIVE CRITERIA	LITERATURE RESEARCH	TARGET AUDIENCE EXPECTANCIES (CH5)	CORPUS ANALYSIS (CH 6)
Target audience communication means (V1)	1. Inadequate signing competence 2. Lack of general knowledge 3. Inability to divide attention/meta-cognitive skills.	1. Inadequate signing competence due to <ul style="list-style-type: none"> – Late age of signing – Not belonging to Deaf community 2. Lack of general knowledge 3. Difficulty in dividing attention	n/a
Physical environment (V2)	1. Too small picture size. 2. Non-contrasting clothing/background colour.	1. Poor visibility of signs/ face due to: <ul style="list-style-type: none"> – too small picture size – picture position 2. Viewing is affected by broadcast timing	1. Poor sign visibility due to inadequate clothing/skin background. 2. Interference due to harsh studio lighting.

Language variation (V3)	<p>1. Deaf use different sign languages based on:</p> <ul style="list-style-type: none"> - Nationality <p>2. Deaf use different dialects related to:</p> <ul style="list-style-type: none"> - gender - age group - religion - region 	<p>1. Deaf use different sign languages based on:</p> <ul style="list-style-type: none"> - schools - ethnic group (culture) - spoken language group <p>2. Interpreters use different sign languages</p>	<p>1. Interpreters use dialectal variants:</p> <ul style="list-style-type: none"> - AGT - local dialect - ASL - BSL <p>2. Interpreters use unfamiliar signs</p> <p>3. Interpreters make errors in</p> <ul style="list-style-type: none"> - phonology - signing order
Language use (V4)	<p>1. Interpreters over/underutilise:</p> <ul style="list-style-type: none"> - facial expression - head/body movement - mouthing - reference <p>2. Interpreters are influenced by ST/SL sentence structure</p>	<p>1. Interpreters lack:</p> <ul style="list-style-type: none"> - facial expression - body movement - mouthing - sentence structure <p>2. Interpreters use</p> <ul style="list-style-type: none"> - too fast signing - unclear signs <p>3. Interpreters have weak language skills</p>	<p>Interpreters evidence:</p> <ul style="list-style-type: none"> - inconsistent facial expression - inconsistent head/body movement - disparate mouthing - inconsistent topic marking - incorrect referencing - pidgin sentence structure - too fast signing - careless signing - careless spelling - phonological errors - limited vocabulary - loss of eye contact
Interpreting choices (V5)	<p>1. Interpreters make errors in:</p> <ul style="list-style-type: none"> - omissions - additions - skewed substitutions <p>2. Hearing interpreters ignore Deaf interpreting norms:</p> <ul style="list-style-type: none"> - domestication - fluency - identification/empathy - gate-keeping - first-person interpreting 	<p>1. Interpreters make errors:</p> <ul style="list-style-type: none"> - misinterpretation - poor preparation - inadequate knowledge of spoken and sign languages <p>2. Interpreters use inadequate strategies:</p> <ul style="list-style-type: none"> - omissions due to time - pidgin sign <p>3. Hearing interpreters ignore Deaf interpreting norms:</p> <ul style="list-style-type: none"> - restructuring norm - information norm - Deaf cultural norm /empathy 	<p>1. Interpreters make errors:</p> <ul style="list-style-type: none"> - inadequate equivalents - misinterpretation - ST/SL interference - false starts - pidgin sign <p>2. Interpreters use inadequate strategies:</p> <ul style="list-style-type: none"> - omission of vital structure - meaningless additions - meaningless substitutions - over-condensation - over-simplification <p>3. Hearing interpreters ignore Deaf interpreting norms:</p> <ul style="list-style-type: none"> - restructuring - Deaf culture - first-person interpreting

Each of these variables can be construed as a quantitatively testable hypothesis against viewer comprehension.

In the next section, the study offers guidelines for TV sign language interpreting in particular, but which may also be extended to sign language interpreting in general.

7.3 Guidelines for sign language interpreting

The following recommendations are made specifically for simultaneous sign language interpreting on TV. However, the general nature of many of the recommendations allows them to be applied to other settings as well. These guidelines include on the one hand, recommendations for broadcasters in terms of the communicative needs of the target audience and on the other, guidelines for interpreters.

7.3.1 Target audience communicative needs

The following recommendations are made to improve target audience communicative needs:

Firstly, it is recommended that a much greater area be allocated to the interpreter picture. Based on international protocol, at least one third but preferably half of the screen should be allocated.

Secondly, because of the strength of the Deaf norm, it is recommended that subtitles be used. Because of low literacy levels and the difficulty of investing attention on text, they should consist of no more than three clauses held for about ten seconds (cf. BBC 2009) and be placed directly under the interpreter. As a pilot project, it is suggested that short clauses containing the gist (as is done in the news headlines) be included for each story with detailed subtitles given in scenes where pictorial information is minimal, e.g. presenter or interview scenes. (For further information on the production of subtitles, the reader is referred to the BBC guidelines (BBC 2009)).

Thirdly, it is important that Deaf audiences be educated in general background knowledge and sign terminology. Unfamiliar terms and concepts can be introduced and defined in support programs, e.g. on DTV in collaboration with educators, in conjunction with standardisation of terms described below.

Fourthly, it is recommended that Deaf interpreters who possess both excellent signing (i.e. native or early signers) and presentation skills replace hearing interpreters on non-live (i.e. scripted) news broadcasts, as is done in the UK (cf. Stone 2009). This will not only result in improved quality of signing, especially in terms of NMFs and discourse patterns, but will also address employment equity considerations. While the ideal would be to have (non-interpreted) news broadcasts in original SASL presented by Deaf signers, this may not be economically feasible for broadcasting companies.

7.3.2 Recommendations for interpreters

The following recommendations are made for sign language interpreters:

1. In view of the problem of perceived linguistic variation, it is recommended that signs (especially terminology) used in the interpreted broadcasts be standardised. Ideally, this should be done by creating a sign bank for SASL in liaison with Deaf organisations and communities, but a practical starting point would be the interpreters agreeing among themselves (or via liaison through organisations such as SASLINC) on which signs to use for key terms on the news channels. It is also necessary to disseminate these signs and educate Deaf communities. The intrusion of foreign signs (especially ASL) into SASL also needs to be addressed by Deaf organisations and sign language interpreting bodies.
2. The random incorporation of Afrikaans signs and mouthing in TV news broadcasts only adds to the dialectal confusion and consequent viewer incomprehension. Since Afrikaans Deaf are not able to comprehend English sufficiently and appear to use a different sign system, it is recommended that this group be accommodated on Afrikaans news broadcasts, e.g. SABC 2 at 7:00 pm or ENUUS, using Afrikaans subtitles with an AGT interpreter.
3. Because of the small picture size, it is important that signs be clearly articulated. Hence, it is strongly recommended that interpreters wear long-sleeved clothing that covers as much of the neck, chest and arms as possible and that contrasts with the interpreter's skin colour. For the same reason, it is important that signing amplitude be optimally maximised as much as physical conditions allow. The small interpreter picture size and fast pace especially affects the visibility of signs that require fine finger movements; hence, interpreters should maximise background contrast, e.g. by not signing in front of the face or neck. Similarly, interpreters should adjust their signing angle so that the fingerspelling space is not in front of the face or neck and ensure that locations in signing space are clearly visible when referencing, i.e. preferably to the left or right of the signing space.
4. It is also recommended that signs be as unambiguous as possible. Hence, interpreters should ensure that the contextual meaning of signs is clear in cases of polysemy. For the same reasons, the use of nonce signs or unfamiliar signs should be avoided if possible, or at least defined adequately.
5. Interpreters should use NMFs such as facial expression and head/body movement frequently and consistently to convey sign language discourse and syntactic elements, not merely emotion. The use of mouth gestures should be given particular attention, since the

study showed that they were used minimally and often inconsistently. The functions of NMFs should also be discussed with Deaf groups.

6. It is recommended that interpreters mouth all keywords and finger-spelling clearly and simultaneously with the sign in the language consistent with their signing system or the program language. Consecutive or different mouthing and code-switching (e.g. mouthing in Afrikaans) should be avoided. Mouthing should be primarily regarded as integral to the sign and not as an alternative source of information, even when used to disambiguate signs.

7. Interpreters need to create an empathetic approach through appropriate eye gaze, warmth, addressing the target audience directly, etc. Interpreting would be improved by having a Deaf person (e.g. a monitor or mentor) in the studio.

8. Softer studio lighting should be used that does not create a blinding glare on the interpreters' faces.

9. In view of the fast pace of news broadcasting, it is recommended that finger-spelling should be minimised by having names and positions of less well-known personalities appear as subtitles to which an interpreter may simply refer. Although many South African place names already have established abbreviations, there is a need to liaise with Deaf organisations regarding abbreviations of contemporary South African places and personalities. It is recommended that unfamiliar names and places not be abbreviated, but spelled fully the first time and assigned a location in signing space for subsequent referencing should they occur more than once (e.g. Glenn Agliotti's name appears four times in the story about his trial in E10E171110, each time spelled differently).

10. Interpreters should spend time in prior preparation so that they are familiar with the text and well-rehearsed in the articulation of signs. Prior preparation would eliminate the number of spelling errors, truncated signs, badly articulated signs, meaningless additions, omissions of vital sentence structure and incorrect sign phonology. Ideally, preparation (and post-interpreting feedback) should be done in conjunction with a mentor or monitor (preferably a Deaf person) appointed by the broadcasting company or alternatively, the organisation supplying the interpreters (e.g. SASLINC) (cf. Leeson 2013).

11. It is also recommended that interpreters engage in critical self-reflection by regularly eliciting feedback (and encouraging constructive criticism) from their respective Deaf communities, friends and family members regarding their interpreting performance.

12. A slower signing speed would also contribute to the elimination of errors. SI places huge pressure on interpreters in terms of time constraints, complexity of the message and pace

of delivery. Thus this study supports standpoints that, where necessary, norms of fluency and coherence should take precedence over completeness of information (cf. Antonsen 2006; Pym 2008; Shlesinger 2000).

13. Interpreters are therefore recommended not to attempt to sign everything, but rather to sign coherently. Currently, interpreters' attempts to convey everything (i.e. to abide by the norm of completeness of information transfer or what Gile (1995) terms the rule of maximising information recovery), is resulting in violation of norms of fluency (Gile's (1995) rule of maximising communication impact), TL language norms, Deaf domestication norms of restructuring and gatekeeping to such an extent that information transfer is not effective since the garbled message is simply not understood by its intended audience. It must also be emphasised that news interpreting differs from conference interpreting which has largely become the model for SI. In conference interpreting, delegates are usually knowledgeable about the topic discussed and the related terminology, whereas in news interpreting, the message has to be decipherable to an audience who do not share the same basis of knowledge, even making allowance for Deaf communities' shared fund of knowledge (cf. Hogg 2011).

14. However, the above argument does not imply that interpreters simply follow Gile's (1995) law of least effort! The temptation to simplify merely in order to reduce production effort should be avoided, since this introduces errors of pidgin sign and inadequate equivalents. It also violates the Deaf information norm. The interpreter is thus constrained by Nord's (1997) concept of loyalty to the ST, the client and the target audience.

15. Interpreters should restructure the script as much as possible at both discourse and sentence level with the aid of Deaf signers so that it conforms to sign language discourse structure. This can be done with sufficient prior preparation. As noted in Chapter 2.6.1, domestication and idiomaticity are strong SI norms as well as strong Deaf norms (cf. Pöchhacker 1995; Marzocchi 2005): the interpreter is expected to be faithful to the *content* of the message but not to the ST structure!

16. In view of the above recommendations, the interpreter should observe the *gate-keeping* norm by filtering or adding appropriate information required by the target audience, changing discourse structure to conform to the TL and filtering out less important information. According to Stone (2009), the Deaf translation norm is not to create a "faithful" interpretation, but rather one "optimally relevant to the Deaf audience". This does not accord the interpreter creative licence over the TT, nor does it advocate patronising "dumbing down" of the TT for Deaf audiences, but merely recognises advances in understanding the nature of translation and interpreting over the past sixty years that what is said in a source language to

its audience in the source cultural worldview cannot be mapped equivalently onto a TL and its particular audience, i.e. that any translated or interpreted message must be adjusted both in terms of language norms and cultural world-view for it to function as an adequate translation (cf. Toury 1995) in the TL system. It also recognises the practicalities of SI, i.e. that it is not always possible (or desirable – especially in terms of ST structure) to interpret everything, but that the material must be managed strategically according to the communicative aim (cf. Pym 2008), i.e. Camayd-Freixas' (2011) definition of “communicative adequacy”.

17. Changes to first person perspective in news reporting need to be signalled appropriately. Unlike conference interpreting, most of news reporting is delivered (and interpreted) in the third person. Without textual reconstruction and signalling, sudden mid-story switches to first-person perspectives (as the lesser-understood interpreter tended to do) are confusing. It is recommended that the initial norm of personal perspective mirrors that of the ST, i.e. the first person primarily reserved for interpreting interviewees (who use the first person) and the third person used to interpret facts narrated (in the third person) by presenters and anchormen, interspersed with occasional role-play (i.e. constructed dialogue or action) in the first person (clearly signalled using referencing techniques and non-manual features) in the latter. This reflects the practice of the better understood interpreter.

18. Because of the challenges involved in media interpreting, it is recommended that TV interpreters undergo training in the form of workshops (cf. Leeson 2013).

In the following section, the contributions of this study are outlined.

7.4 Contributions of the research

The research offers a number of theoretical as well as practical contributions to existing knowledge.

7.4.1 Theoretical contributions

The study makes the following theoretical applications:

1. The reception-oriented model developed presents a new model for the evaluation of translations or interpretations. Although DTS-based models have been designed since Toury's 1980 publication, the fuzziness of its terms and methods of application has limited the usefulness of DTS in empirical research. In contrast, the present study offers a model that is well-structured in its methodology and well-defined in terms of its basic underlying concepts of norms, shifts and *tertium comparationis*.

2. The study represents the first introduction of GT principles into T/I studies and therefore the first attempt to align a reception-oriented T/I model with a GT approach. It demonstrated GT principles in determining variables and has also refined the GT model into a more efficient research paradigm by introducing an initial set of variables. The absence of T/I models based on GT principles is surprising in view of the establishment of GT in other areas of social research.
3. The research contributes significantly to the scanty existing empirical research on product quality and interpreter strategies and choices in its offering of a wide range of substitution, addition, omission and error categories. Moreover, although only touched upon obliquely, the study also contributes to our existing knowledge of T/I-universals in affirming simplification and over/underuse of TL features as TT characteristics.
4. The study contributes to our understanding of Deaf norms and expectations. This part of the study builds mainly on the contribution of Stone (2009) but at the same time contextualises Deaf interpreting norms of restructuring, information transfer, cultural empathy, gatekeeping and third-person interpreting within a South African context. It is thus the first South African study to investigate Deaf expectancy norms regarding interpreting. As such, it has opened a dialogue in the local Deaf community. Moreover, the inclusion of expectancy norms as an essential part of the model restores to TS a component of social responsibility that was lacking since its departure from *dynamic equivalence* models (cf. Nida & Taber 1974). The holistic approach in the present study through systematic application of GT principles represents an improvement over the one-dimensional *dynamic equivalence* approach of *equivalent effect* in that it results in a multidimensional model which encompasses a three-fold investigation of target audience norms of interpreting, language use and communicative preferences.
5. Although there are many sign language corpora used for linguistic research, this study constitutes the first sign language *interpreting* corpus. It also therefore represents the first application of readily available corpus concordance software in order to study signed interpretations and thus presents a significant contribution to corpus-driven signed language Interpreting Studies. It is therefore also the first empirical study to explore professional practice using a corpus of authentic transcriptions of signed TV interpretations.
6. The study introduces concepts derived from sign language linguistics into signed language Interpreting Studies, namely the ID gloss transcription system and the representation of manual signs using notation systems. Although used sparingly in the transcriptions themselves, the notation system proved invaluable in defining unknown signs. Similarly, the

construction and demonstration of a system of annotations makes an important contribution to signed language Interpreting Studies. The annotation system makes it possible to study a wide range of variables that pertain to sign language features (such as characteristics of manual signs and NMFs) as well as to features of interpretation (such as shifts and errors). It is also a simple matter to add further annotation codes should the need arise. The system can therefore be extrapolated to describe features of spoken language interpretation as well.

7. The study contributes towards a better understanding of the sociolinguistic composition of the Deaf community of South Africa.

8. The study contributes to our present understanding of features of SASL and aspects of language variation in SASL. It is also the first study that addresses the role and influence of Afrikaans and mouthing on SASL.

7.4.2 Practical applications

Apart from the theoretical contributions outlined above, the study also makes practical contributions.

Firstly, the study was able to function as an advocacy vehicle for the Deaf community in that the results of the survey have contributed to a better understanding of the needs and expectations of South African Deaf viewers. Intermittent reports were sent to SABC and ETV news on findings that served as guidelines for interpreters and ETV have already implemented some recommendations. ETV interpreters now sign at comprehensible speed, produce coherent sentences, use more facial expression and dress appropriately. (They also appear more relaxed and confident!) ETV has also adjusted subtitles to include names and positions of all interviewees and made weather reports Deaf-friendly by expressing information visually using large, lower-case text.

Secondly, the study offers a better understanding of the factors that affect comprehension of sign language interpreters and especially of those interpreters on TV news bulletins. It thus contributes to our knowledge of good sign language interpreting practice in that a set of guidelines are drawn up and presented in Section 7.3 above.

Thirdly, since the eye-tracking experiment and subsequent recorded SASL discussion are both ground-breaking research procedures in Deaf Studies, the experimental setup outlined provides a practical basis for future research.

Fourthly, the transcriptions will form part of the open-source SASL interpreting corpus that is being developed at Unisa and therefore contribute to building a database for future research.

In the next section, the triangulation of the research procedures is discussed.

7.5 Validity and reliability of results

The need for validity and reliability was introduced in Chapter 4.11. These terms are defined and applied differently in qualitative and quantitative studies.

In qualitative studies, reliability is defined as getting a good fit between the data recorded by the researcher and the natural phenomenon being investigated (cf. Glaser 1977). It is contended that the study meets Glaser's (1998:18) four criteria for reliability and validity in terms of "fit". Firstly, the concepts identified adequately express the patterns found in the data. Reliability is also enhanced in that saturation was achieved for the main categories. Secondly, the concepts sufficiently account for the majority of participants and behaviours (Glaser & Strauss 1967:30; Glaser 1998:18). Thirdly, the concepts are relevant, i.e. they explain the phenomenon under observation. Fourthly, the main concepts were flexible enough to be modified to fit new data, e.g. the empathy norm. Thus the project achieved its primary goal in terms of GT, which was to construct a comprehensive set of factors that affect Deaf comprehension.

In quantitative studies, reliability is defined in terms of the consistency, accuracy and replicability of results (cf. Cohen et al. 2005). Although not the primary aim of the research, it was nevertheless attempted to construct samples as statistically representative as conditions allowed. Where applicable, quantitative results are reported together with their standard deviations as indicators of reliability. Moreover, T-testing showed that differences between Deaf and hearing eye-tracking patterns were significant and also revealed significant differences between the two interpreters represented in the corpus in terms of the variables listed in Section 7.2.6 above.

Validity of qualitative concepts derived through GT analysis is defined in terms of empirical grounding (cf. Strauss & Corbin 1990:254-7). In this study, concepts are generated that are systematically related and conceptually linked. The main categories are well developed and are also theoretically dense. Besides examining the immediate interactions between participants and interpreters, the study also takes into account macroscopic phenomena such as sociolinguistic differences of Deaf communities, Deaf cultural values, trends in interpreting practice and also compares the results to linguistic and interpreting phenomena found internationally. The study also takes into account processes of change within SASL, such as the recent move towards standardisation. Finally, significant findings are highlighted based on their representativeness in the research.

Cohen et al. (2005) define validity as demonstrating that the research instruments indeed measure what they are supposed to. In terms of construct validity, all research procedures were based on previous research reported in the literature. Moreover, most linguistic criteria identified in the eye-tracking experiment and corpus study are described in terms of observable physical phenomena such as classifiers, hand movement, head/body movements and facial expressions. However, even more interpretive judgments of interpreter behaviour such as the identification of interpreter strategies evidenced in shifts were not made subjectively but based on established principles in the literature, e.g. Baker's (2011) strategies or Shlesinger's (2008) I-universals.

Triangulation of the research procedures also enhanced the reliability of the study. This is discussed in the next section.

7.5.1 Triangulation of research procedures

Triangulation is defined in Chapter 1.8.2 and Chapter 4.10 as the combined use of different research methods on the same objects in the study of aspects of human behaviour (Cohen et al. 2005). As noted in Chapter 4.10, *data triangulation* (i.e. using multiple *sources* of data), was implemented by comparing variables derived from analysis of a sample of Deaf respondents and participants with those derived from analysis of a corpus of interpretations, whereas *methodological triangulation* (i.e. using different research *methods* on the *same* objects of study) was implemented by using three different research procedures, namely questionnaires, eye-tracking and discussions to analyse the expectations of a sample of the Deaf community.

The various techniques of gathering data provided both quantitative and qualitative data in a mixed-methods approach. Triangulation of data and methods enhanced the reliability of the findings. In this study, triangulation played both a complementary (i.e. when one data collection method provides information that could not emerge from another) and a confirmatory role, i.e. when one data collection method confirms data that emerged from another). In the former case, the eye tracking data allowed the researcher to discover exactly what and to what extent participants watched while viewing a news broadcast. This data was not available in the other methods or procedures. In the latter case, the SASL discussion and corpus study confirmed findings from the questionnaires.

In the following sections, the reliability and validity of the data derived from each research procedure are discussed.

7.5.2 Validity and reliability of respondent sample results

As noted in Chapter 5.3, the sample is representative of the population at 99% confidence level within a confidence interval of 7.26-7.28 and at 95% within 5.51-5.53. Moreover, representativeness was also achieved in terms of age and gender. The reliability of the results was further enhanced by the fact that many respondents reported that they completed the questionnaire while watching the relevant news broadcasts, thereby considerably narrowing the gap between real and perceived evaluations.

Nevertheless, despite sample representativeness, the researcher was aware that some Deaf communities refused to participate in the survey, either due to a perception of the study as being an imposition of hearing people, despite the involvement of a Deaf member, or possibly because of polarization within the SA Deaf community. Moreover, since the sample was not regionally representative, some communities were under-represented. Hence it is possible that the sample is biased towards those Deaf groups that participated.

Secondly, the Deaf community has a communal rather than individual worldview, which meant that questionnaires were sometimes completed in the context of communal discussion rather than individually. This was especially noticeable in questionnaires returned from one rural community, where participants with like answers had been grouped together. On the other hand, the research allowed these groups to reflect for the very first time on sign language and sign language interpreting, which in itself was empowering. In one sense, all knowledge is a product of community filtering and approbation. Moreover, since norms are constructed communally (cf. Chapter 4.5.2), it is evident that these communal decisions are closer to our definition of norms than are individual decisions.

Thirdly, although every effort was taken to make the questionnaire as open and neutral as possible, imposed bias from (Deaf and hearing) volunteers who assisted with the distribution and filling in of the questionnaires had to be combatted. Training of volunteers and open-ended questions helped to minimise this. Assisted or group questionnaires (i.e. where respondents were too illiterate to fill in the forms themselves) were also marked as such for control purposes. Fifteen questionnaires showed evidence of a particular volunteer's bias, in that demands for subtitles and a Deaf signer were presented in two sentences that were duplicated verbatim for all his respondents, mostly in his handwriting.) Since the duplications were in the closing comments (Questions D1-2), their effect on the main study variables was fortunately minimal and since the data did not necessarily reflect the views of the respondents, it was treated as contaminated and omitted from analyses.

7.5.3 Validity and reliability of participant sample results

Eye tracking renders highly accurate data within 0.1% error (Tobii 2011) in terms of revealing where participants focussed. In view of the small sample size, a reasonable degree of replicability was achieved for the Deaf participant group (standard deviation on interpreter foci = 0.119). Moreover, the results could also be inferred to the wider population at 95% significance level within an 8% confidence interval from the population mean. This is very good representativeness for such a small sample.

Sample size was limited because the researcher depended on the willingness and ability of local Deaf to participate. It was initially planned to have twenty participants in each group (Deaf and hearing). (A sample size of more than twenty participants was regarded as too large in terms of data manipulation on the Tobii software.) Transport difficulties and not obtaining permission to take leave from workplaces were the main problems experienced by would-be participants. However, it was also observed that the Deaf community quickly reached interview *saturation* (cf. Mouton 1996:153), so that those who had participated in one of the previous procedures, e.g. the pilot study or the questionnaire, could not be induced to subsequent procedures. The sample was also restricted to representatives from local Gauteng communities. Attempts to conduct the eye-tracking experiment or discussion with other participants further afield would have presented logistical difficulties and considerably increased the cost of the research. The existence of bias or non-natural data in the eye-tracking experiment was controlled through retrospective questioning after each scan. One scan was rejected because the participant informed the researcher that she looked where she thought the researcher wanted her to look.

Since the SASL discussion used the same participants that had undergone the eye-tracking experiment, the same limitations apply in terms of sample size. Representativeness of the discussion group was not ideal, since the white Afrikaans Pretoria community was initially over-represented. However, this was compensated in that each group had four active participants, resulting in good representation of community, gender and race.

The validity of the variables extracted from the discussion is evidenced in their replicability using other triangulation methods.

7.5.4 Validity and reliability of the corpus results

According to Biber (2011:15), corpus analysis is considered the most reliable method of linguistic analysis. However, because of its small size, the corpus cannot claim statistical

representativeness (cf. Gile 1998b:75). Moreover, the results are based on two interpreters and are thus not necessarily valid for other TV interpreters. However, the richness of data obtained from the corpus in terms of types and the fact that variables achieved saturation (i.e. the addition of further transcripts did not introduce new variables) in terms of the GT iterative approach described in Chapter 4.4.2 confirms that the corpus analysis may claim representativeness of concepts. Also, both corpora contain the same number of texts and similar numbers of tokens, which allows direct comparison in terms of both diversity and word counts (Eskola 2004:87; Laviosa-Braithwaite 1995). Moreover, according to Gile (1998b:73), the use of authentic interpretations free from study-induced distortions also increases the validity of the results. Since the interpretations were recorded from the national media, the interpreters did not play any role in the collection, analysis or interpretation of the data and therefore the study is non-intrusive (cf. Dose 2012).

As noted above, in order to avoid subjective categorisation of data in the corpus manual analysis, categories were annotated in terms of observable physical features or categories reported in the literature. Moreover, mutually exclusive categories were chosen in order to prevent grey or fuzzy areas of categorisation in the quantitative analysis.

In the next section, limitations of the study are outlined.

7.6 Limitations of the study

As outlined above, the present study offers a number of contributions to our current understanding of TS and IS and also contributes to our knowledge of the South African Deaf population. Still significantly (but to a lesser extent), it has also extended our knowledge of the syntactic and discourse devices used in SASL. However, the main purpose of the study is to identify variables potentially hampering comprehension in order to form hypotheses which could be used to test comprehension in future research. Thus the present study does not quantify the effect of these variables on audience comprehension of a signed news interpretation, nor is it intended to be a comprehensive linguistic evaluation of SASL lexis, syntax and discourse devices.

Apart from limitations in terms of validity and reliability discussed in Section 7.5 above, the following limitations in the implementation of the various procedures are outlined.

The questionnaire was limited in that it was only available in English or Afrikaans, which meant that literacy could only be tested with respect to these languages and may have restricted some respondents' understanding of the questionnaire. Ideally, the form should have

been accessible in all eleven official South African languages, but this would have significantly increased both the cost (I was quoted R2000 per translation) and labour (in having to translate respondents' answers back to English) of the project.

The eye-tracking experiment was subject to three main limitations. Firstly, because of time constraints, not all interpreters could be represented on the video. However, the selection was adequate in that it consisted of a poorly-understood interpreter, a partially-understood interpreter and a well-understood interpreter. Secondly, although the study focused on user *perceptions* of comprehension, in retrospect, content-specific questions to test comprehension of the three interpreters viewed could have yielded interesting data. However, this would have also necessitated a full transcript of both ST and TT of the eye-tracking video in order to check for accuracy of transfer of the ST message in the TT as a possible interfering variable. Thirdly, more data could have been collected during the retrospective questioning after the eye-tracking scans had the open-ended questions (in line with a GT approach) regarding the interpreters, content or layout been followed with specific, quantifiable questions related to variables already identified in the questionnaire. In view of these limitations, follow-up research is envisaged using other Deaf participants and end-user think-aloud protocols.

Two limitations in the SASL discussion procedure were noted. Firstly, in line with a GT approach, the researcher adopted a non-invasive role in the discussion, allowing participants to bring up relevant points rather than impose issues on the discussion. As with the open-ended retrospective questions in the eye-tracking experiment, while this prevents leading questions and participant effects, it does not always ensure comprehensive data collection. This can be regarded as a limitation of the GT approach. Secondly, the recording software *Camtasia* used for the SASL discussion resulted in loss of data. Because of memory limitations, data had to be recorded in 30 minute sessions which then required approximately five minutes to save. Since it proved impossible to halt the very lively discussion, this meant that some data was lost. This data could fortunately be recovered from the recorded Afrikaans interpretation. The recordings also suffered from jerkiness due to the program only saving every 15th frame, which made it difficult to decipher some signs. Moreover, the video files created were too large to be replayed using Windows Media Player and had to be cut into smaller files for analysis.

Three limitations of the corpus procedure were noted. Firstly, the poor video quality of the home recordings, which suffered further under conversion to .avi format, limited data analysis. This was unavoidable since professional copies were not available. Secondly, the corpus is limited by lack of synchronisation of video and transcriptions. The initial aim was to

synchronise the transcriptions with the video recordings using programs to be developed by Unisa School of Computing. Due to administrative reasons, this part of the project was abandoned. Experimentation with ELAN is currently underway in order to investigate whether the ELAN software can offer synchronisation of a TT with both video recording and ST. A third limitation is one that is inherent in authentic observation, i.e. that it is not possible to control or isolate variables (Gile 1998b:73).

Although the transcription and annotation systems make significant contributions to the construction of sign language interpreting corpora, as a pioneer project, they are not without limitations. These are listed as follows:

1. ***Incomplete ID-gloss verification.*** Although ID-glosses should be defined in terms of a dictionary of signs, it was not feasible to check every sign against Penn et al.'s (1994) dictionary and define a notation for it. A more pragmatic approach was adopted in that frequently-used signs in the interpretations (e.g. "say") were simply assigned ID glosses based on experience and their use in the Gauteng community. Since the research is part of an ongoing project, it is envisaged that a more thorough checking against the dictionary will be undertaken in the future.
2. ***Expression of quantities.*** Quantities less than ten were expressed as glosses and not as numerals. This made them difficult to count as a group. It would have facilitated automatic concordance searches to represent quantities as numerals with an appropriate prefix, e.g. N123.
3. ***Conflict of mouthing annotation with other embedded annotations.*** The mouthing annotation (v0, v1 etc.) proved to be a nuisance when searching for other embedded annotations if mouthed words contained the same letter(s) as the annotation code. It is suggested for future research that either all other embedded annotations end with a delimiter regardless of the presence of a mouthed word (e.g. "child_E2-" cf. "child_E2-v0youth"), or that they be capitalised (i.e. U0, D1, etc. instead of u0, d1, etc.).
4. ***Identification of disparate mouthings.*** The assigning of a separate category for disparate mouthings (e.g. v4) would have enabled automatic distinction between real disparities (e.g. "child_v0youth") and grammatical variations which are not essentially disparate (e.g. "child_v0children"), and would therefore have greatly facilitated semi-automatic frequency calculations.

In the next section, recommendations for future research are offered.

7.7 Recommendations for future research

Based on the variables investigated in the present study, the following recommendations are made for future research:

1. ***Testing of results against comprehension.*** As noted in Section 7.2.6, each variable discovered as a result of the GT analysis in the present study can be constructed as a hypothesis in terms of target audience comprehension and thereby tested quantitatively. These hypotheses thereby offer many avenues for future research. For example, the hypothesis “increased signing speed negatively affects viewer comprehension” can be constructed from the variable “too fast signing” and investigated by testing comprehension of SASL interpretations conducted at different speeds of delivery.
2. ***End-user think-aloud protocols.*** Further investigation of target audience perceptions of interpreting quality is envisaged using eye-tracking together with end-user think-aloud protocols, in which Deaf participants watch a recording of an interpreted broadcast together with the researcher and comment on the quality of interpretation.
3. ***Expansion of the present corpus.*** Because of the time it takes to completely transcribe and annotate a single interpretation, it was only possible to study two interpreters in the present corpus. Work is underway on the transcription and annotation of the interpretations of three other TV sign language interpreters. It is hoped that these will be completed within the next five years and that further results will be published in this regard. Further transcription and annotation of other interpretations of the two interpreters investigated is also envisaged to increase representativeness of the present corpus.
4. ***Development of corpus software.*** Two avenues of programming research are urgently needed for sign language corpus research. Firstly, the development of a parser to facilitate annotation and transcription would make sign language corpus transcription more feasible in terms of time and labour. Secondly, there is a need for the development of software that simultaneously synchronises the video recording, spoken language transcription and signed transcription (i.e. ST and TT) together with their respective annotation tiers and which also allows concordance-based analysis of these ‘texts’.
5. ***Construction of a SASL corpus.*** One of the limitations encountered by the researcher was the dearth of information on SASL. Instead, the researcher had to rely on findings from other sign languages such as ASL, BSL, ISL and Auslan. The construction of a SASL corpus of original (not interpreted) discourse performed by proficient (i.e. native and early signers) Deaf signers is therefore necessary to investigate features of SASL, especially in terms of

NMFs and discourse markers. It is envisaged that the corpus also be annotated for sociological variation and thereby further our understanding of language variation within SASL. The researcher also anticipates further development of the notation system devised, especially to explore dialectal variants. The role of mouthing in SASL could also be explored.

6. ***Construction of a SASL sign bank.*** There is a need to standardise terminology, therefore it is recommended that a sign bank of SASL terms be created in cooperation with Deaf organisations. The corpus wordlist (Appendix E) offers a starting point.

7. ***Construction of a comparable SASL corpus.*** Once the corpus of original signed discourse has been constructed, the development of a comparable corpus is envisaged. Such a corpus could be used to explore how sign language features are affected by the interpreting process (e.g. T/I-universals).

8. ***Investigation of alternative presentation means.*** A further avenue of future research would be to compare the four different scenarios proposed in the present study, namely: a) the interpreter is replaced by subtitles; b) both an interpreter and subtitles are offered; c) a Deaf interpreter is used; d) a hearing interpreter is used (the present scenario). These scenarios could be compared in terms of both testing Deaf comprehension and exploring division of attention through eye-tracking. Moreover, no study has tested differences in comprehension between an interpreted presentation and an original signed presentation. This is also recommended as an area of future research. The practical application of the latter investigation would be the replacement of an interpreted broadcast by an original signed news broadcast.

9. ***Sociolinguistic research into SA Deaf communities.*** Since very little is known about South African Deaf communities, a sociolinguistic study of this linguistic group is needed. This includes an accurate census of Deaf signers. Linguistic mapping of South African sign languages/dialects is especially urgent in view of recent standardisation efforts. The apparent difference of Afrikaans sign (AGT) to other sign systems indicates it as a possible separate language, which needs to be investigated further.

10. ***Research into cognitive processing.*** Investigation of truncated and incorrectly articulated signs may shed light on cognitive processing during the process of interpreting. Moreover, further investigation of visual cognitive capacities of both Deaf and hearing using eye-tracking is also envisaged.

In the following section, the chapter is summarised and the study is concluded.

7.8 Conclusion

In this chapter, the findings pertinent to the research questions were summarised and the main research question answered. The study found that aspects of all research variables accounted for possible reasons of incomprehension for Deaf viewers watching interpreted news broadcasts.

In terms of means of communication, the majority of Deaf South Africans are restricted to signed interpretation as the primary means of accessing information from news broadcasts. They are further restricted by low levels of education in understanding the content of such broadcasts.

In terms of physical environment factors, the small size of the interpreter picture primarily affected the ability of Deaf viewers to discern and therefore comprehend the signs formed by the interpreters. However, inadequate hand contrast against skin and clothing and too fast signing also affected visibility, whereas harsh studio lighting and poor programme timing were found to affect the quality of interpreting and audience viewing behaviours respectively.

Thirdly, language variation was found to be a major factor contributing to Deaf audiences' lack of comprehension of the interpreters, both in terms of the dialectal backgrounds of the Deaf viewers as well as in terms of dialectal variation in the interpreter's sign language. Moreover, the findings showed that incomprehension due to dialectal variation was most marked for Afrikaans Deaf communities. Other factors related to language variation accounting for incomprehension include inadequate interpreter mouthing and different finger-spelling systems.

In terms of language use, the study found that interpreters' fast or unclear manner of signing (especially with regard to finger-spelling), incorrect, inadequate or inconsistent use of non-manual features such as facial expression, head/body movement and mouthing and incorrect deployment of discourse devices such as referencing techniques contributed towards incomprehension of the signed message.

In terms of interpreter choices, the study found that viewer comprehension correlated with interpreters' abilities to manage the message strategically in terms of adherence to Deaf norms of restructuring and gate-keeping of information and culture, as well as in terms of their ability to minimise the frequencies of errors committed, especially in terms of incorrect sign phonology, incorrect referencing and errors of omission or over-simplification related to condensation strategies.

From these findings, sixteen variables were selected based on their representativeness in the corpus as primarily accounting for Deaf South Africans' lack of comprehension, namely:

- The use of dialects;
- The small size of the interpreter picture;
- Inconsistency in using NMFs;
- Non-simultaneous, unclear or different mouthing, including code-switching;
- Carelessness in sign articulation;
- Poor hand visibility against skin and clothing;
- Omissions of vital sentence structure;
- Too fast signing;
- Incorrect sign phonology;
- Adherence to ST/SL structure;
- Meaningless additions;
- Incorrect referencing;
- Over-simplification and shortening;
- Loss of eye contact with audience;
- Insufficient target audience background knowledge;
- Unjustified first person perspectives.

These variables served as a basis for constructing a set of guidelines for simultaneous sign language media interpreting.

The contributions of the research were then outlined in terms of theoretical contributions relating to our knowledge of theoretical models of analysis, interpreter strategies, Deaf expectancy norms and corpus transcription and annotation systems, as well as in terms of practical contributions relating to improved quality of signed interpretation, guidelines for sign language interpreters and groundwork for future research.

Thereafter, the reliability and validity of the study was assessed in terms of both qualitative and quantitative benchmarks. It was argued that although the study does not always meet quantitative benchmarks of statistical representativeness, the primary objective of qualitatively obtaining a best fit of variables accounting for audience incomprehension was met. Other limitations in the collection, analysis of data and construction of the annotation system were also noted. Suggestions are also made in order to improve the annotation system.

The study concludes with recommendations for future research based on the study's findings primarily in the fields of IS and signed language interpreting, but also in related disciplines of

corpus linguistics, sign language linguistics, sociolinguistics, cognitive linguistics and computer programming. Immediate research interests include testing of the variables found against audience comprehension, expansion of the present corpus and development of an original SASL corpus for the purposes of contrastive analysis.

The study relied heavily on the cooperation and good will of Deaf communities throughout South Africa. Good relationships were maintained with these communities through periodic feedback of findings. Moreover, the study is on-going in that questionnaires are still being distributed to Deaf South Africans and further interpretations are being added to the corpus. During the course of the study, findings were also relayed to SABC and ETV, the latter implementing some of our suggestions. It is also envisaged that further findings will be relayed to these broadcasting corporations in the near future. Moreover, three articles arising from the study have already been submitted for publication to accredited journals and a further article is in draft form pending submission. It is thereby hoped that the study's findings will thereby be disseminated to the larger academic community.

8. LIST OF SOURCES

- Aarons, D. & Akach, P. 2002. South African Sign Language: one language or many? In Mesthrie, R. *Language in South Africa*. Cambridge: Cambridge University Press, 127-147.
- Aarons, D. & Morgan, R. 2003. Classifier predicates and the creation of multiple perspectives in South African Sign Language. *Sign Language Studies* 3(2):360-382.
- Aarons, D. 1994. *Aspects of the syntax of ASL*. Boston: Boston University. Unpublished PhD thesis.
- Akach, P. & Lubbe, J. 2003. The giving of personal names in spoken languages and signed language – a comparison. *Acta Academica Supplementum* (2):104-128.
- Akach, P. 1997. The grammar of sign language. *Language Matters* 28:7-35.
- Alexieva, B. 2002. A typology of interpreter-mediated events. In Pöchhacker, F. & Shlesinger, M. *The Interpreting Studies reader*. London & New York: Routledge, 218-233.
- Alexieva, B. 1994. Types of text and intertextuality in simultaneous interpreting. In Snell-Hornby, M., Pöchhacker, F. & Kaindl, K. (eds). *Translation Studies – an interdisciplinary*. Amsterdam & Philadelphia: John Benjamins, 179-187.
- Alexieva, B. 1983. Compression as a means of realisation of the communicative act in simultaneous interpreting. *Fremdsprachen* 27(4):233-239.
- Al-Salman, S. & Al-Khanji, R. 2002. The native language factor in simultaneous interpretation in an Arabic/English context. *Meta* 47(4):607-625.
- Allen, T. 1986. Patterns of academic achievement among hearing impaired students: 1974 and 1983. In Schildroth, A. & Karchmer, M. (eds). *Deaf children in America*. San Diego, CA: College-Hill Press, 161-206.
- Altman, J. 1994. Error analysis in the teaching of simultaneous interpretation: a pilot study. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap. Empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 25-38.
- Anderman, G. & Rogers, M. (eds). 2008. *Incorporating corpora: the linguist and the translator*. Clevedon, Buffalo & Toronto: Multilingual Matters.
- Anderson, L. 1994. Simultaneous interpretation: contextual and translation aspects. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap. Empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 101-120.

- Angouri, J. 2010. Quantitative, qualitative or both? Combining methods in linguistic research. In Litosseliti, L. *Research methods in linguistics*. London & New York: Continuum International, 29-45.
- Anthony, L. 2011. *AntConc* (software) Version 3.2.4w (Windows). Faculty of Science and Engineering, Waseda University, Japan.
- Antonsen, S. 2006. A live interpreter channel in Norway: NRK1 Tegnspråk/ NRK1 Sign Language. In McKee, R. (ed). *Proceedings of the inaugural conference of the World Association of Sign Language Interpreters*. Coleford: Douglas McLean, 101-105.
- [Auslan]. 2012. Auslan signbank. <http://www.auslan.org.au/about/corpus/>. Accessed 16/10/2012.
- Baker, A., Van der Bogaerde, B. & Crasborn, O. (eds). 2002. *Cross-linguistic perspectives in sign language research: selected papers from TISLR 2000*. Hamburg: Signum Verlag.
- Baker, M. 2011. *In other words. A coursebook on translation*. (2nd ed.). London & New York: Routledge.
- Baker, M. & Saldanha, G. (eds). 2009. *Routledge encyclopaedia of Translation Studies*. London & New York: Routledge.
- Baker, M. 1996. Corpus-based Translation Studies: the challenges that lie ahead. In Somers, H. (ed.). *Terminology, LSP and translation: studies in language engineering in honour of Juan C. Sager*. Amsterdam & Philadelphia: John Benjamins, 175-186.
- Baker, M. 1995. Corpora in Translation Studies: an overview and some suggestions for future research. *Target* 7(2):223-243.
- Baker, M. 1993. Corpus linguistics and Translation Studies: implications and applications. In Baker, M., Francis, G. & Tognini-Bonelli, E. (eds). *Text and technology: in honour of John Sinclair*. Amsterdam & Philadelphia: John Benjamins, 233-250.
- Baker-Shenk, C. & Cokely, D. 1981. *American Sign Language: A teacher's resource text on grammar and culture*. Washington D.C: Gallaudet University Press.
- Balaskó, M. 2008. What does the figure show? Patterns of translationese in a Hungarian comparable corpus. *trans-kom* 1(1):58-73. http://www.trans-kom.eu/ihv_010-01_2008.html. Accessed 07/12/2012.
- Banks, J., Gray, C. & Fyfe, R. 1990. The written recall of printed stories by severely deaf children. *British Journal of Educational Psychology* 60:192-206.
- Barik, H. 1994. A description of various types of omissions, additions and errors of translation encountered in simultaneous interpretation. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap: empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 121-37.

- Barik, H. 1975. Simultaneous interpretation: qualitative and linguistic data. *Language and Speech* 18:272-297.
- Barlow, M. 2003. ParaConc: a concordancer for parallel texts. Houston: Athelstan. <http://www.athel.com/paraconc.pdf>. Accessed 31/10/2012.
- Baroni, M. & Bernadini, S. 2006. A new approach to the study of translationese: machine-learning the difference between original and translated text. *Literary and Linguistic Computing* 21(3):259-74.
- Bartłomiejczyk, M. 2006. Strategies of simultaneous interpreting and directionality. *Interpreting* 8(2):149-174.
- Bauman, N. 2002. Speech reading (lip reading). Centre for hearing loss help. <http://www.hearinglosshp.com>. Accessed 20/04/2009.
- [BBC]. British Broadcasting Company. 2009. Online subtitling editorial guidelines, V1.1. http://www.bbc.co.uk/guidelines/futuremedia/accessibility/subtitling_guidelines/online_sub-editorial-guidelines_vs1_1.pdf. Accessed 03/06/2013.
- Beeby, A., Inés, P. & Sánchez-Gijón, P. (eds). 2009. *Corpus use and translating: corpus use for learning to translate and learning corpus use to translate*. Amsterdam & Philadelphia: John Benjamins.
- Bell, R. 1991. *Translation and translating: theory and practice*. London: Longman.
- Bellugi, U. & Klima, E. 1991. Properties of visual spatial languages. In Prillwitz, S. & Vollhaber, T. (eds). *Sign language research and application. Proceedings of the International Congress on Sign Language Research and Application, 23-25 Mar, 1990*. Hamburg: Signum Verlag, 115-144.
- Bendazzoli, C. Sandrelli, A. & Russo, M. 2011. Disfluencies in simultaneous interpreting: a corpus-based approach. In Kruger, A., Wallmach, K. & Munday, J. (eds). *Corpus-based Translation Studies: research and applications*. London & New York: Continuum, 282-306.
- Bergman, B. & Wallin, L. 2001. A preliminary analysis of visual mouth segments in Swedish Sign Language. In Boyes Braem, P. & Sutton-Spence, R. (eds). *The hands are the head of the mouth*. Hamburg: Signum Verlag, 51-68.
- Berke, J. 2009. Deaf community – South Africa: schools, organisations and television. <http://deafness.about.com/od/internationaldeaf/a/southafrica.htm>. Accessed 11/11/2009.
- Berman, S. & Wood, M. (eds). 2005. *Nation, language and the ethics of translation*. Princeton: Princeton University Press.
- Biber, D. 2011. Corpus linguistics and the study of literature: back to the future? *Scientific Study of Literature* 1(1):15-23.

- Biber, D. 1993. Representativeness in corpus design. *Literary and Linguistics Computing* 8(4): 243-257.
- Bickford, J. & Fraychineaud, K. 2008. Mouth morphemes in ASL: a closer look. <http://www.editora-arara-azul.com.br/EstudosSurdos.php>. Accessed 22/06/2012.
- Bidoli, C. 2009. Sign language: a newcomer to the interpreting forum. (Paper given at the International Conference on Quality in Conference Interpreting.) <http://www.openstarts.units.it/dspace/bitstream/10077/2454/1/08.pdf>. Accessed 21/12/09.
- Bidoli, C. 2002. Spoken-language and signed-language interpretation: are they really so different? In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 171-180.
- Bidoli, C. 2001. Sign language: a newcomer to the interpreting forum. *The Interpreters' Newsletter* 11:131-151.
- Blum-Kulka, S. 1986. Shifts of cohesion and coherence in translation. In House, J. & Blum-Kulka, S. (eds). *Interlingual and intercultural communication: discourse and cognition in translation and second language acquisition*. Tübingen: Gunter Narr, 17-35.
- Boudrealt, P. 2005. Deaf interpreters. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 323-56.
- Bowker, L. & Pearson, J. 2002. *Working with specialized language: a practical guide to using corpora*. London & New York: Routledge.
- Boyd, J. & Vader, E. 1985. Captioned television for the deaf. *American Annals of the Deaf* 117(1):34-37.
- Boyes-Braem, P. & Sutton-Spence, R. (eds). 2001. *The hands are the head of the mouth: the mouth as articulator in sign languages*. Hamburg: Signum Verlag.
- Braffort, A., Bolot, L., Chételat-Pelé, E., Choisier, A. Delorme, M., Filhol, M., Segouat, J., Verrecchia, C., Badin, F. & Devos, N. 2010. Sign language corpora for analysis, processing and evaluation. http://www.lexitron.nectec.or.th/public/LREC-2010_Malta/pdf/555_Paper.pdf. Accessed 26/05/2012.
- Brennan, M. 2005. Conjoining word and image in British sign language (BSL): an exploration of metaphorical signs in BSL. *Sign Language Studies* 5(3):360-382.
- Brennan, M. 1975. Can deaf children acquire language? *American Annals of the Deaf* 20(5):463-479.
- Brislin, R. (ed.). 1976. *Translation: applications and research*. New York: Gardner Press.
- Bros-Brann, E. 2002. Simultaneous interpretation and the media: interpreting live for television. <http://www.aiic.net>. Accessed 21/12/2009.

- [BSLCP] British Sign Language Corpus Project. 2013. BSL Corpus Project. <http://www.bslcorpusproject.org/>. Last accessed 23/04/2013.
- Bühler, H. 1986. Linguistic (semantic) and extra-linguistic (pragmatic) criteria for the evaluation of conference interpretation and interpreters. *Multilingua* 5(4):231-235.
- Bungeroth, J. & Ney, H. 2005. Automatic generation of German sign language glosses from German words. International Workshop on Gesture in Human-Computer Interaction and Simulation (GW), Vol 3881, 49-52, Ile-de-Berder, France, May 2005. http://www-i6.informatik.rwth-aachen.de/web/Publications/index/349/Bungeroth_ney_GW_2005.pdf Accessed 16/07/2012.
- Bungeroth, J., Stein, D., Drew, P., Ney, H., Morissey, S., Way, A. & Van Zijl, L. 2008. The ATIS sign language corpus. In *Proceedings of the 6th International Conference on Language Resources and Evaluation (LREC 2008), Marrakech, 2943-2946*. <http://www.lrec-conf.org/lrec2008/>. Accessed 29/05/2012.
- Bylard-Ozeroff, A., Králová, J. & Moser-Mercer, B. (eds). 1998. *Translators' strategies and creativity. Selected papers from the 9th International Conference on Translation and Interpreting, Prague, September 1995*. Amsterdam & Philadelphia: John Benjamins.
- Caccamise, F. & Newell, W. 2011. Sign language proficiency interview (SLPI), S7 Paper #20, National Technical Institute for the Deaf. <http://www.rit.edu/ntid/slpi/system/files/FAQSLPIUse.pdf>. Accessed 29/07/2012.
- Carty, B. Macready, S. & Sayers, E. 2009. "A grave and gracious woman": dead people and signed language in colonial New England. *Sign Language Studies* 9(3):287-323.
- Camayd-Freixas, E. 2011. Cognitive theory of simultaneous interpreting and training. *Proceedings of the 52nd Conference of the American Translators Association*. New York: ATA. <http://www.dll.fiu.edu/people/full-time-faculty/erik-camayd-freixas/cognitive-theory-2011.pdf>. Accessed 07/12/2012.
- Cencini, M. 2002. On the importance of an encoding standard for corpus-based Interpreting Studies. Extending the TEI scheme. http://www.intralea.it/specials/cult2k/ita_more.php?id=107_0_42_0_C. Accessed 07/12/12.
- Cencini, M. & Aston, G. 2002. Resurrecting the corp(us/se): towards an encoding standard for interpreting data. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 47-62.
- Chernov, G. 2004. *Inference and anticipation in simultaneous interpreting*. Amsterdam & Philadelphia: John Benjamins.
- Chernov, G. 1994. Message redundancy and message anticipation in simultaneous interpreting. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap. Empirical*

- research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 139-153.
- Chernov, G. 1978. *Teoriya i praktika sinkronnogo perevoda*. Moscow: Mezhdunarodniye Otnosheniya.
- Chesterman, A. 1999. Description, explanation, prediction: a response to Gideon Toury and Theo Hermans. In Schäffner (ed.). 1999. *Translation and norms*. Clevedon & Philadelphia: Multilingual Matters, 90-97.
- Chesterman, A. 1997. *Memes of translation*. Amsterdam & Philadelphia: John Benjamins.
- Chiaro, D. 2002. Linguistic mediation on Italian television: when the interpreter is not an interpreter: a case study. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 215-228.
- Cohen, L., Manion, L. & Morrison, K. 2005. *Research methods in education*. London & New York: Routledge.
- Cokely, D. 1992. *Interpretation: a sociolinguistic model*. Burtonsville, MD: Linstock Press.
- Cole, P. & Morgan, J. (eds). 1975. *Syntax and semantics. Vol 3: Speech acts*. New York: Academic Press.
- Collados Aís, A., Sanchez, M. & Gile, D. (eds). 2003. *La evaluación de la calidad en interpretación: investigación*. Granada: Comares.
- Conrad, P. & Stegenga, S. 2005. Case studies in education: practical application of ethics and role. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 293-322.
- [Constitution]. 1996a. Constitution of the Republic of South Africa. <http://www.info.gov.za/documents/constitution/1996/a108-96.pdf>. Accessed 12/10/2010.
- [Constitution]. 1996b. Chapter 1:1-6. Founding provisions. <http://www.info.gov.za/documents/constitution/1996/96cons1.htm#6>. Accessed 12/10/2010.
- Contreras, R. 2002. ASL linguistics: sociolinguistic variation of ASL. <http://www.lifeprint.com/asl101/pages-layout/sociolinguisticvariationofasl.htm>. Accessed 12/10/1010.
- Corbin, J. & Strauss, A. 2008. *Basics of qualitative research: techniques and procedures for developing Grounded Theory*. Thousand Oaks: Sage Publications.
- Corbin, J. & Strauss, A. 1990. Grounded Theory research: procedures, canons and evaluative criteria. *Qualitative Sociology* 13(1):3-21.
- Cormier, K., Fenlon, J., Johnston, T., Rentelis, R., Schembri, A., Rowley, K., Adam, R. & Woll, B. 2012. From corpus to lexical database to online dictionary: issues in annotation

- of the BSL corpus and the development of BSL Signbank. <http://www.academia.edu/2230337/>. Accessed 24/04/2013.
- Crasborn, O. 2010. What does “informed consent” mean in the Internet Age? *Sign Language Studies* 12(1):276-296.
- Crasborn, O. 2009. Corpus studies of mouth behaviour. Paper presented at the Sign Language Corpora: Linguistic issues workshop, London. <http://www.bslcorpusproject.org/sign-language-corpora-linguistic-issues/program/>. Accessed 16/05/2012.
- Crasborn, O. & Hanke, T. 2010. Metadata for signs language corpora. Background document for an ECHO workshop, May 8-9 2003, Radboud University, Niemegen. <http://www.let.ru.nl/sign-lang/echo/events.html>. Accessed 20/5/2012.
- Dam, H. 1998. Lexical similarity vs lexical dissimilarity in consecutive interpreting. *The Translator* 4(1):49-68.
- Davies, A. & Elder, C. (eds). 2005. *The handbook of Applied Linguistics*. Oxford: Blackwell.
- Davies, M. 2009. The 385+ million word corpus of contemporary American English (1990-2008+): design, architecture and linguistic insights. *International Journal of Corpus Linguistics* 14(2):159-90.
- Dayrell, C. 2008. Investigating the preference of translators for recurrent lexical patterns: a corpus-based study. *trans-kom* 1(1):36-57. http://www.trans-kom.eu/ihv_01_01_2008.html. Accessed 07/12/2012.
- Deaf and HOH Culture Information. 2010. <http://www.members.aol.com>. Accessed 21/10/2010.
- DeafSA. 2012. Deaf Federation of South Africa. <http://www.deafsa.co.za>. Accessed 15/06/2012.
- DeafSA. 2009. Policy on the provision and regulation of South African sign language interpreters. http://www.deafsa.co.za/resources/SASLI_policy.pdf. Accessed 20/06/2012.
- DeafSA. 2008. DeafSA Constitution. <http://www.deafsa.co.za/resources/Constitution.pdf>. Accessed 20/06/2012.
- Delabastita, D. 1993. *There's a double tongue: an investigation into the translation of Shakespeare's wordplay, with special reference to 'Hamlet'*. Amsterdam: Rodopi.
- Delabastita, D. 1989. Translation and mass communication: film and TV. Translation as evidence of cultural dynamics. *Babel* 35(4):193-218.
- Demers, H. 2005. The working interpreter. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 203-30.
- Deumert, A. 2009. The sociolinguistics of sign language. In Mesthrie, R., Swann, J., Deumert, A & Leap, W. *Introducing sociolinguistics*. Second edition. Edinburgh: Edinburgh University Press, 407-439.

- De Valois, R. & De Valois, K. 1990. *Spatial vision*. Oxford: Oxford University Press.
- De Vries, A. 1994. *Zuiwer en onvervalscht? Een beschrijvingsmodel voor bijbelvertalingen, ontwikkeld en gedemonstreerd aan de Petrus Canisius Vertaling*. Amsterdam: Free University of the Netherlands.
- Diriker, E. 2004. *De-/Re-contextualizing conference interpreting: interpreters in the ivory tower?* Amsterdam & Philadelphia: John Benjamins.
- Diriker, E. 2001. *Contextualizing simultaneous interpreting: interpreters in the ivory tower?* Istanbul: Bogazici University. Unpublished PhD dissertation.
- [DISA]. Digital Innovation South Africa. 2009. http://www.disa.ukzn.ac.za/index.php?option=com_displaydc&recordID=leg19500707.028.020.041. Accessed 07/05/2013.
- Dollerup, C. & Appel, V. (eds). 1996. *Teaching translation and interpreting: new horizons*. Amsterdam & Philadelphia: John Benjamins.
- Donato, V. 2003. Strategies adopted by student interpreters in SI: a comparison between the English-Italian and the German-Italian language pairs. *The Interpreters' Newsletter* 12:101-134.
- Dörnyei, Z. 2007. *Research methods in applied linguistics*. Oxford: Oxford University Press.
- Dragsted, B. & Hansen, I. 2007. Speaking your translation: exploiting synergies between translation and interpreting. In Pöchhacker, F., Jakobsen, A. & Mees, I. (eds). *Interpreting Studies and beyond*. Copenhagen: Samfundslitteratur Press. Copenhagen Studies in Language series, 251-274.
- Dose, S. 2010. *Patterns of growing standardisation and interference in interpreted German discourse*. Pretoria: University of South Africa. Unpublished MA dissertation.
- Duflou, V. 2007. Norm research in conference interpreting: how can the study of documentary sources contribute to a better understanding of norms? In Gerzymisch-Arbogast, H. & Budin, G. (eds). *MuTra 2007 – LSP translation scenarios: conference proceedings*. Frankfurt-am-Main: Peter Lang, 1-11. Available at http://www.euroconferences.info/proceedings/2007_Proceedings/2007_Duflou_Veerle.pdf. Accessed 07/12/2012.
- Duncan, J. 1980. The demonstration of capacity limits. *Cognitive Psychology* 12:75-96.
- Duvenhage, E. 2007. SU staff member helps with computerized sign language project. *Science in Africa* (April). <http://www.scienceinAfrica.co.za/2007/july/signlanguage/htm>. Accessed 20/06/2012.
- [ECDGI]. European Commission Directorate General for Interpretation. 2005. Interpretation: where do we stand 8 months after enlargement? http://europa.eu/rapid/press-release_MEMO-05-9_en.htm. Accessed 29/12/2012.

- [ECHO]. European Cultural Heritage Online. s.a. Case study 4: sign languages. <http://sign-lang.ruhosting.nl/echo/header.html>. Last accessed 23/04/2013.
- Edwards, D. 2006. Discourse, cognition and social practices: the rich surface of language and social interaction. *Discourse Studies* 8(1):41-49.
- Emmorey, K. 1993. Processing a dynamic visual-spatial language: psycholinguistic studies of American Sign Language. *Journal of Psycholinguistic Research* 22(2):153-187.
- Emmorey, K., Klima, E. & Hickok, G. 1998. Mental rotation within linguistic and non-linguistic domains in users of American Sign Language. *Cognition* 68:221-226.
- Emmorey, K. & Reilly, J. (eds). 1995. *Language, gesture and space*. Hillside, NJ: Lawrence Erlbaum.
- Engberg-Pedersen, E. 1993. *Space in Danish Sign Language: the semantics and morpho-syntax of the use of space in a visual language*. Hamburg: Signum Verlag.
- Erlenkamp, S., Amundsen, G., Berge, S., Grande, T., Mjøen, O. & Raanes, E. 2011. Becoming the ears, eyes, voice and hands of someone else: educating generalist interpreters in a three-year programme. In Leeson, L., Wurm, S. & Vermeerbergen, M. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 12-36.
- Eskola, S. 2004. Untypical frequencies in translated language. A corpus-based study on a literary corpus of translated and non-translated Finnish. In Mauranen, A. & Kujamäki, P. (eds). 2004. *Translation universals: do they exist?* Amsterdam & Philadelphia: John Benjamins, 83-99.
- Even-Zohar, I. 1990. Polysystem studies. *Poetics Today* 11(1):1-94.
- Færch, C. & Kasper, G. 1983. Plans and strategies in interlanguage communication. In Færch, C. & Kasper, G. (eds). *Strategies in interlanguage communication*. London: Longman, 20-60.
- Færch, C. & Kasper, G. (eds). 1983. *Strategies in interlanguage communication*. London: Longman.
- Fauconnier, G. & Turner, M. 1998. Conceptual integration networks. *Cognitive Science* 22(2):133-187.
- Fernandes, L. 2008. Corpora in Translation Studies: revisiting Baker's typology. *Fragmentos* 30:87-95.
- Fischer, S. & Siple, P. (eds). 1990. *Theoretical issues in sign language research, Vol. 1: Linguistics*. Chicago: University of Chicago Press.
- Fleming, D. 2003. Recommendations for interpreters providing relay. <http://scic.cec.eu.int/scicnet/upload/docs/application/pdf/030925.pdf>. Accessed 12/12/2012.

- Frawley, W. 1984. Prolegomenon to a theory of translation. Reprinted in Venuti, L. 2000. *The Translation Studies reader*. London: Routledge, 250-63.
- Friedman, L. (ed.). 1977. *On the other hand: new perspectives in American Sign Language*. New York: Academic Press.
- Fromkin, V., Rodman, R. & Hyams, N. 2007. *An introduction to language*. Eighth edition. Boston: Thomson Wadsworth.
- Frost, A. 2011. Sign language corpus using Signwriting. http://www.signwriting.org/archive/docs7/sw0650_Sign_Language_corpus_using_Signwriting_May2011.pdf. Accessed 25/05/2012.
- Fung, P. & Cheung, P. 2004. Mining very-non-parallel corpora: parallel sentence and lexicon extraction via bootstrapping and EM. Paper presented at the 12th Conference on Empirical Methods in Natural Language Processing, Barcelona, 57-63. <http://acl.ldc.upenn.edu/acl2004/emnip/pdf/Fung.pdf>. Accessed 28/12/2012.
- Galli, C. 1990. Simultaneous interpretation in medical conferences: a case study. In Gran, L. & Taylor, C. (eds). *Aspects of applied and experimental research on conference interpretation*. Udine: Campanotto Editore, 61-81.
- Ganiso, M. 2012. *Sign language in South Africa: language planning and policy challenges*. Grahamstown: Rhodes University. Unpublished MA dissertation.
- Garcia, B., Fusellier-Souza, I., Sallandre M., Boutet, D., L'Huillier, M., Cuxac, C., Courtin, C. & Balvet, A. 2009. The CREAGEST project (ANR): linguistic and methodological issues involved in creating a corpus of French sign language (LSF) and natural gesture. Paper presented at the Sign Language Corpora: Linguistic Issues Workshop, London. <http://www.bslcorpusproject.org/sign-language-corpora-linguistic-issues/program/>. Accessed 16/05/2012.
- Garrison, W. Long, G. & Dowaliby, F. 1997. Working memory capacity and comprehension processes in Deaf readers. *Journal of Deaf Studies and Deaf Education* 2(2):78-94.
- Garzone, G. 2002. Quality and norms in interpretation. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 107-120.
- Garzone, G. & Viezzi M. (eds). 2002. *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins.
- [GDE]. 2012. Gauteng Department of Education. <http://www.education.gpg.gov.za>. Accessed 05/06/2012.
- Gentzler, E. 2001. *Contemporary translation theories*. London & New York: Routledge.

- Gerger, D. 1976. Empirical studies of simultaneous interpretation: a review and a model. In Brislin, R. (ed.) *Translation: applications and research*. New York: Gardner Press, 165-207.
- Gernsbacher, M. & Shlesinger, M. 1997. The proposed role of suppression in simultaneous interpretation. *Interpreting* 2(1):119-140.
- Gerger, D. & Sinaiko, H. (eds). 1978. *Language, interpretation and communication*. New York & London: Plenum Press.
- Gerzymisch-Arbogast, H. & Budin, G. (eds). 2007. *MuTra 2007 – LSP translation scenarios: conference proceedings*. Frankfurt-am-Main: Peter Lang.
- Gile, D. 1998a. Norms in research on conference interpreting: a response to Theo Hermans and Gideon Toury. *Multilingual Matters. Current Issues in Language and Society* 5(1-2):99-106.
- Gile, D. 1998b. Observational studies and experimental studies in the investigation of conference interpreting. *Target* 10(1):69-93.
- Gile, D. 1995. *Basic concepts and models for interpreter and translator training*. Amsterdam & Philadelphia: John Benjamins.
- Gile, D. 1994. Opening up in Interpretation Studies. In Snell-Hornby, M., Pöchhacker, F. & Kaindl, K. (eds). *Translation Studies – an interdisciplinary*. Amsterdam & Philadelphia: John Benjamins, 149-158.
- Gile, D. 1991. A communication-oriented analysis of quality in nonliterary translation and interpretation. In Larson, M. (ed). *Translation: theory and practice, tension and interdependence*. Binghamton NY: SUNY, 188-200.
- Gile, D. 1990. L'évaluation de la qualité de l'interprétation par les délégués: une étude des cas. *The Interpreters' Newsletter* 3:66-71.
- Gile, D. 1983. Aspects méthodologiques de l'évaluation de qualité du travail en interprétation simultanée. *Meta* 28(3):236-243.
- Glaser, B. 1998. *Doing Grounded Theory: issues and discussions*. Mill Valley: Sociology Press.
- Glaser, B. 1978. *Theoretical sensitivity: advances in the methodology of Grounded Theory*. Mill Valley: Sociology Press.
- Glaser, B. & Strauss, A. 1967. *The discovery of Grounded Theory: strategies for qualitative research*. New York: Aldine.
- Gleaves, R. & Sutton, V. 2004. SignWriter. Paper presented at the Workshop on the Representation and Processing of Sign Languages, 4th International Conference on

- Language Resources and Evaluation, LREC 2004, Lisbon. <http://www.signwriting.org/archive/docs3/sw0203-Sign-Processing-USA.pdf>. Accessed 29/12/2012.
- Goldberg, J. & Wichansky, A. 2003. Eye tracking in usability evaluation: a practitioner's guide. In Hyönä, J., Radach, R. & Deubel, H. (eds). *The mind's eye: cognitive and applied aspects of eye movement research*. Amsterdam: Elsevier Science, 493-516.
- Gonzales, R., Vásquez, V. & Mikkelsen, H. 1991. *Fundamentals of court interpretation. Theory, policy and practice*. Durham, Carolina: Academic Press.
- Goswell, D. 2011. Being there: role shift in English to Auslan interpreting. In Leeson, L., Wurm, S. & Vermeerbergen, M. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 61-86.
- Gran, L. & Fabbro, F. 1991. Hemispheric specialization for semantic and syntactic components of languages in simultaneous interpreters. *Brain and Language* 41:1-42.
- Gran, L. & Fabbro, F. 1988. The role of neuroscience in the teaching of interpretation. *The Interpreters' Newsletter* 1:23-41.
- Gran, L. & Taylor, C. (eds). 1990. *Aspects of applied and experimental research on conference interpretation*. Udine: Campanotto Editore.
- Gregory, S. & Hartley, G. 2002. *Constructing deafness*. London: Printer Press.
- Grice, H. 1975. Logic and conversation. In Cole, P. & Morgan, J. (eds.) *Syntax and semantics. Vol 3: Speech acts*. New York: Academic Press, 41-58.
- Groce, N. 2002. Everyone here spoke sign language. In Gregory, S. & Hartley, G. *Constructing deafness*. London: Printer Press, 13-20.
- Gumul, E. 2006. Explication in simultaneous interpreting: a strategy or a by-product of language mediation? *Across Languages and Cultures* 7(2):171-190.
- Gutt, E. 1992. *Relevance theory: a guide to successful communication in translation*. Dallas & New York: SIL & UBS.
- Hale, S. & Gibbons, J. 1999. Varying realities: patterned changes in the interpreter's representation of courtroom and external realities. *Applied Linguistics* 20(1):203-220.
- Hall, M., Ferreira, V. & Mayberry, R. 2012. Phonological similarity judgments in ASL: evidence for maturational constraints on phonetic perception in sign. *Sign Language and Linguistics* 15:104-127.
- Hanke, T. 2004. HamNoSys – representing sign language data in language resources and language processing contexts. http://www.sign-lang.uni-hamburg.de/dgs-korpus/tl_files/inhalt_pdf/HankeLRECSLP2004_05.pdf. Accessed 29/05/2012.

- Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). 2008. *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins.
- Harris, B. 1990. Norms in interpretation. *Target* 2(1):115-119.
- Harris, M. & Beech, J. 1998. Implicit phonological awareness and early reading development in prelingually deaf children. *Journal of Deaf Studies and Deaf Education* 3:205-216.
- Harris, M. & Moreno, C. 2004. Deaf children's use of phonological coding: evidence from reading, spelling and working memory. *Journal of Deaf Studies and Deaf Education* 9:253-268.
- Hatim, B. & Mason, I. 1997. *The translator as communicator*. London: Routledge.
- Heap, M. & Morgans, H. 2006. Language policy and SASL: interpreters in the public service. In Watermeyer, B., Swartz, L., Lorenzo, T., Schneider, M. & Priestley, M. (eds). *Disability and social change: a South African agenda*. Cape Town: HSRC Press, 134-47.
- Henriksen, L. 2007. The song in the booth: formulaic interpreting and oral textualisation. *Interpreting* 9(1):1-20.
- Herbert, R. (ed.). 1992. *Language and society in Africa*. Johannesburg: Witwatersrand University Press.
- Hermans, T. 1999a. *Translation in systems: descriptive and systemic approaches explained*. Manchester: St Jerome.
- Hermans, T. 1999b. Translation and normativity. In Schäffner, C. (ed.). *Translation and norms*. Clevedon & Philadelphia: Multilingual Matters, 50-71.
- Hermans, T. (ed.). 1985. *The manipulation of literature: studies in literary translation*. London: Croom Helm.
- Hetherington, A. 2011. A magic profession? Causes and management of occupational stress in the signed language interpreting profession. In Leeson, L., Wurm, S. & Vermeerbergen, M. (eds). *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 138-159.
- Heylen, R. 1993. Introduction. *Translation, poetics and the stage: six French Hamlets*. London & New York: Routledge, 1-25.
- Higgins, P. 2002. Outsiders in a hearing world. In Gregory, S. & Hartley, G. *Constructing deafness*. London: Printer Press, 23-30.
- Hi Hopes. 2012. www.hihopes.co.za/about.html. Accessed 03/12/2012.
- Hogg, L. 2011. Funds of knowledge: an investigation of coherence within the literature. *Teaching and Teacher Education* 27:666-677.

- Hoiting, N. & Slobin, D. 2002. Transcription as a tool for understanding: the Berkeley transcription system for sign language research (BTS). In Morgan, G. & Woll, B. (eds). *Directions in sign language acquisition*. Amsterdam & Philadelphia: John Benjamins, 55-75.
- Holcomb, R. 1994. *Deaf culture, our way*. California: Dawnsign Press.
- Holmes, J. 1988. The name and nature of Translation Studies. In Holmes, J. *Translated! Papers on literary translation and Translation Studies*. Amsterdam: Rodopi, 67-80.
- Holmes, J. 1988. (ed.) *Translated! Papers on literary translation and Translation Studies*. Amsterdam: Rodopi.
- Holz-Mänttari, J. 1984. *Translatorisches Handeln. Theorie und Methode*. (Annales Academiae Scientiarum Fennicae B 226). Helsinki: Suomalainen Tiedeakatemia.
- House, J. 2011. Using translation and parallel text corpora to investigate the influence of global English on textual norms in other languages. In Kruger, A., Wallmach, K. & Munday, J. (eds). *Corpus-based Translation Studies: research and applications*. London & New York: Continuum, 187-208.
- House, J. 2006. Communicative styles in English and German. *European Journal of English Studies* 10:249-267.
- House, J. 1981. *A model for translation quality assessment*. Tübingen: Gunter Narr.
- House, J. & Blum-Kulka, S. (eds). 1986. *Interlingual and intercultural communication: discourse and cognition in translation and second language acquisition*. Tübingen: Gunter Narr.
- [HSRC]. Human Sciences Research Council. 1983. *Research on sign language in South Africa. Summaries of contributions presented at a seminar held at the HSRC on 26 September 1983*. Pretoria: HSRC.
- Humphrey, J. & Alcorn, B. 1996. *So you want to be an interpreter: an introduction to sign language interpreting*. Amarillo, Texas: H&H Publishers.
- Hundt, M., Nesselhauf, N. & Biewer, C. 2007. (eds). *Corpus linguistics and the web*. Amsterdam & New York: Rodopi.
- Hymes, D. 1974. *Foundations in sociolinguistics: an ethnographic approach*. Philadelphia: University of Pennsylvania Press.
- Hyönä, J., Radach, R. & Deubel, H. (eds). 2003. *The mind's eye: cognitive and applied aspects of eye movement research*. Amsterdam: Elsevier Science.
- Ilg, G. & Lambert, S. 1996. Teaching consecutive interpreting. *Interpreting* 1(1):66-99.

- Ilic, I. 1990. Cerebral lateralization for linguistic functions in professional interpreters. In Gran, L. & Taylor, C. (eds). *Aspects of applied and experimental research on conference interpretation*. Udine: Campanotto Editore, 101-110.
- IMDI (ISLE Metadata Initiative). 2009. PART 1 B: Metadata elements for catalogue descriptions. Version 3.0.13. http://www.mpi.nl/imdi/documents/Proposals/IMDI_Catalogue_3.0.0.pdf. Accessed 29/09/2012.
- IMDI (ISLE Metadata Initiative). 2003a. PART 1: Metadata elements for session descriptions. Version 3.0.4. http://www.mpi.nl/imdi/documents/Proposals/IMDI_Metadata_3.0.4.pdf. Accessed 29/09/2012.
- IMDI (ISLE Metadata Initiative). 2003b. PART 1 C: Metadata elements for lexicon descriptions. Draft proposal 1.1c. http://www.mpi.nl/imdi/documents/Proposals/IMDI_Lexicon_1.1c.pdf. Accessed 29/09/2012.
- Isham, W. 1995. On the relevance of signed languages to research in interpretation. *Target* 7(1):135-149.
- Isham, W. 1994. Memory for sentence form after simultaneous interpretation: evidence both for and against verbalization. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap: empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 191-211.
- Izzo, A. 2002. Phonemic awareness and reading ability: an investigation with young readers who are deaf. *American Annals of the Deaf* 147(4):18-28.
- Jackson, D., Paul, P. & Smith, J. 1997. Prior knowledge and reading comprehension ability of deaf adolescents. *Journal of Deaf Studies and Deaf Education* 2(3):172-184.
- Jacobs, L. 1977. The efficiency of interpreting input for processing lecture information by deaf college students. *Journal of Rehabilitation of the Deaf* 11:10-14.
- Jakobsen, A., Jensen, K. & Mees, I. 2007. Comparing modalities: idioms as a case in point. In Pöhhacker, F., Jakobsen, A. & Mees, I. (eds). *Interpreting Studies and beyond*. Copenhagen: Samfundslitteratur. Copenhagen Studies in Language series, 217-249.
- James, C. 1980. *Contrastive analysis*. London: Longman.
- Janzen, T. 2005. Introduction. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 3-24.
- Janzen, T. 2005. Interpretation and language use: ASL and English. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 69-106.
- Janzen, T. 2005. (ed.). *Topics in signed languages and interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins.

- Janzen, T. & Korpiniski, D. 2005. Ethics and professionalism in interpreting. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 3-24.
- Janzen, T., O’dea, B. & Shaffer, B. 2001. The construal of events: passives in American Sign Language. *Sign Language Studies* 1(3):281-310.
- Jekat, S. & Ehrensberger-Dow, M. 2008. Language separation in translators and interpreters. *trans-kom* 1(1):88-104. http://www.trans-kom.eu/ihv_01_01_2008. Accessed 07/12/2012.
- Johnston, T. 2011. Auslan corpus annotation guidelines. <http://www.Auslan.org.au/video/upload/attachments/AuslanCorpusAnnotationGuidelines30November2011.pdf>. Accessed 25/05/2012.
- Johnston, T. 2010. From archive to corpus: transcription and annotation in the creation of signed language corpora. *International Journal of Corpus Linguistics* 15(1):106-131.
- Johnston, T. 2002. BSL, Auslan and NZSL: three signed languages or one? In Baker, A., Van der Bogaerde, B. & Crasborn, O. (eds). *Cross-linguistic perspectives in sign language research: selected papers from TISLR 2000*. Hamburg: Signum Verlag, 47-69.
- Johnston, T. 1998. *Signs of Australia: a new dictionary of Auslan*. North Rocks, NSW: North Rocks University Press.
- Johnston, T. & Schembri, A. 2007. *Australian Sign Language: an introduction to sign language linguistics*. Cambridge: Cambridge University Press.
- Johnston, T., Vermeerbergen, M, Schembri, A. & Leeson, L. 2007. “Real data are messy”: considering cross-linguistic analysis of constituent ordering in Auslan, VGT and ISL. In Perniss, P., Pfau, R. & Steinbach, M. (eds). *Visible variation: comparative studies on sign language structure*. Berlin, Mouton de Gruyter, 163-205.
- Jones, R. 1998. *Conference interpreting explained*. Manchester: St Jerome.
- Jörg, U. 1997. Bridging the gap: verb anticipation in German-English simultaneous interpreting. In Snell-Hornby, M., Jettmarová Z. & Kaindl, K. (eds). *Translation as intercultural communication*. Amsterdam & Philadelphia: John Benjamins, 217-228.
- Joseph, L. 2008. *The impact of using graphic representations of signs in teaching signs to hearing mothers of deaf children*. Pretoria: University of Pretoria. Unpublished PhD dissertation.
- Kadric, M. 2000. *Dolmetschen bei Gericht. Eine interdisziplinäre Unterzuchung unter besonderer Berücksichtigung der Lage in Österreich*. Vienna: Universität Wien. Unpublished PhD dissertation.
- Kalina, S. 1998. *Strategische Prozesse beim Dolmetschen: theoretische Grundlagen, empirische Fallstudien, didaktische Konsequenzen*. Tübingen: Gunter Narr.

- Kanter, I., Kfir, H., Malkiel, B. & Shlesinger, M. 2006. Identifying universals of text translation. *Journal of Quantitative Linguistics* 13(1):35-43.
- Katan, D. 1999. *Translating cultures. An introduction for translators, interpreters and mediators*. Manchester: St Jerome.
- Kelly, L. 1996. The interaction of syntactic competence and vocabulary during reading by deaf students. *Journal of Deaf Studies and Deaf Education* 1(1):76-90.
- Kelly, L. 1990. Cognitive theory guiding research in literacy and deafness. In Moores, D. & Meadow-Orlans, K. (eds). *Educational and developmental aspects of deafness*. Washington, DC: Gallaudet University Press, 202-231.
- Kennaway, J., Glauert, J. & Zwitserlood, I. 2007. Providing signed content on the internet by synthesized animation. *ACM Transactions on Computer-Human Interaction* 14:1-29.
- Kennedy, D., Matthiesen, S., Hamp-Lyons, L. & Kenyon, D. 2009. *Newbury House TOEFL preparation kit, preparing for the test of written English*. Newbury House Publishers. http://eslbee.com/TWE_Scoring_Guide.pdf. Accessed 15/06/2010.
- Kenny, D. 2000. *Lexis and creativity in translation: a corpus-based study*. Manchester: St Jerome.
- Kenny, D. 1998. Creatures of habit: what translators usually do with words. *Meta* 43(4):515-523.
- [Kielitoimisto]. Institute for the Languages of Finland. 2013. Language planning and regulation. <http://www.kotus.fi/?I=en&s=21>. Accessed 16/04/2013.
- Klaudy, K. 2009. Explication. In Baker, M. & Saldanha, G. (eds). *Routledge encyclopaedia of Translation Studies*. Second edition. London & New York: Routledge, 104-108.
- Koizumi, A., Sagawa, H. & Takeuchi, M. 2002. An annotated Japanese Sign Language corpus. <https://nats-www.informatik.uni-hamburg.de/intern/proceedings/2002/LREC/pdf>. Accessed 25/05/2012.
- Konrad, R. 2010. *Die lexikalische Struktur der DGS im Spiegel empirischer Fachgebärdenlexikographie. Zur Integration der Ikonizität in ein korpusbasiertes Lexikonmodell*. University of Hamburg. Unpublished PhD thesis. Summary available at http://www.sign-lang.uni-hamburg.de/project/abg_projekte.html. Accessed 25/05/2012.
- Kruger, A. 2002. Corpus-based translation research: its development and implications for general, literary and Bible translation. *Acta Theologica Supplementum* 2:70-106.
- Kruger, A., Wallmach, K. & Munday, J. (eds). 2011. *Corpus-based Translation Studies: research and applications*. London & New York: Continuum.

- Kruger, A. & Wallmach, K. 1997. Research methodology for the description of a source text and its translation(s) – a South African perspective. *South African Journal of African Languages* 17(4):119-126.
- Kurz, I. 2002. Physiological stress responses during media and conference interpreting. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 195-202.
- Kurz, I. 2001. Conference interpreting: quality in the ears of the user. *Meta* 46(2):394-409.
- Kurz, I. 1996. *Simultandolmetschen als Gegenstand in der interdisziplinären Forschung*. Vienna: WUV-Universitätsverlag.
- Kurz, I. 1993. Conference interpretation: expectations of different user groups. *The Interpreters' Newsletter* 5:13-21.
- Kurz, I. & Mikulasek, B. 2004. Television as a source of information for the deaf and hearing impaired. Captions and sign language on Austrian TV. *Meta* 49(1):81-88.
- Kyle, J. 2007. Sign on television: analysis of data. Deaf Studies Trust. Available at http://stakeholders.ofcom.org.uk/binaries/consultations/signing/responses/deafstudies_annex.pdf. Accessed 12/08/2012.
- Kyle, J. & Harris, M. 2006. Concurrent correlates and predictors of reading and spelling achievement in deaf and hearing school children. *Journal of Deaf Studies and Deaf Education* 11(3):273-288.
- Ladd, P. 2002. The Deaf community and the culture of Deaf people. In Gregory, S. & Hartley, G. *Constructing deafness*. London: Printer Press, 40-45.
- Lakoff, G. & Johnson, M. 1980. *Metaphors we live by*. Chicago & London: University of Chicago Press.
- Lamberger-Felber, H. & Shneider, J. 2008. Linguistic interference in SI with text: a case study. In Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins, 214-236.
- Lambert, J. & Van Gorp, H. 1985. On describing translations. In Hermans, T. (ed.). *The manipulation of literature: studies in literary translation*. London: Croom Helm, 42-53.
- Lambert, S. 1988. Information processing among conference interpreters: a test of the depth of processing hypothesis. *Meta* 33(3):377-387.
- Lambert, S. & Moser-Mercer, B. (eds). 1994. *Bridging the gap. Empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins.
- Lane, H. Hoffmeister, R. & Bahan, B. 1996. *Journey into the Deaf world*. California: Dawnsign Press.

- Laviosa, S. 2002. *Corpus-based Translation Studies: theory, findings, applications*. Amsterdam & New York: Rodopi.
- Laviosa-Braithwaite, S. 1995. Comparable corpora: towards a corpus linguistic methodology for the empirical study of translation. In Thelen, M. & Lewandosa-Tomaszczyk, B. (eds). *Translation and meaning. Part 3*. Maasricht: Hogeschool Maasricht, 153-163.
- Lawson, L. 2002. The role of sign in the structure of the Deaf community. In Gregory, S. & Hartley, G. *Constructing deafness*. London: Printer Press, 31-34.
- Lederer, M. 1981. *La traduction simultanée*. Paris: Minnard Letteres Modernes.
- Leech, G. 2007. New resources, or just better old ones? The holy grail of representativeness. In Hundt, M., Nesselhauf, N. & Biewer, C. (eds). *Corpus linguistics and the web*. Amsterdam & New York: Rodopi, 133-49.
- Leeson, L. 2013. Personal communication, April 2013.
- Leeson, L. 2012. Personal communication, July 2012.
- Leeson, L. 2005a. Making the effort in simultaneous interpreting: some considerations for signed language interpreters. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 51-68.
- Leeson, L. 2005b. Vying with variation. Interpreting language contact, gender variation and generational difference. In Janzen, T. (ed.). *Topics in signed languages and interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 251-291.
- Leeson, L. & Saeed, J. 2012. *Irish Sign Language: a cognitive linguistic account*. Edinburgh: Edinburgh University Press.
- Leeson, L., Wurm, S. & Vermeerbergen, M. 2011. Hey presto! Preparation, practice and performance in the world of signed language interpreting and translating. In Leeson, L., Wurm, S. & Vermeerbergen, M. (eds). *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 1-11.
- Leeson, L., Wurm, S. & Vermeerbergen, M. (eds). 2011. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome.
- Levelt, W. 1983. Monitoring and self-repair in speech. *Cognition* 14:41-104.
- Levon, E. 2010. Organizing and processing your data: the nuts and bolts of quantitative analysis. In Litosseliti, L. *Research methods in linguistics*. London & New York: Continuum International, 68-92.
- Lewis, M. (ed.). 2009. *Ethnologue: Languages of the World*. Sixteenth edition. Dallas, Texas: SIL International. Online version: <http://www.ethnologue.com/>. Accessed 15/09/2009.
- Lewis, M. & Jackson, D. 2001. Television literacy: comprehension of program content using closed captions for the deaf. *Journal of Deaf Studies and Deaf Education* 6(1):43-53.

- Lewis, S. 1996. The reading achievements of a group of severely and profoundly hearing-impaired school leavers educated within a natural aural approach. *Journal of British Association of Teachers of the Deaf* 20(1):1-7.
- Liddell, S. 2003. *Grammar, gesture and meaning in American Sign Language*. Cambridge: Cambridge University Press.
- Liddell, S. 1998. Grounded blends, gestures and conceptual shifts. *Cognitive Linguistics* 9(3):283-314.
- Liddell, S. 1990. Four functions of a locus: re-examining the structure of space in ASL. In Lucas, C. (ed.). *Sign language research: theoretical issues*. Washington, DC: Gallaudet University Press, 176-98.
- Liddell, S. 1980. *American Sign Language syntax*. The Hague & New York: Mouton.
- Liddell, S. & Metzger, M. 1998. Gesture in sign language discourse. *Journal of Pragmatics* 30:657-697.
- Lightbown, P. & Spada, N. 1999. *How languages are learned*. Oxford: Oxford University Press.
- Litosseliti, L. 2010. *Research methods in linguistics*. London & New York: Continuum.
- Liu, M. 2008. How do experts interpret? Implications from research in Interpreting Studies and cognitive science. In Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins, 159-177.
- Lombard, S. 2006. *The accessibility of a written Bible versus a signed Bible for the deaf-born person with sign language as first language*. Bloemfontein: University of the Free State. Unpublished MA thesis.
- Lotriet, A. 2011. Sign language interpreting in South Africa: meeting the challenges. http://criticallink.org/wp-content/uploads/2011/09/CL2_Lotriet.pdf. Accessed 30/03/2012.
- Lucas, C. 2001. *The sociolinguistics of sign languages*. Cambridge: Cambridge University Press.
- Lucas, C. (ed.). 1990. *Sign language research: theoretical issues*. Washington, DC: Gallaudet University Press
- Lucas, C. & Valli, C. 1992. *Language contact in the American Deaf community*. San Diego, CA: Academic Press.
- Luz, S. & Baker, M. 2000. TEC: A toolkit and API for distributed corpus processing. Paper presented at the workshop on Web-based Language Documentation and Description, 12-15 Dec, Philadelphia, USA. <http://www ldc.upenn.edu/exploration/expl2000/papers/luz/>. Accessed 31/10/2012.

- Lyons, J. 1981. *Language and linguistics: an introduction*. Cambridge: Cambridge University Press.
- Mack, G. 2002. New perspectives and challenges for interpretation: the example of television. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 203-213.
- Magongwa, L. 2012. The current status of South African Sign Language. Lecture given at the University of Pretoria, 31 May 2012.
- Malcolm, K. 2005. Contact sign, transliteration and interpretation in Canada. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 107-34.
- Malmkjær, K. 1998. Love thy neighbour: will parallel corpora endear linguists to translators? *Meta* 43(4):534-541. <http://www.erudit.org/revue/meta/>. Accessed 07/12/2012.
- Mandel, M. 1977. Iconic devices in American Sign Language. In Friedman, L. (ed.). *On the other hand: new perspectives in American Sign Language*. New York: Academic Press, 55-107.
- Mariani, D. 2011. Learning English without sound: the pros and cons of South African Sign Language. Available at http://krieger.jhu.edu/sebin/q/z/Dana_Mariana_2011.pdf. Accessed 19/04/2013.
- Marschark, M. 1997. *Raising and educating a deaf child: a comprehensive guide to the choices, controversies and decisions faced by parents and educators*. Oxford & New York: Oxford University Press.
- Marschark, M., Peterson, R. & Winston, E. (eds). 2005. *Sign language interpreting and interpreter education: directions for research and practice*. Oxford & New York: Oxford University Press.
- Marschark, M., Sapere, P., Convertino, C., Seewagen, R. & Maltzen, H. 2005. Educational interpreting: access and outcomes. In Marschark, M., Peterson, R., & Winston, E. (eds). *Sign language interpreting and interpreter education: directions for research and practice*. Oxford & New York: Oxford University Press, 1-34.
- Marschark, M., Sapere, P., Convertino, C., Seewagen, R. & Maltzen, H. 2004. Comprehension of sign language interpreting: deciphering a complex task situation. *Sign Language Studies* 4(4):345-368.
- Marzocchi, C. 2005. On norms and ethics in the discourse on interpreting. *The Interpreters' Newsletter* 13:87-107.
- Matthews, P. 1996. *The Irish deaf community: survey report, history of education, language and culture, Vol. 1*. Dublin: Linguistic Institute of Ireland.

- Matthews, P. & Foley-Cave, S. 2004. Village life: deaf culture in contemporary Ireland. In McDonnell, P. (ed.). *Deaf Studies in Ireland: an introduction*. Coleford: Douglas McLean, 65-84.
- Mauranen, A. 2008. Universal tendencies in translation. In Anderman, G. & Rogers, M. (eds). *Incorporating corpora: the linguist and the translator*. Clevedon, Buffalo & Toronto: Multilingual Matters, 32-48.
- Mauranen, A. 2004. Corpora, universals and interference. In Mauranen, A. & Kujamäki, P. (eds). 2004. *Translation universals: do they exist?* Amsterdam & Philadelphia: John Benjamins, 65-82.
- Mauranen, A. 2000. Strange strings in translated language: a study on corpora. In Olohan, M. (ed.). *Intercultural faultlines. Research models in Translation Studies 1: textual and cognitive aspects*. Manchester: St Jerome, 119-142.
- Mauranen, A. & Kujamäki, P. (eds). 2004. *Translation universals: do they exist?* Amsterdam & Philadelphia: John Benjamins.
- Mayberry, R. & Lock, E. 2003. Age constraints on first versus second language acquisition: evidence for linguistic plasticity and epigenesis. *Brain and Language* 87(3):368-384. doi: 10.1016/S0093-934X(03)00137-8. Accessed 20/3/2011.
- McDonnell, P. (ed.). 2004. *Deaf Studies in Ireland: an introduction*. Coleford: Douglas McLean.
- McDonnell, P. 1996. *Verb categories in Irish Sign Language*. Dublin: Trinity College Dublin.
- McEnery, T., Xiao, R. & Tono, Y. 2006. *Corpus-based language studies. An advanced resource book*. London & New York: Routledge.
- McEnery, T. & Wilson, A. 2001. *Corpus linguistics*. Edinburgh: Edinburgh University Press.
- McEvoy, C., Marschark, M. & Nelson, D. 1999. Comparing the mental lexicons of deaf and hearing individuals. *Journal of Educational Psychology* 91(2): 312-320.
- McKee, R. (ed.). 2006. *Proceedings of the inaugural conference of the World Association of Sign Language Interpreters*. Coleford & Gloucestershire: Douglas McLean.
- McKee, R. & McKee, D. 2011. Old signs, new signs, whose signs? Sociolinguistic variation in the NZSL lexicon. *Sign Language Studies* 11(4):485-527.
- McKee, R. & McKee, D. 2009. Corpus informed lexicography: a decade of exploration. Sign Language Corpora: Linguistic Issues? Workshop, DCAL, University College London, July 25th 2009. <http://www.blscorpusproject.org/wp-content/uploads/mckee-corpus-wkshop2.pdf>. Accessed 16/07/2012.
- McKee, D. & Kennedy, G. 2006. The distribution of signs in New Zealand Sign Language. *Sign Language Studies* 6(4):372-390.

- Mesthrie, R. (ed.). 2002. *Language in South Africa*. Cambridge: Cambridge University Press.
- Mesthrie, R. 2002. South Africa: a sociolinguistic overview. In Mesthrie, R. (ed.). 2002. *Language in South Africa*. Cambridge: Cambridge University Press, 11-27.
- Mesthrie, R., Swann, J., Deumert, A & Leap, W. 2009. *Introducing Sociolinguistics*. Second edition. Edinburgh: Edinburgh University Press.
- Metzger, M., Fleetwood, E. & Collins, S. 2006. Discourse genre and linguistic mode: interpreter influences in visual and tactile interpreted interaction, In McKee, R. (ed.). 2006. *Proceedings of the inaugural conference of the World Association of Sign Language Interpreters*. Coleford & Gloucestershire: Douglas McLean, 44-59.
- Meier, R. 1990. Person deixis in American Sign Language. In Fischer, S. & Siple, P. (eds). *Theoretical issues in sign language research, Vol. 1: Linguistics*. Chicago: University of Chicago Press, 175-90.
- Meyer, C. 2006. Corpus linguistics and the study of language variation. <http://www.cs.umb.edu/~meyer>. Accessed 12/12/2006.
- Miltzer, S. 2009. The influence of oralism on mouth actions in Irish Sign Language (ISL). Paper presented at Boston University Conference on Language Development (BUCLD 34), Boston. http://www.academia.edu/1825004/The_Influence_of_Oralism_on_Mouth_Actions_in_Irish_Sign_Language_ISL.pdf. Accessed 27/04/2013.
- Miller, J. 1982. Divided attention: evidence for coactivation with redundant signals. *Cognitive Psychology* 14(2):247-279.
- Mohr, S. 2011. *Mouth actions in Irish Sign Language – their system and functions*. Cologne: University of Cologne. Unpublished PhD thesis.
- Montgomery, D. 2007. Echoing the candidate's words – in Spanish. *Washington Post*. www.washingtonpost.com/wp-dyn/content/article/2007/09/09/AR200709072731.html. Accessed 12/07/2012.
- Monschein, L. 2009. Empirical research on mouth patterns considering sociolinguistic factors: a comparison between the use of mouth patterns of deaf L1- and hearing L2-users of sign language. Poster presented at the Sign Language Corpora: Linguistic Issues Workshop, London. <http://www.bslcorpusproject.org/sign-language-corpora-linguistic-issues/program/>. Accessed 16/05/2012.
- Moore, D. & Meadow-Orlans, K. (eds). 1990. *Educational and developmental aspects of deafness*. Washington, DC: Gallaudet University Press
- Morgan, G. & Woll, B. (eds). 2002. *Directions in sign language acquisition*. Amsterdam & Philadelphia: John Benjamins.

- Morgan, R. 2008. *Deaf me normal: Deaf South Africans tell their stories*. Pretoria: Unisa Press.
- Morgan, R. 2001. Barriers to justice: Deaf people and the courts. *Issues in Law, Race and Gender* 8. Law, Race and Gender Research Unit, University of Cape Town.
- Morgan, R. & Aarons, D. 1999. How many South African sign languages are there? A sociolinguistic question. In *Proceedings of the 13th World congress of the World Federation of the Deaf*. Sydney: Australian Association of the Deaf, 356-374.
- Morgans, H. 1999. Where did South African Sign Language originate? *Language Matters* 30:53-58.
- Moropa, C. 2004. A parallel corpus as a terminology resource for Xhosa: a study of strategies used to translate financial statements. *Language Matters* 35(1): 162-178.
- Moser, B. 1978. Simultaneous interpretation: a hypothetical model and its practical application. In Gerver, D. & Sinaiko, H.W. (eds). *Language interpretation and communication*. New York & London: Plenum Press, 353-368.
- Moser-Mercer, B. 1996. Quality in interpreting: some methodological issues. *The Interpreters' Newsletter* 7:43-55.
- Moser-Mercer, B., Kúnzli, A. & Korac, M. 1998. Prolonged turns in interpreting: effects on quality, physiological and psychological stress (pilot study). *Interpreting* 3(1):47-64.
- Moser, P. 1996. Expectations of users of conference interpretation. *Interpreting* 1(2):145-78.
- Mouton, J. 1996. *Understanding social research*. Pretoria: Van Schaik.
- Munday, J. 1998. A computer-assisted approach to the analysis of translation shifts. *Meta* 43(4):542-556.
- Nadolske, M. & Rosenstock, R. 2007. Occurrence of mouthings in American Sign Language: a preliminary study. In Perniss, P., Pfau, R. & Steinbach, M. (eds). *Visible variation: comparative studies on sign language structure*. Berlin & New York: Mouton de Gruyter, 36-61.
- Napier, J. 2006. A time to reflect: an overview of signed language interpreting, interpreter education & interpreting research. In McKee, R. (ed.). *Proceedings of the inaugural conference of the World Association of Sign Language Interpreters*. Coleford & Gloucestershire: Douglas McLean, 12-24.
- Napier, J. 2002. University interpreting: issues for consideration. *Journal of Deaf Studies and Deaf Education* 7(4):281-301.
- Napier, J. 1998. Free your mind – the rest will follow. *Deaf Worlds* 14(3):15-22.

- Napier, J. & Barker, R. 2004. Sign language interpreting: the relationship between metalinguistic awareness and the production of interpreting omissions. *Sign Language Studies* 4(4):369-393.
- Napier, J., Major, G. & Ferrara, L. 2011. Medical signbank: a cure-all for all the aches and pains of medical signed language? In Leeson, L., Wurm, S. & Vermeerbergen, M. (eds). *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 110-137.
- Napier, J., McKee, R. & Goswell, D. 2006. *Sign language interpreting: theory and practice in Australia and New Zealand*. NSW: Federation Press.
- [NCPDPSA]. National Council for Persons with Physical Disabilities in South Africa. 2011. Basic hints for interaction with people with hearing loss. <http://www.ncppdsa.org.za>. Accessed 20/09/2011.
- Neidle, C., Kegel, J., Maclaughlin, D., Bahan, B. & Lee, R. 2000. *The syntax of American Sign Language: functional categories and hierarchical structure*. Massachusetts: MIT.
- [Nero]. Nero Multimedia Software. 2013. <http://www.nero.com/enu/>. Accessed 24/04/2013.
- Newhoudt-Druchen, W. 2006. Working together. In McKee, R.L. (ed.). *Proceedings of the inaugural conference of the World Association of Sign Language Interpreters*. Gloucestershire: Douglas Maclean, 8-11.
- Newmark, P. 1991. *About translation*. Clevedon: Multilingual Matters.
- Nida, E. & Taber, C. 1974. *The theory and practice of translation*. Leiden: Brill.
- Nida, E. 1960. The Bible translator's use of receptor-language texts. *Bible Translator* 11(2):83-86.
- [NIDCD]. National Institute on Deafness and other Communication Disorders. 2003. <http://www.nidcd.nih.gov/health/hearing/noise.asp>. Accessed 05/02/2009.
- Nieder-Heitmann, N. 1980. *Talking to the deaf/Praat met die dowes*. Pretoria: Government Printer.
- Nillson, P-O. 2004. Translation-specific lexicogrammar: characteristic lexical and collocational patterning in Swedish texts translated from English. In Mauranen, A. & Kujamäki, P. (eds). 2004. *Translation universals: do they exist?* Amsterdam & Philadelphia: John Benjamins, 129-141.
- No, Y. & Libucha, M. (eds). 1991. *ESCOL '90: Eastern States Conference on Linguistics*. Columbus, OH: Ohio State University Press.
- Nonhebel, A., Crasborn, O. & Van der Kooij, E. 2004. Sign language transcription conventions for the ECHO project. http://www.let.kun.nl/sign-lang/echo/docs/transcr_conv.pdf. Accessed 15/05/2012.

- Nord, C. 1997. *Translating as a purposeful activity: functionalist approaches explained*. Manchester: St Jerome.
- Nord, C. 1991. Scopus, loyalty and translation conventions. *Target* 3(1):91-109.
- [Nuance]. Nuance Communications. 2013. Introducing Dragon NaturallySpeaking 12: exciting new features and enhancements. <http://www.nuance.com/dragon/index.htm>. Accessed 24/04/2013.
- [NWU]. North West University. 2012. Language Directorate. <http://www.nwu.ac.za/content/short-courses-language-directorate-nwu.html>. Accessed 16/07/2012.
- Oléron, P. & Nanpon, H. 1965. Recherches sur la traduction simultanée. *Journal de Psychologie Normale et Pathologique* 62(1):73-94.
- Olivier, J. 2007. South African Sign Language. <http://www.cyberserve.co.az/users/~jako/lang/signlanguage/index.htm>. Accessed 12/10/2010.
- Olohan, M. 2004. *Introducing corpora in Translation Studies*. London & New York: Routledge.
- Olohan, M. (ed.). 2000. *Intercultural faultlines. Research models in Translation Studies 1: textual and cognitive aspects*. Manchester: St Jerome.
- Ortiz, I. 2011. Types of error in the learning of Spanish sign language as a second language. In Leeson, L., Wurm, S. & Vermeerbergen, M. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 50-60.
- Øverås, L. 1998. In search of the third code: an investigation of norms in literary translation. *Meta* 43(4):571-588.
- Özyürek, A., Zwitserlood, I. & Perniss, P. 2009. Annotation and coding of spatial expressions across sign languages. Paper presented at the Sign Language Corpora: Linguistic Issues Workshop, London. <http://www.bslcorpusproject.org/sign-language-corpora-linguistic-issues/program/>. Accessed 16/05/2012.
- Paabo, R., Födisch, M. & Hollman, L. 2009. Rules for Estonian Sign Language transcription. *TRAMES* 13(4):401-424.
- Padden, C. 1990. The relation between space and grammar in ASL verbal morphology. In Lucas, C. (ed.). *Sign language research: theoretical issues*. Washington, DC: Gallaudet University Press, 118-32.
- Padden, C. & Humphries, T. 2002. Learning to be Deaf. In Gregory, S. & Hartley, G. *Constructing deafness*. London: Printer Press, 7-12.
- Paradis, M. 1994. Towards a neurolinguistic theory of simultaneous translation: the framework. *International Journal of Psycholinguistics* 10(3):319-335.

- Parkin, T. 2009. Deaf learners and their education rights: is South Africa listening? <http://www.deafsa.co.za/resources/education/rights.pdf>. Accessed 10/12/2012.
- Parks, E. & Parks, J. 2012. A survey report of the Deaf people of Northern Ireland. SIL International. www.sil.org/silesr/2012/silesr2012-001.pdf. Accessed 03/12/2012.
- Pashler, H. 1989. Dissociations and dependencies between speed and accuracy: evidence for a two-component theory of divided attention in simple tasks. *Cognitive Psychology* 21:469-514.
- Patton, M. 2002. *Qualitative research & evaluation methods*. Third edition. Thousand Oaks, CA: Sage Publications.
- Penn, C. 1992. The sociolinguistics of South African Sign Language. In Herbert, R. (ed.). *Language and society in Africa*. Johannesburg: Witwatersrand University Press, 277-284.
- Penn, C., Doldin, D., Landman, K. & Steenekamp, J. 1992. *Dictionary of Southern African signs for communication with the Deaf*. Pretoria: HSRC.
- Penn, C. & Reagan, T. 1994. The properties of South African Sign Language: lexical diversity and syntactic unity. *Sign Language Studies* 85:319-327.
- Perreira, M. & Fronza, C. 2011. The Prolibras test as an assessment of Brazilian sign language interpreter proficiency: a critique. In Leeson, L., Wurm, S. & Vermeerbergen, M. 2011. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 37-49.
- Perniss, P., Pfau, R. & Steinbach, M. (eds). 2007. *Visible variation: comparative studies on sign language structure*. Berlin: Mouton de Gruyter.
- Petite, C. 2005. Evidence of repair mechanisms in simultaneous interpreting: a corpus-based analysis. *Interpreting* 7(1):27-49.
- Petite, C. 2003. Repairs in simultaneous interpreting: quality improvement or simple error correction. In Collados Aís, A. Sanchez, M. & Gile, D. (eds). *La evaluación de la calidad en interpretación: investigación*. Granada: Comares, 61-71.
- Pfau, R. & Quer, J. 2007. Non-manuals: their grammatical and prosodic roles. In Perniss, P., Pfau, R. & Steinbach, M. (eds). 2007. *Visible variation: comparative studies on sign language structure*. Berlin: Mouton de Gruyter, 1-21.
- Pichler, D., Hochgesang, J, Lillo-Martin, D. & Müller de Quadros, R. 2010. Conventions for sign and speech transcription of child bimodal bilingual corpora in ELAN. *Language acquisition and interaction* 1(1):11-40.
- Plato. 1969. *Plato in Twelve Volumes*. London: Heinemann. Translated by P. Shorey.
- [PMG]. Parliamentary Monitoring Group. 2009. Language issues: proposed recognition of South African Sign Language as official language, Sepedi/Sesotho sa Leboa issues:

- briefings by Deaf SA, CRL Commission, Pan South African Language Board. <http://www.pmg.org.za/20091113-language-issues-proposed-recognition-south-african-sign-language-official/html>. Accessed 12/11/2012.
- [PMG]. Parliamentary Monitoring Group. 2007. Recognition of South African Sign Language as official language: briefing by Deaf Federation of South Africa. <http://www.pmg.org.za/print/8655>. Accessed 13/11/2009.
- Pöchhacker, F. 2008. The turns of Interpreting Studies. In Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins, 25-46.
- Pöchhacker, F. 2007. Coping with culture in media interpreting. *Perspectives* 15(2):123-142.
- Pöchhacker, F. 2002. Researching interpreting quality. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 95-107.
- Pöchhacker, F. 2001. Quality assessment in conference and community interpreting. *Meta* 46(2):410-425.
- Pöchhacker, F. 2000. The community interpreter's task: self-perception and provider views. In Roberts, R., Carr, S., Abraham, D. & Dufour, A. (eds). *The critical link 2: interpreters in the community*. Amsterdam & Philadelphia: John Benjamins, 49-66.
- Pöchhacker, F. 1995a. Simultaneous interpreting: a functionalist perspective. *Hermes Journal of Linguistics* 14:31-53.
- Pöchhacker, F. 1995b. Slips and shifts in simultaneous interpreting. In Tommola, J. (ed.). *Topics in interpreting research*. Turku: University of Turku, Centre for Translation and Interpreting, 73-90.
- Pöchhacker, F. 1994. *Simultandolmetschen als komplexes Handeln*. Tübingen: Gunter Narr.
- Pöchhacker, F., Jakobsen, A. & Mees, I. (eds). 2007. *Interpreting Studies and beyond*. Copenhagen: Samfundslitteratur. Copenhagen Studies in Language series.
- Pöchhacker, F. & Shlesinger, M. 2002. *The Interpreting Studies reader*. London & New York: Routledge.
- Posner, M. 1980. Orienting of attention. *Quarterly Journal of Experimental Psychology* 32(1):3-25.
- Prillwitz, S. 1985. *Grammatik der Deutschen Gebärdensprache*. Hamburg: Forschungsstelle Deutsche Gebärdensprache.
- Prillwitz, S. & Vollhaber, T. (eds). 1990. *Sign language research and application. Proceedings of the International Congress on Sign Language Research and Application, 23-25 Mar, 1990*. Hamburg: Signum Verlag.

- Prinetto, P., Shoaib, U. & Tiotto, G. 2011. The Italian sign language sign bank: using WordNet for sign language corpus creation. *2011 international conference on communications and information technology (ICCIT), Aqaba*, 134-137. <http://ieexplore.ieee.org/stamp/stamp.jsp?arnumber=05762664>. Accessed 29/05/2012.
- Prinsloo, A. 2003. *An introductory South African Sign Language grammar for the beginner sign language student*. Bloemfontein: University of the Free State. Unpublished MA dissertation.
- Poulin, C. & Miller, C. 1995. On narrative discourse and point of view in Quebec Sign Language. In Emmorey, K. & Reilly, J. (eds). *Language, gesture and space*. Hillside, NJ: Lawrence Erlbaum, 117-31.
- Pym, A. 2008. On omission in simultaneous interpreting: risk analysis of a hidden effort. In Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins, 83-105.
- Quinn, G. 2010. Schoolisation: an account of the origins of regional variation in British Sign Language. *Sign Language Studies* 10(4):476-501.
- Rasinger, S.M. 2010. Quantitative methods: concepts, frameworks and issues. In Litosseliti, L. *Research methods in linguistics*. London & New York: Continuum, 49-67.
- Reagan, T. 2012. Personal correspondence, 27/06/2012.
- Reagan, T. 2008. South African Sign Language and language in education policy in South Africa. *Stellenbosch Papers in Linguistics* 38:165-190.
- Reagan, T., Penn, C. & Ogilvy, D. 2006. From policy to practice: sign language development and practice in post-apartheid South Africa. *Language Policy* 5:187-208.
- Reinò, P. 2001. Mouthings and mouth gestures in Finnish Sign Language (FinSL). In Boyes Braem, P. & Sutton-Spence, R. (eds). *The hands are the head of the mouth: the mouth as articulator in sign languages*. Hamburg: Signnum Press, 41-50.
- Reis, K. & Vermeer, H. 1984. *Grundlegen einer Allgemeinen Translationstheorie*. Tübingen: Niemeyer.
- Riccardi, A. 2002. Interpreting research: descriptive aspects and methodological proposals. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 15-28.
- Riccardi, A. 1998. Interpreter strategies and creativity. In Bylard-Ozeroff, A. Králová, J. & Moser-Mercer, B. (eds). *Translators' strategies and creativity. Selected papers from the 9th International Conference on Translation and Interpreting, Prague, September 1995*. Amsterdam & Philadelphia: John Benjamins, 171-179.

- Riccardi, A. 1996. Language-specific strategies in simultaneous interpreting. In Dollerup, C. & Appel, V. (eds). *Teaching translation and interpreting: new horizons*. Amsterdam & Philadelphia: John Benjamins, 213-222.
- Roberts, R. Carr, S., Abraham, D. & Dufour, A. (eds). 2000. *The critical link 2: interpreters in the community*. Amsterdam & Philadelphia: John Benjamins.
- Rodda, M. & Grove, C. 1987. *Language, cognition and deafness*. Hillsdale, NJ: Lawrence Erlbaum.
- Roncalli, S. 2001. *L'interpretazione in tribunale in una provincia bilingue: il caso di Bolzano*. Trieste: SSLMIT. Unpublished PhD thesis.
- Roy, C. 2000. *Interpreting as a discourse process*. Oxford & New York: Oxford University Press.
- Russell, D. 2005. Consecutive and simultaneous interpreting. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 135-164.
- Russell, D. 2002. *Interpreting in legal contexts: consecutive and simultaneous interpretation*. Burtonsville, MD: Linstok Press.
- Russo, M., Bendazzoli, C. & Sandrelli, A. 2006. Looking for lexical patterns in a trilingual corpus of source and interpreted speeches: extended analysis of EPIC (European Parliament Interpreting Corpus). *FORUM: International Journal of Interpretation and Translation* 4(1):221-54.
- Rydberg, E., Gellerstedt, L. & Danermark, B. 2009. Towards an equal level of educational attainment between deaf and hearing people in Sweden? *Journal of Deaf Studies and Deaf Education* 14(3):312-323.
- [SA Schools Act]. 1996. No. 84 of 1996: South African schools act, 1996. <http://www.info.gov.za/acts/1996/a84-96.pdf>. Accessed 16/07/2012.
- [SA Yearbook]. 2009. *South Africa Yearbook*. Pretoria: Central Statistical Service.
- [SADA]. 2012. South African Disability Alliance: the collective voice of the disability sector in collaboration. http://www.deafsa.co.za/resources/SADA_profile.pdf. Accessed 20/06/2012.
- Salevsky, H. 1993. The distinctive nature of Interpreting Studies. *Target* 5(2):149-167.
- Sandler, W. & Lillo-Martin, D. (eds). 2006. *Sign language and linguistic universals*. Cambridge: Cambridge University Press.
- Sandrelli, A. & Bendazzoli, C. 2005. Lexical patterns in SI: a preliminary investigation into EPIC (European Parliament Interpreting Corpus). <http://www.corpus.bham.ac.uk-plc>. Accessed 07/12/2012.

- Sarma, M. 2008. Translating Shakespeare: intervention and universals in translation. *trans-kom* 1(1):74-87. http://www.trans-kom.eu/ihv_01_01_2008. Accessed 7/12/2012.
- [SASLINC]. South African Sign Language Interpreting National Centre. 2012. <http://www.saslinc.co.za/home.html>. Accessed 16/07/2012.
- [SATI]. South African Translator's Institute. 2012. Guidelines: simultaneous interpreter accreditation testing. http://translators.org.za/sati_cms/downloads/dynamic/sati_accreditation_for_sim_interpreting_english.pdf. Accessed 14/06/2012.
- Savvalidou, F. 2011. Interpreting (im)politeness strategies in a media political setting: a case study from the Greek prime ministerial TV debate as interpreted into Greek Sign Language. In Leeson, L., Wurm, S. & Vermeerbergen, M. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome, 87-109.
- Schäffner, C. (ed.). 1999. *Translation and norms*. Clevedon, Philadelphia & Johannesburg: Multilingual Matters.
- Schermer, T. 2012. Sign language planning in the Netherlands between 1980 and 2010. *Sign Language Studies* 12(4):467-493.
- Schjoldager, A. 1995. An exploratory study of translation norms in simultaneous interpreting: methodological reflections. *Hermes Journal of Linguistics* 14:65-87. Also reprinted in Pöchhacker, F. & Shlesinger, M. 2002. *The Interpreting Studies reader*. London & New York: Routledge, 301-311.
- Setton, R. 2011. Corpus-based Interpreting Studies (CIS): overview and prospects. In Kruger, A., Wallmach, K. & Munday, J. (eds). *Corpus-based Translation Studies: research and applications*. London & New York: Continuum, 33-75.
- Scott, M. 2011. *Wordsmith Tools, version 5*. Oxford: Oxford University Press.
- Searle, J. 1969. *Speech acts: an essay in the philosophy of language*. Cambridge: Cambridge University Press.
- Seghiri, M. & Corpas Pastor, G. 2009. Virtual corpora as documentation resources: translating travel insurance documents (English-Spanish). In Beeby, A., Inés, P. & Sánchez-Gijón, P. (eds). *Corpus use and translating: corpus use for learning to translate and learning corpus use to translate*. Amsterdam & Philadelphia: John Benjamins, 75-107.
- Segouat, J. & Braffort, A. 2009. Towards categorization of sign language corpora. Proceedings of the 2nd workshop on building and using comparable corpora, ACL-IJCNLP, Singapore: ACL and AFNLP, 64-67. <http://www.aclweb.org/anthology/W/W09/W09-3111.pdf>. Accessed 14/05/2012.

- Seleskovitch, D. 1978a. *Interpreting for international conferences*. Washington: Pen & Booth.
- Seleskovitch, D. 1978b. Language and cognition. In Gerver, D. & Sinaiko, H. (eds). *Language, interpretation and communication*. New York & London: Plenum Press, 333-341.
- Seleskovitch, D. 1975. *Langage, langues et mémoire. Étude de la prise de notes en interprétation consécutive*. Paris: Minard Lettres Modernes.
- Seleskovitch, D. & Lederer, M. 1984. *Interpréter pour traduire*. Paris: Didier.
- Selzer, M. 2010. *South African Sign Language used in parliament: is there a need for standardization?* Stellenbosch: Stellenbosch University. Unpublished MA thesis.
- Setton, R. 2002. A methodology for the analysis of interpretation corpora. In Garzone, G. & Viezzi, M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 29-46.
- Setton, R. 1999. *Simultaneous interpreting: a cognitive-pragmatic analysis*. Amsterdam & Philadelphia: John Benjamins.
- Shlesinger, M. 2008. Towards a definition of *interpretese*: an intermodal, corpus-based study. In Hansen, G., Chesterman, A. & Gerzymisch-Arbogast, H. (eds). *Efforts and models in interpreting and translation research: a tribute to Daniel Gile*. Amsterdam & Philadelphia: John Benjamins, 237-253.
- Shlesinger, M. 2000a. *Strategic allocation of working memory and other attentional resources in simultaneous interpreting*. Ramat-Gan: Bar-Ilan University. Unpublished PhD thesis.
- Shlesinger, M. 2000b. Interpreting as a cognitive process: how can we know what really happens? In Tirkkonen-Condit, S. & Jääskelinen, R. (eds). *Tapping and mapping the processes of translation and interpreting*. Amsterdam & Philadelphia: John Benjamins, 3-16.
- Shlesinger, M. 1999. Norms, strategies and constraints: how do we tell them apart? In Lugrís, A. & Ocampo, A. (eds). *Anovar/Anosar estudios de traducción e interpretación*. Vigo: Universidade de Vigo, 65-77.
- Shlesinger, M. 1998. Corpus-based interpreting as an offshoot of corpus-based Translation Studies. *Meta* 43(4):486-493.
- Shlesinger, M. 1994. Intonation in the production and perception of simultaneous interpretation. In Lambert, S. & Moser-Mercer, B. (eds). *Bridging the gap. Empirical research in simultaneous interpretation*. Amsterdam & Philadelphia: John Benjamins, 225-236.

- Shlesinger, M. 1989. Extending the theory of translation to interpretation: norms as a case in point. *Target* 1(1):111-115.
- Shlesinger, M. & Malkiel, B. 2005. Comparing modalities: cognates as a case in point. *Across Languages and Cultures* 6(2):173-193.
- Shuttleworth, M. & Cowie, M. 1997. *Dictionary of Translation Studies*. Manchester: St Jerome.
- Siebörger, I. 2013. South African Sign Language machine translation project. http://www.ru.ac.za/englishlanguageandlinguistics/research/southafricansignlanguage/mac_hinetranslation/. Accessed 22/04/2013.
- Signgenius. 2009. <http://www.signgenius.com/info-statistics.html>. Accessed 19/12/2009.
- SignPuddle. 2012. <http://www.signpuddle.org>. Accessed 29/11/2012.
- SignWriting. 2012. <http://www.signwriting.org>. Accessed 21/05/2012.
- [SIL] Summer Institute of Linguistics. 2012. The typical process of Bible translation. <http://www.sil.org/translation/stages.htm>. Accessed 30/10/2012.
- Sivero, F. 2003. *Interpretazione in tribunale: problemi organizzativi ed elaborazioni deontologiche*. Trieste: SSLMIT. Unpublished PhD thesis.
- Snell-Hornby, M., Jettmarová Z. & Kaindl, K. (eds). 1997. *Translation as intercultural communication*. Amsterdam & Philadelphia: John Benjamins.
- Snell-Hornby, M., Pöchhacker, F. & Kaindl, K. (eds). 1994. *Translation Studies – an interdisciplinary*. Amsterdam & Philadelphia: John Benjamins.
- [StatsSA]. Statistics SA. 2012. Census 2011 Methodology and highlights of key results. http://www.statssa.gov.za/census2011/Products/Census2011_Methodology_and_highlight_of_key_results.pdf. Accessed 18/10/2009.
- [StatsSA]. 2009. Statistics SA. <http://www.statssa.gov.za/census01/html/C2001disability.asp>. Accessed 18/10/2009.
- Steiner, B. 1998. Signs from the void. The comprehension and production of sign language on television. *Interpreting* 3(2):99-146.
- Stokoe, W. 1960. Sign language structure: An outline of the visual communication systems of the American deaf. Reprinted in *Journal of Deaf Studies and Deaf Education* 10(1), 2005:3-37.
- Stone, C. 2010. Sign language interpreting: is it that special? *Journal of Specialized Translation* (14):1-9. http://www.jostrans.org/Issue14/art_stone.php. Accessed 06/07/2011.
- Stone, C. 2009. *Towards a Deaf translation norm*. Washington, DC: Gallaudet University Press.

- Stone, C. & Woll, B. 2008. Dumb O Jemmy and others: deaf people, interpreters, and the London courts in the eighteenth and nineteenth centuries. *Sign Language Studies* 8(3):226-240.
- Storbeck, C. 1999. What do teachers of the Deaf need to know about sign language linguistics? An insider's perspective. *Language Matters* 30:27-38.
- Storjohann, P. 2005. Corpus-driven versus corpus-based approach to the study of relational patterns. Corpus Linguistics Conference Proceedings, Birmingham. <http://www.birmingham.ac.uk/research/activitt/corpus/publications/conference-archives/2005-cibf-e-journal.aspx>. Accessed 07/12/2012.
- Stratny, A. 2005. Best practices in interpreting: a Deaf community perspective. In Janzen, T. (ed.). *Topics in signed languages and interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 231-250.
- Strauss, A. & Corbin, J. 1990. *Basics of qualitative research: grounded theory procedures and techniques*. California, London & New Delhi: Sage Publications.
- Strong, M. & Rudser, S. 1985. An assessment instrument for sign language interpreters. *Sign Language Studies* 49(2):343-362.
- St Vincent. 2009. A short history of St Vincent School. <http://www.stvincent.co.za/history.htm>. Accessed 12/10/2010.
- Su, H., Chiu, C. & Cheng, C. 2007. Joint optimisation of word alignment and epenthesis generation for Chinese to Taiwanese sign synthesis. *IEEE. Translation Pattern Analysis and Machine Intelligence* 29(1):28-39.
- Surveysystem. 2012. Sample size calculator. <http://www.surveysystem.com/sscalc.htm>. Accessed 20/10/2012.
- Sutton, V. 2012a. A global writing system for a global age. <http://www.valeriesutton.org>. Accessed 20/06/2012.
- Sutton, V. 2012b. Personal correspondence. 12/11/2012.
- Sutton-Spence, R. 2007. Mouthings and simultaneity in British Sign Language. In Vermeerbergen, M., Leeson, L. & Crasborn, O. *Simultaneity in signed languages, form and function*. Amsterdam: John Benjamins.
- Sutton-Spence, R. & Day, L. 2001. Mouthings and mouth gestures in British Sign Language. In Boyes-Braem, P. & Sutton-Spence, R. (eds). *The hands are the head of the mouth: the mouth as articulator in sign languages*. Hamburg: Signum Verlag, 69-85.
- Sutton-Spence, R. & Woll, B. 2006. *The linguistics of British Sign Language*. Cambridge: Cambridge University Press.

- Sutton-Spence, R. & Woll, B. 2005. British Sign Language. In Davies, A. & Elder, C. (eds). *The handbook of Applied Linguistics*. Oxford: Blackwell, 165-186.
- Swift, O. 2012. *The role of signed language interpreters in post-secondary education settings in South Africa*. Pretoria: Unisa. Unpublished MA thesis.
- Takagi, M. 2006. Sign language interpreters of non-English speaking countries who support international activities of the Deaf. In McKee, R.L (ed.). *Proceedings of the inaugural conference of the World Association of Sign Language interpreters*. Coleford & Gloucestershire: Douglas McLean, 25-31.
- Taub, Y. 2001. Iconicity in American Sign Language: concrete and metaphorical applications. *Spatial Cognition and Computation* 2(1):31-50.
- Teubert, W. 1996. Comparable or parallel corpora? *International Journal of Lexicography* 9(3):238-64.
- Thelen, M. & Lewandosa-Tomaszczyk, B. (eds). 1995. *Translation and meaning, part 3*. Maasricht: Hogeschool Maasricht.
- [Thibologa]. Thibologa Sign Language Institution. 2013. Basic SASL Course. http://thibologa.co.za/basic/basic_les4.html. Accessed 20/04/2013.
- Tirkkonen-Condit, S. 2004. Unique items – over- or under-represented in translated language? In Mauranen, A. & Kujamäki, P. (eds). *Translation universals: do they exist?* Amsterdam & Philadelphia: John Benjamins, 177-184.
- Tirkkonen-Condit, S. 2002. Translationese – a myth or an empirical fact? A study into the linguistic identifiability of translated language. *Target* 14(1):207-220.
- Tirkkonen-Condit, S. & Jääskelinen, R. (eds). 2000. *Tapping and mapping the processes of translation and interpreting*. Amsterdam & Philadelphia: John Benjamins.
- Tobii. 2010. *Tobii Studio™ 2.X software release 2.2 user manual*. Stockholm: Tobii Technology.
- Tognini-Bonelli, E. 2001. *Corpus linguistics at work*. Amsterdam & Philadelphia: John Benjamins.
- Tommola, J. (ed.). 1995. *Topics in interpreting research*. Turku: University of Turku, Centre for Translation and Interpreting.
- Tommola, J. & Lindholm, J. 1995. Experimental research on interpreting: which dependent variable? In Tommola, J. (ed.) *Topics in interpreting research*. Turku: University of Turku, Centre for Translation and Interpreting, 121-133.
- Toury, G. 1999. A handful of paragraphs on “translation” and “norms”. In Schäffner, C. (ed.). *Translation and norms*. Clevedon & Philadelphia: Multilingual Matters, 9-31.

- Toury, G. 1995. *Descriptive Translation Studies – and beyond*. Amsterdam & Philadelphia: John Benjamins.
- Toury, G. 1980. *In search of a theory of translation*. Tel Aviv: Porter Institute.
- Turner, G. 2011a. Preface. In Leeson, L., Wurm, S. & Vermeerbergen, M. *Signed language interpreting: preparation, practice and performance*. Manchester: St Jerome.
- Turner, G. 2011b. Personal correspondence. 31/10/2011.
- [UCL]. University College London. 2012. BSL Corpus Project goes online. <http://www.ucl.ac.uk/dcal/dcal-news/bslcp>. Accessed 23/04/2013.
- [UFS]. University of the Free State. 2012. South African Sign Language. <http://www.ufs.ac.za/content.aspx?DCcode=157>. Accessed 16/07/2012.
- Valli, C. & Lucas, C. 2000. *Linguistics of American Sign Language: an introduction*. Washington, DC: Gallaudet University.
- Van Aarde, K. 2012. Personal correspondence, January – November 2012.
- Van Besien, F. 1999. Anticipation in simultaneous interpretation. *Meta* 44(2):250-259.
- Van Besien, F. & Meuleman, C. 2004. Dealing with speakers' errors and speakers' repairs in simultaneous interpreting. *The Translator* 10(1):59-81.
- Vanderauwera, R. 1985. *Dutch novels translated into English: the transformation of a "minority" literature*. Amsterdam: Rodopi.
- Van Herreweghe, M. & Vermeerbergen, M. 2010. Deaf perspectives on communicative practices in South Africa: institutional language policies in educational settings. *Text & Talk* 30(2):125-144.
- Van Herreweghe, M. & Vermeerbergen, M. 1998. *Tuishoren in een wereld van gebaren*. Gentbrugge: Academia Press.
- Venuti, L. 2000. *The Translation Studies reader*. London: Routledge.
- Venuti, L. 1995. *The translator's invisibility: a history of translation*. London & New York: Routledge.
- Vermeerbergen, M. 1997. *Grammaticale aspecten van de Vlaams-Belgische Gebarentaal*. Gentbrugge: Academia Press.
- Vermeerbergen, M., Leeson, L. & Crasborn, O. 2007. *Simultaneity in signed languages, form and function*. Amsterdam: John Benjamins.
- Vermeerbergen, M. Van Herreweghe, M., Akach, P. & Matabane, E. 2007. Constituent order in Flemish Sign Language (VGT) and South African Sign Language (SASL). *Sign Language & Linguistics* 10(1):25-54.

- Viaggio, S. 2002. The quest for optimal relevance: the need to equip students with a pragmatic compass. In Garzone, G. & Viezzi M. (eds). *Interpreting in the 21st century: challenges and opportunities*. Amsterdam & Philadelphia: John Benjamins, 229-44.
- Visson, L. 2005. Simultaneous interpretation: language and cultural difference. In Berman, S. & Wood, M. (eds). *Nation, language and the ethics of translation*. Princeton: Princeton University Press, 51-64.
- Vogt-Svendsen, M. 2001. A comparison of mouth gestures and mouthings in Norwegian Sign Language (NSL). In Boyes-Braem, P. & Sutton-Spence, R. (eds). *The hands are the head of the mouth: the mouth as articulator in sign languages*. Hamburg: Signum Verlag, 9-40.
- Vuorikoski, A. 2004. *A voice of its citizens or a modern Tower of Babel? Interpreting quality as a function of political rhetoric in the European Parliament*. Tampere: Acta Universitatis Tamperensis, 985. <http://acta.uta.fi/pdf/951-44-5878-8.pdf>. Accessed 12/12/2012.
- Wadensjö, C. 2004. Dialogue interpreting: a monologising practice in a dialogically organized world. *Target* 16(1):105-124.
- Wadensjö, C. 2002. The double role of a dialogue interpreter. In Pöchhacker, F. & Shlesinger, M. *The Interpreting Studies reader*. London & New York: Routledge, 355-370.
- Wadensjö, C. 1998. *Interpreting as interaction*. London & New York: Longman.
- Wallin, L. 2012. (ed.). Swedish Sign Language Corpus Project. <http://www.ling.su.se/english/research/research-projects/sign-language/swedish-sign-language-corpus/>. Accessed 23/04/2013.
- Wallin, L., Mesch, J. & Nilsson, A. 2010. Transcription guide lines for Swedish Sign Language discourse. Stockholm University. <http://www.sign.net.ru.nl/groups/slcwikigroup/wiki/4d6fa/>. Accessed 26/05/2012.
- Wallmach, K. 2013. Personal correspondence. 05/05/2013.
- Wallmach, K. 2012. Personal correspondence. 02/07/2012.
- Wallmach, K. 2005. *Principles of interpreting III: simultaneous interpreting*. Pretoria: Unisa.
- Wallmach, K. 2004. 'Pressure players' or 'choke artists'? How do Zulu simultaneous interpreters handle the pressure of interpreting in a legislative context? *Language Matters* 34:179-200.
- Wallmach, K. 2000. Examining simultaneous interpreting norms and strategies in a South African legislative context: a pilot corpus analysis. *Language Matters* 31(1): 198-221.
- Wallmach, K. & Kruger, A. 2005. *Principles of interpreting I: introduction to interpreting skills*. Pretoria: Unisa.

- Wallmach, K. & Kruger, A. 1999. 'Putting a sock in it': a contrastive analysis of problem-solving translation strategies between African and European languages. *SA Journal of African Languages* 19(4):276-289.
- Watermeyer, B., Swartz, L., Lorenzo, T., Schneider, M. & Priestley, M. (eds). 2006. *Disability and social change: a South African agenda*. Cape Town: HSRC Press.
- [WFD]. World Federation of the Deaf. 2011. 21st International Congress on the Education of the Deaf (ICED) in July 2010 in Vancouver, Canada. <http://www.wfd.org/news/international-congress-on-the-education-of-the-deaf-iced-in-july-2010-in-vancouver-canada>. Accessed 16/07/2012.
- Websourd. 2012. <http://www.websourd.org>. Accessed 18/06/2012.
- Webster, A. 1988. Deafness and learning to read 1: theoretical and research issues. *Journal of British Association of Teachers of the Deaf* 12(4):77-83.
- Wehrmeyer, J. 2004. CTS and Bible translation: a study in belling the cat. *Language Matters* 35(1):214-225.
- Wehrmeyer, J. 2001. *A critical investigation of translation norms in Russian Bible translation*. Pretoria: Unisa. Unpublished MA thesis.
- Wilber, R. 1991. Intonation and focus in American Sign Language. In No, Y. & Libucha, M. (eds). *ESCOL '90: Eastern States Conference on Linguistics*. Columbus, OH: Ohio State University Press, 320-331.
- Wilber, P. 1987. *American Sign Language: linguistic and applied dimensions*. Boston: Little & Brown.
- Wilcox, P. 2000. *Metaphor in American Sign Language*. Washington, DC: Gallaudet University Press.
- Wilcox, S. & Shaffer, B. 2005. Towards a cognitive model of interpreting. In Janzen, T. (ed.). *Topics in signed language interpreting: theory and practice*. Amsterdam & Philadelphia: John Benjamins, 27-50.
- [Wits]. University of the Witwatersrand. 2012. Wits Language School. About the translation and interpreting department. <http://www.witslanguageschool.com/Languageareas/TranslationInterpreting/About.html>. Accessed 19/09/2012.
- Woll, B. 2001. The sign that dares to speak its name: echo phonology in British Sign Language (BSL). In Boyes-Braem, P. & Sutton-Spence, R. (eds). *The hands are the head of the mouth: the mouth as articulator in sign languages*. Hamburg: Signum Verlag, 87-98.

- Woll, B. Sutton-Spence, R. & Elton, F. 2001. Multilingualism: the global approach to sign languages. In Lucas, C. 2001. *The sociolinguistics of sign languages*. Cambridge: Cambridge University Press, 8-32.
- Woll, B. 1991. Sign language on television: final report to Channel 4. Bristol: Centre for Deaf Studies.
- Wulf, A. & Dudis, P. 2005. Body partitioning in ASL metaphorical blends. *Sign Language Studies* 5(3):317-332.
- Xiao, X. & Yu, R. 2009. Survey on sign language interpreting in China. *Interpreting* 11(2):137-163.
- Yeshiva. s.a. Introducing qualitative hypothesis-generating research. The Yeshiva University fatherhood project. <http://www.nyupress.org/webchapters/0814706940chapt1.pdf> Accessed 20/12/2009.
- Zanettin, F. 2012. *Translation-driven corpora: corpus resources for descriptive and applied Translation Studies*. Manchester & Kinderhook: St Jerome Publishing.

APPENDIX A: PARTICIPANT CONSENT FORM

Dear Participant

Thank you for consenting to participate in the eye-tracking experiment which forms part of my doctoral studies research.

BACKGROUND INFORMATION

Title and researchers. The title of this research is *Audience reactions to TV news bulletins*. Our names are Dr Helene Geldenblom and Mrs Ella Wehrmeyer from the University of South Africa.

Reason for the research. We are studying how Deaf and hearing audiences watch TV news broadcasts, and we are collecting data from members of the general public so that we can compare whether Deaf and hearing audiences have different criteria when watching TV news broadcasts.

Details of participation. The research involves watching a short video composed of different news broadcasts while your responses are being recorded. You will then be asked to tell us your impressions of the news broadcasts and also of the experiment. The session should take about 10-15 minutes. Please feel free to ask any questions you may have.

CONSENT STATEMENT

1. I understand that my participation is voluntary and that I may withdraw from the research at any time, without giving any reason.
2. I am aware of what my participation will involve. I understand that there are no risks involved in the participation of this study.
4. I also understand that my responses will be recorded and I give permission for my responses to be used as part of the research project.
5. All questions that I have about the research have been satisfactorily answered.

I agree to participate.

Participant's signature: _____

Participant's name (please print): _____

Tick this box if you would like to receive a summary of the results by e-mail

E-mail address: _____

Date: _____

Source: <http://www.le.ac.uk/pc/ethics/participantconsentform.doc>

APPENDIX B: QUESTIONNAIRE

Department of Linguistics at Unisa is doing a survey on TV interpreting.
We are not doing it to criticise anyone.
It is confidential – we will tear it up when the research is finished.
SABC, ETV and Deaf Organizations get a summary of results, not your personal opinion.
We want to help to improve the South African Sign Language of the interpreters.
We want the Deaf Community to enjoy and understand the TV programs.
We want SABC and ETV to understand your needs and concerns.
As a member of the Deaf community, your complaints and what you tell is important!
PLEASE HELP US TO MAKE A DIFFERENCE!!!

A. PERSONAL DETAILS:

- 1) Name and Surname Age
- 2) Are you **male/ female**? Race? **White / Black/ Coloured/ Asian**
- 3) Where do you live? Town/City..... Province:
- 4) School attended
- 5) Highest grade passed OR Highest standard passed
- 6) What spoken languages do you know? **English/Afrikaans/Zulu/Sesotho/ Other**
- 7) Are you a member of Deaf culture? [YES/ NO]
- 8) At what age did you become deaf? **AT BIRTH /WHICH AGE**
- 9) Your Parents, are/were they **DEAF/ HEARING?**
- 10) Do you use something to help you to hear? [YES/ NO]
- 11) If yes, which? **HEARING AID/ COCHLEAR IMPLANT/ OTHER**
- 12) How do you communicate
 - i. With hearing people?
 - TALKING AND LIP READING/**
 - TALKING AND LIP READING TOGETHER WITH SIGN LANGUAGE/**
 - ONLY SIGN LANGUAGE WITHOUT WORDS/**
 - THROUGH WRITING**
 - ii. With other deaf people?
 - TALKING AND LIP READING/**
 - SIGN LANGUAGE WITH WORDS TO LIPREAD/**
 - ONLY SIGN LANGUAGE WITHOUT WORDS/**
 - THROUGH WRITING**
- 13) When did you start to learn Sign Language? [AGE / I DIDN'T LEARN SIGN LANGUAGE]

B. TV PREFERENCES

- 1) What TV programs do you like?
- 2) Why do you like these programs?
- 3) Do you watch DTV on SABC 3? [EVERY WEEK or OCCASIONALLY or NEVER]
 - a. If yes, do you enjoy the program? [YES/NO]
 - b. Why?.....
- 4) Which do you prefer? [INTERPRETER or SUBTITLES or INTERPRETER AND SUBTITLES]

- 5) Tell us how to make TV programs that Deaf people can understand it better.....

 6) Tell us What we can do to make the TV programs more enjoyable for Deaf people?

C. THE NEWS PROGRAMS

1) Which news programs do you watch?

- TV1 news: 17:30 [YES/ NO]
- TV2 daytime news/parliament reports [YES/ NO]
- TV3 News in 60 seconds: 20:30 weekdays [YES/ NO]
- eTV news: 18:00 weekdays [YES/ NO]
- eNews early edition: 18:00 Sundays [YES/ NO]
- eTV news late edition: 22:00 weekdays [YES/ NO]
- Any other news program with sign language? [YES/ NO]
 - Which? Channel..... Time Days.....
- Any other news program (no sign language)? [YES/NO]
 - Which? Channel..... Time Days.....

PLEASE WATCH THESE NEWS PROGRAMS AND TELL US WHAT BOTHERS YOU ABOUT IT

2) Do you understand the TV-interpreter? Choose one for every program and **use highlight colour**

✗ = NO ☹ = only a little ☺ = OK but not everything ✓ = YES, very well

TV1 news 17:30	✗ / ☹ / ☺ / ✓
TV2 news 20:30	✗ / ☹ / ☺ / ✓
TV3 News in 60 seconds 20:30 weekdays	✗ / ☹ / ☺ / ✓
eNews early edition 18:00 weekdays	✗ / ☹ / ☺ / ✓
eNews early edition 18:00 Sundays	✗ / ☹ / ☺ / ✓
eTV news late edition 22:00 weekdays	✗ / ☹ / ☺ / ✓
DTV	✗ / ☹ / ☺ / ✓
Other	✗ / ☹ / ☺ / ✓

3) If you don't understand TV-interpreters, why not? (put a tick ✓ or use **highlight colour**)

not my sign language	sign language is unclear	cannot see hands properly	picture too small/ bad colour	no facial expression/ lip movement/language
it's bad sign language	I prefer language with sign language to lipread	it's "signed" English/ Afrikaans etc.	my sign language is not good	I don't know why

4) Does the interpreter use your sign language? (choose ✗, ☹, ☺ or ✓) **use highlight colour**

TV PROGRAM	YOUR LANGUAGE?	SIGN	write down your SUGGESTIONS here
TV1 news 17:30	✗ / ☹ / ☺ / ✓		
TV2 news 20:30	✗ / ☹ / ☺ / ✓		
TV3 News in 60 seconds 20:30 weekdays	✗ / ☹ / ☺ / ✓		
eNews early edition 18:00 weekdays	✗ / ☹ / ☺ / ✓		
eNews early edition 18:00 Sundays	✗ / ☹ / ☺ / ✓		
eTV news late edition 22:00 weekdays	✗ / ☹ / ☺ / ✓		
DTV	✗ / ☹ / ☺ / ✓		
Other	✗ / ☹ / ☺ / ✓		

5) Anything else you want to tell us about the sign language on the TV news?

6) Do Deaf communities in South Africa use different sign languages? [YES/ NO]

If YES, why? (put a tick ✓ or **highlight colour**)

different schools	different cultures	Black deaf's sign language is different from White deaf's sign language	Each province/area has its own sign language	I don't know
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7) Anything else you want to tell us about the sign languages in South Africa?

8) Can you see the interpreter clearly? (choose X, ⊗, ⊕ or ✓)

X = bad/can't see! / don't like! **⊗** = not very clear / don't really like **⊕** = OK **✓** = very good! / Like!

TV PROGRAM	HANDS	FACE	CLOTHING COLOUR
TV1 news 17:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV2 news 20:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV3 News in 60 seconds 20:30 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 Sundays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eTV news late edition 22:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
DTV	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
Other	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓

9) What do you think? Is the interpreter's sign language very good? (choose X, ⊗, ⊕ or ✓):

< The hand signs, facial expressions, language (word order, full sentences etc.) >

X = bad/can't recognize! **⊗** = not really OK **⊕** = OK **✓** = very good!

TV PROGRAM	HAND SIGNS	FACIAL EXPRESSION	LANGUAGE
TV1 news 17:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV2 news 20:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV3 News in 60 seconds 20:30 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 Sundays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eTV news late edition 22:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
DTV	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
Other	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓

10) What else can you tell us about the TV-interpreter's sign language?

11) Should the interpreter use his/her lips to form the spoken word? (e.g. English/ Afrikaans/ Zulu/ Sotho etc.)

[YES/ NO] Explain why.

12) Can you see the picture of the interpreter clearly? (choose X, ⊗, ⊕ or ✓)

X = bad/ too small! **⊗** = not really OK **⊕** = OK **✓** = nice!

TV PROGRAM	SIZE	POSITION	BACKGROUND COLOUR
TV1 news 17:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV2 news 20:30	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
TV3 News in 60 seconds 20:30 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eNews early edition 18:00 Sundays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
eTV news late edition 22:00 weekdays	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓
DTV	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓	X / ⊗ / ⊕ / ✓

Other	X / ☹ / ☺ / ✓	X / ☹ / ☺ / ✓	X / ☹ / ☺ / ✓
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13) Tell us, how we must make the picture of the interpreter more clear?

.....

14) What do you mainly look at? [THE INTERPRETER/ THE MAIN PICTURE ON TV/ AT BOTH]

15) Watching the interpreter and the main picture at the same time, is it (put a tick ✓) **use highlight colour**

X= difficult, makes me mad!	☹ = not really OK, I lose a lot of information	☺ = OK but I lose some information	✓ = easy, no problem
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16) Tell us, how we can make it better?

.....

D. PLEASE TELL US

1) What kind of programs would you like to see **in future** on TV?

♣ News programs?
.....

.....

♣ Other programs?
.....

.....

2) Any other comments?

.....

THANK YOU FOR HELPING ME!

APPENDIX C: SURVEY DATA

Table C1: Sociological composition of respondents

AGE:	0-20	21-30	31-50	51-70	>70	
	72 (23%)	102 (32%)	85 (27%)	48 (15%)	5 (2%)	
GENDER:	Male	Female				
	166 (53%)	147 (47%)				
RACE:	Asian	Black	Coloured	White		
	4 (1%)	155 (49%)	13 (4%)	141 (45%)		
REGION:	Gauteng	Free State	Cape	KwaZulu Natal	Other	
	129 (41%)	75 (24%)	57 (18%)	27 (9%)	25 (8%)	
SCHOOL:	Transoranje	Thiboloha	De La Bat	St Vincent's	Filadelfia	Dominican
	90 (29%)	77 (25%)	40 (13%)	15 (5%)	12 (4%)	12 (4%)

Table C2: Highest education levels

Highest grade	< Grade 4	Grade 5-7	Grade 8-10	Grade 11-12	Tertiary	Mean
Total ¹	59 (19%)	15 (5%)	104 (33%)	130 (41%)	6 (2%)	9.24
Asian	0%	0%	50%	50%	0%	12
Black	35%	8%	16%	39%	1%	8
Coloured	0%	15%	69%	15%	0%	9
White	3%	0%	47%	46%	4%	10

Table C3: Binned signing age distribution

SignAge (yrs):	0 – 3	4 – 7	8 – 13	14 – 18	18 – 25	>25	Never	Average sign age
Total	103 (33%)	99 (32%)	70 (22%)	13 (4%)	9 (3%)	3 (1%)	3 (1%)	6.6
Asian	25%	75%	0%	0%	0%	0%	0%	3.5
Black	29%	33%	26%	7%	1%	0%	0%	7
Coloured	31%	31%	31%	8%	0%	0%	0%	5
White	39%	28%	16%	8%	1%	2%	2%	6

Table C4: Viewing preferences

PROGRAMMES WATCHED					
Soaps:	224 (71%)	Sport:	122 (39%)	Movies:	104 (33%)
News:	92 (29%)	Nature:	51 (16%)	Serials:	58 (18%)
REASONS FOR WATCHING:					
Subtitles:	191 (61%)	Action:	92 (29%)	Deaf-related:	1 (0.3%)
Learn English:	7 (2%)	Interest:	74 (24%)	Inform:	15 (4%)
Sign /interpreter:	21 (7%)	Understand:	22 (7%)	Content:	20 (6%)
Life skills:	7 (2%)				
WATCH DTV					
Every week:	56 (18%)	Sometimes:	193 (61%)	Never:	65 (21%)
ENJOY DTV?					
yes:	225 (72%)	No:	52 (26%)	Not answered:	7 (2%)
REASONS DTV:					
Subtitles:	100 (32%)	Interest:	57 (18%)	Deaf-related:	26 (9%)

¹ In all Questionnaire tables and figures, Total = frequencies/percentages for the whole respondent sample.

Sign language:	70 (22%)	Understand:	20 (6%)	Inform:	12 (4%)
Content:	13 (4%)				
Don't understand:	17 (5%)	No time:	12 (4%)	Boring:	23 (7%)
PREFER SUBTITLES?					
Subtitles:	128 (41%)	Interpreter:	17 (5%)	Both:	145 (46%)
HOW BETTER UNDERSTAND?					
Subtitles:	168 (53%)	Interpreter:	24 (7%)	Both:	51 (16%)
Improve interpreter:	9 (3%)	Afrikaans:	13 (4%)	Use deaf SL:	3 (1%)
Improve picture:	18 (6%)				
HOW BETTER ENJOY?					
Subtitles:	161 (51%)	Interpreter:	22 (7%)	Both:	27 (9%)
Improve interpreter:	11 (4%)	Improve content:	9 (3%)	Use Deaf:	9 (3%)
Improve picture:	7 (2%)				
COMBINED					
Subtitles:	163 (52%)	Interpreter:	25 (8%)	Both:	71 (23%)
Improve interpreter:	23 (7%)	Improve content:	20 (6%)	Deaf:	27 (9%)
Improve picture:	18 (6%)			Afrikaans:	16 (5%)

Table C5: Comprehension of interpreted news

UNDERSTAND?	T1	T2	T3	E6	E5	E10	DTV
No (1)	163 (56%)	174 (61%)	173 (61%)	101 (34%)	148 (51%)	71 (24%)	48 (17%)
Only a little (2)	49 (17%)	43 (15%)	64 (18%)	39 (13%)	55 (19%)	31 (10%)	25 (9%)
OK but not all (3)	55 (19%)	49 (17%)	46 (16%)	103 (35%)	52 (18%)	123 (41%)	64 (23%)
Yes, very well (4)	26 (9%)	20 (7%)	15 (5%)	55 (18%)	37 (13%)	72 (24%)	146 (52%)
Not answered (0)	19 (6%)	25 (8%)	11 (7%)	18 (6%)	24 (8%)	19 (6%)	30 (10%)
Mode	1	1	1	3	1	3	4
HAPPY = 3 OR 4	28%	24%	21%	53%	30%	66%	74%
HAPPY (Black)	41%	26%	22%	82%	38%	85%	96%
HAPPY (White)	11%	20%	18%	23%	20%	45%	46%
HAPPY (Asian)	25%	25%	25%	0%	33%	67%	50%
HAPPY (Coloured)	50%	50%	42%	75%	58%	82%	100%

Table C6: News bulletins watched

PROGRAM	T1	T2	T3	E6	E5	E10	DTV
Yes (1)	88 (28%)	53 (17%)	46 (15%)	187 (59%)	145 (46%)	168 (53%)	236 (76%)
Mode	0	0	0	1	0	1	1
Racial distribution: WATCH = yes							
Asian	25%	0%	50%	75%	100%	100%	50%
Black	42%	14%	16%	81%	69%	72%	94%
Coloured	15%	23%	23%	62%	62%	54%	77%
White	14%	20%	12%	36%	18%	32%	55%

Table C:7: Reasons for incomprehension

REASONS	Total (%)	Asian	Black	Coloured	White
Viewer lip-reads	141 (44%)	25%	27%	31%	64%
Inadequate SL skills	18 (6%)	0%	2%	8%	10%
It's bad SL	20 (6%)	0%	1%	0%	12%
Unclear SL	60 (19%)	0%	11%	8%	29%

No facial expression	107 (33%)	0%	43%	8%	26%
I can't see the hands clearly	48 (15%)	25%	14%	0%	17%
Picture too small/bad colour	113 (35%)	0%	37%	8%	37%
Not my SL	200 (63%)	25%	65%	23%	64%
"Signed" English/Afrikaans	37 (12%)	0%	8%	8%	17%
Don't know why	18 (6%)	0%	6%	0%	6%

Table C8: Your sign language?

PROGRAM	T1	T2	T3	E6	E5	E10	DTV
No (1)	179 (65%)	176 (65%)	181 (66%)	103 (37%)	146 (54%)	67 (24%)	43 (17%)
Only a little (2)	34 (12%)	31 (12%)	31 (11%)	53 (19%)	42 (15%)	58 (21%)	26 (10%)
OK but not all(3)	51 (18%)	46 (17%)	45 (16%)	75 (27%)	54 (20%)	105 (38%)	56 (22%)
Yes, very well (4)	13 (5%)	16 (6%)	16 (6%)	46 (17%)	30 (11%)	50 (18%)	131 (51%)
Mode	1	1	1	1	1	3	4
HAPPY = 3 OR 4	23%	23%	22%	44%	31%	55%	73%
HAPPY (Asian)	50%	50%	25%	67%	67%	67%	50%
HAPPY (Black)	33%	23%	26%	60%	34%	61%	96%
HAPPY (Coloured)	20%	45%	9%	55%	64%	55%	100%
HAPPY (White)	14%	22%	20%	27%	24%	50%	45%

Table C9: Are there many sign languages?

Group	YES	SCHOOL	CULTURE	RACE	REGION
Total	86%	71%	64%	61%	58%
Asian	75%	0%	25%	0%	25%
Black	87%	77%	68%	72%	70%
Coloured	69%	31%	31%	31%	15%
White	87%	71%	63%	52%	49%

Table C10: Interpreter signing skills

HAND (CLASSIFIER) QUALITY							
PROGRAM	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	112 (42%)	68 (26%)	63 (24%)	56 (22%)	47 (18%)	39 (15%)	22 (9%)
Not really OK (2)	72 (27%)	56 (22%)	61 (23%)	44 (17%)	58 (22%)	30 (11%)	25 (10%)
OK (3)	67 (25%)	121 (47%)	124 (47%)	123 (47%)	124 (47%)	140 (53%)	62 (26%)
Very good (4)	15 (6%)	12 (5%)	18 (7%)	37 (14%)	33 (13%)	57 (21%)	134 (55%)
Mode	1	3	3	3	3	3	4
HAPPY = 3 OR 4	31%	57%	57%	68%	61%	74%	81%
HAPPY (Asian)	25%	25%	25%	50%	67%	50%	33%
HAPPY (Black)	38%	79%	77%	88%	81%	85%	96%
HAPPY (Coloured)	40%	30%	45%	78%	60%	44%	82%
HAPPY (White)	22%	23%	27%	32%	36%	65%	60%
FACIAL EXPRESSION							
PROGRAM	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	102 (40%)	58 (23%)	58 (23%)	52 (20%)	33 (13%)	25 (10%)	20 (8%)
Not really OK (2)	65 (26%)	58 (23%)	63 (25%)	48 (19%)	65 (25%)	33 (13%)	21 (9%)
OK (3)	68 (27%)	119 (47%)	117 (46%)	119 (46%)	124 (49%)	139 (55%)	72 (30%)
Very good (4)	19 (7%)	16 (6%)	19 (7%)	40 (15%)	33 (13%)	56 (22%)	125 (53%)
Mode	1	3	3	3	3	3	4
HAPPY = 3 OR 4	34%	54%	53%	61%	62%	77%	83%
HAPPY (Asian)	25%	25%	25%	50%	67%	50%	33%
HAPPY (Black)	43%	82%	76%	85%	84%	89%	95%
HAPPY (Coloured)	60%	50%	44%	80%	78%	63%	82%
HAPPY (White)	22%	22%	27%	34%	34%	65%	60%

SIGNING ORDER							
PROGRAM	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	94 (37%)	52 (21%)	47 (18%)	87 (34%)	36 (14%)	75 (29%)	29 (12%)
Not really OK (2)	42 (16%)	42 (17%)	40 (16%)	29 (11%)	30 (11%)	29 (11%)	23 (9%)
OK (3)	79 (31%)	70 (28%)	135 (53%)	77 (30%)	139 (53%)	72 (28%)	62 (26%)
Very good (4)	41 (16%)	86 (34%)	35 (14%)	63 (25%)	56 (21%)	80 (31%)	129 (53%)
Mode	1	4	3	1	3	3	4
HAPPY = 3 OR 4	47%	62%	66%	55%	75%	59%	79%
HAPPY (Asian)	25%	25%	25%	50%	50%	50%	50%
HAPPY (Black)	49%	70%	77%	51%	82%	48%	86%
HAPPY (Coloured)	50%	44%	44%	60%	70%	56%	82%
HAPPY (White)	43%	46%	46%	47%	49%	50%	59%

Table C11: Interpreter visibility

VIS-HAND	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	68 (26%)	69 (27%)	66 (26%)	62 (24%)	60 (23%)	46 (18%)	29 (12%)
Not really OK (2)	67 (26%)	64 (25%)	117 (46%)	44 (17%)	47 (18%)	33 (13%)	18 (7%)
OK (3)	116 (44%)	111 (43%)	64 (25%)	120 (46%)	127 (48%)	133 (52%)	63 (26%)
Very good (4)	11 (4%)	12 (5%)	9 (4%)	37 (14%)	32 (12%)	46 (18%)	135 (55%)
Mode	3	3	2	3	3	3	4
HAPPY = 3 OR 4	48%	48%	29%	60%	60%	69%	81%
HAPPY (Asian)	50%	50%	25%	50%	50%	75%	67%
HAPPY (Black)	71%	65%	30%	85%	81%	81%	94%
HAPPY (Coloured)	25%	44%	56%	38%	50%	44%	91%
HAPPY (White)	22%	28%	25%	32%	34%	58%	62%
VIS-FACE	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	54 (21%)	56 (22%)	106 (43%)	50 (19%)	43 (17%)	33 (13%)	19 (8%)
Not really OK (2)	66 (26%)	55 (22%)	60 (24%)	43 (17%)	54 (22%)	38 (15%)	23 (10%)
OK (3)	117 (46%)	126 (51%)	69 (28%)	124 (48%)	122 (49%)	135 (53%)	56 (23%)
Very good (4)	20 (8%)	12 (5%)	14 (6%)	42 (16%)	32 (13%)	47 (19%)	141 (59%)
Mode	3	3	1	3	3	3	4
HAPPY = 3 OR 4	53%	55%	33%	64%	61%	72%	82%
HAPPY (Asian)	75%	75%	50%	100%	75%	100%	100%
HAPPY (Black)	77%	76%	33%	89%	83%	83%	95%
HAPPY (Coloured)	73%	44%	80%	67%	60%	67%	90%
HAPPY (White)	21%	30%	28%	32%	35%	58%	63%
VIS-CLOTHING	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	45 (18%)	40 (17%)	38 (16%)	35 (14%)	34 (14%)	26 (11%)	20 (9%)
Not really OK (2)	36 (15%)	34 (14%)	37 (15%)	26 (11%)	40 (16%)	26 (11%)	15 (6%)
OK (3)	134 (54%)	82 (34%)	129 (54%)	135 (55%)	126 (51%)	133 (55%)	58 (25%)
Very good (4)	32 (13%)	85 (35%)	36 (15%)	51 (21%)	45 (18%)	57 (24%)	140 (60%)
Mode	3	4	3	3	3	3	4
HAPPY = 3 OR 4	67%	69%	69%	75%	70%	79%	85%
HAPPY (Asian)	75%	75%	75%	100%	100%	67%	100%
HAPPY (Black)	85%	85%	85%	94%	90%	89%	98%
HAPPY (Coloured)	56%	56%	78%	63%	78%	67%	90%
HAPPY (White)	45%	50%	48%	54%	43%	67%	66%

Table C12: Picture visibility

PICTURE SIZE	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	100 (40%)	150 (61%)	105 (42%)	95 (38%)	99 (40%)	92 (37%)	37 (16%)
Not really OK (2)	75 (30%)	46 (19%)	44 (18%)	65 (26%)	37 (15%)	69 (28%)	15 (7%)
OK (3)	66 (26%)	33 (14%)	89 (36%)	111 (25%)	91 (37%)	58 (23%)	44 (19%)

Very good (4)	11 (4%)	15 (6%)	12 (5%)	30 (10%)	20 (8%)	29 (12%)	131 (58%)
Mode	1	1	1	1	1	1	4
HAPPY = 3 OR 4	31%	20%	40%	36%	45%	35%	77%
HAPPY (Asian)	25%	25%	25%	33%	33%	33%	50%
HAPPY (Black)	39%	15%	56%	43%	61%	42%	89%
HAPPY (Coloured)	60%	64%	45%	64%	64%	50%	100%
HAPPY (White)	18%	20%	23%	25%	24%	26%	59%
PIC- POSITION	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	36 (15%)	38 (17%)	37 (16%)	23 (10%)	25 (11%)	25 (11%)	21 (10%)
Not really OK (2)	30 (13%)	86 (38%)	33 (14%)	26 (11%)	28 (12%)	23 (10%)	15 (7%)
OK (3)	91 (39%)	78 (34%)	136 (58%)	85 (36%)	136 (57%)	83 (35%)	53 (24%)
Very good (4)	78 (33%)	27 (12%)	28 (12%)	105 (44%)	48 (20%)	107 (45%)	132 (60%)
Mode	3	2	3	4	3	3	4
HAPPY = 3 OR 4	72%	46%	70%	79%	78%	80%	84%
HAPPY (Asian)	75%	75%	75%	100%	100%	100%	100%
HAPPY (Black)	80%	33%	78%	85%	81%	84%	93%
HAPPY (Coloured)	64%	70%	70%	60%	70%	56%	100%
HAPPY (White)	61%	57%	59%	75%	74%	77%	68%
PIC- COLOUR	T1	T2	T3	E6	E5	E10	DTV
Bad (1)	21 (9%)	22 (10%)	23 (10%)	16 (7%)	17 (7%)	16 (7%)	17 (8%)
Not really OK (2)	28 (12%)	28 (12%)	30 (13%)	26 (11%)	26 (11%)	22 (9%)	10 (5%)
OK (3)	135 (58%)	76 (33%)	131 (56%)	127 (54%)	126 (54%)	126 (53%)	48 (22%)
Very good (4)	50 (21%)	101 (44%)	49 (21%)	68 (29%)	65 (28%)	72 (31%)	145 (66%)
Mode	3	4	3	3	3	3	4
HAPPY = 3 OR 4	79%	78%	77%	82%	82%	84%	88%
HAPPY (Asian)	75%	75%	75%	100%	100%	100%	100%
HAPPY (Black)	85%	82%	82%	86%	84%	87%	97%
HAPPY (Coloured)	70%	70%	60%	80%	90%	78%	100%
HAPPY (White)	70%	72%	72%	77%	78%	80%	71%

Table C13: Respondent numbers for assessments

		Undrstd	UrSL	Vis-hand	Vis-face	Vis-cloth	Int-hand	Int-face	Int-lang	Pic-size	Pic-pos	Pic-col
T1	0 (f)	21	37	52	57	67	48	60	58	62	79	80
	0 (%)	6%	11%	16%	18%	21%	15%	19%	18%	19%	25%	25%
	Real N	293	277	262	257	247	266	254	256	252	235	234
T2	0 (f)	28	45	58	65	73	57	63	64	70	85	87
	0 (%)	8%	14%	18%	20%	23%	18%	20%	20%	22%	27%	27%
	Real N	286	269	256	249	241	257	251	250	244	229	227
T3	0 (f)	24	41	58	65	74	48	57	57	64	80	81
	0 (%)	7%	13%	18%	20%	23%	15%	18%	18%	20%	25%	25%
	Real N	290	273	256	249	240	266	257	257	250	234	233
E6	0 (f)	16	37	51	55	67	56	55	58	65	75	77
	0 (%)	6%	12%	17%	18%	22%	18%	18%	19%	21%	24%	25%
	Real N	298	277	263	259	247	260	259	256	249	239	237
E5	0 (f)	22	42	48	63	69	52	59	53	67	77	80
	0 (%)	8%	14%	16%	21%	22%	17%	19%	17%	22%	25%	26%
	Real N	292	272	266	251	245	262	255	261	247	237	234
E10	0 (f)	17	34	56	61	72	48	61	58	66	76	78
	0 (%)	6%	11%	18%	20%	23%	16%	20%	19%	22%	25%	25%
	Real N	297	280	258	253	242	266	253	256	248	238	236
DTV	0 (f)	31	58	69	75	81	71	76	71	87	93	94
	0 (%)	10%	18%	22%	24%	26%	22%	24%	22%	27%	29%	30%
	Real N	283	256	245	239	233	243	238	243	227	221	220

APPENDIX D: SASL DISCUSSION

Meeting of Deaf at Unisa on 31st May 2011

Karina: Talk Afrikaans. They can't understand you if you speak English.

Ella: Thank you very much that you all came. Please tell us about the sign language interpreters on TV. What you like, what you don't like.

Karina: You can see the Black Deaf and the English don't understand because I have Afrikaans sign. Do you see?

Cindy: They're all different signed languages. Deaf people went to different schools, they were taught in English and Afrikaans.

Ananias: Each school had their own sign language.

Ananias: The older [Black] deaf people were schooled in the more traditional sign languages, for example Venda sign language. They were taught using sign language. But the young people learn more English mixed language.

Danie: The Afrikaans [Deaf] people find it difficult to understand the English [Deaf] people and often do not know English, so lip-reading is important.

Hermanus: It is important that they speak the words in that language: English, if you're signing English.

Judith: Why I don't understand English? That's because even though we had English classes at school we never really spoke English in the classes. Just because I can't speak English doesn't mean that deaf people are stupid.

Karina: They [the Black deaf] are not taught any Afrikaans.

Judith: Hearing [people] must not think we Deaf are stupid.

Ananias: We learnt a little bit of Venda, but not Afrikaans at school.

Dewald: ??

Zanita: The interpreters mix the language. They do not speak pure Afrikaans or clear English.

Ananias: The TV interpreters speak English even when there are using Zulu or Xhosa and that's confusing. Part is Black language, some Afrikaans, some English.

Karina: All the interpreters?

Ananias: TV 1 is a mixture of Zulu and Xhosa, but then the English words, they use Xhosa dialect, some English is mixed with that and that leads to confusion.

Hermanus: If they mix the languages, when the deaf people look then they cannot understand. The old people speak dialect.

Herman: They learn at the schools.

Cindy: Different schools, they leave school and then don't understand each other.

Hermanus: The Blacks and English and those who socialise more with other Deaf like me who preaches, they get to know the other sign languages, but those Deaf groups who don't mix with other Deaf groups don't understand them.

Hermanus: Most deaf – about 40% speak pure Zulu, Xhosa sign language – if they don't mix, they don't understand each other.

Ananias: It is at the school where you learn the sign language and then they learn just either English or Afrikaans. When they come out of the school, then they don't know the other language. For example, Hermanus knows both.

Ananias: I struggle to understand the Afrikaans deaf sign language.

Hermanus: At school, the language is Afrikaans and English, and their (pointing at Ananias and Cindy) school is just English and they learn that sign [language]. But many Deaf are Afrikaans. Afrikaans schools' sign language is Afrikaans [sign language] and they also learn Afrikaans [spoken] language, they don't know English.

Judith: Everyone has their own dialect.

Karina: But look, Hermanus understands the English sign. Look, now I am explaining the English messages for the Afrikaans people. And I am explaining the Afrikaans message for the other people.

Corlien: Culture – it's your culture. Mine is English, I understand English sign language. If the interpreters use English, I understand.

Karina: Everyone understands IA². Why? Because he uses many words, mainly English.

Dewald: Because he explains using large signs. The other interpreters are too stiff in appearance.

Cindy: IA's mother and father is also Deaf, he understands Deaf [culture].

Judith: The same with Hermanus, his mother and father are also deaf, that's why he understands so well.

Ella: CODA – children of deaf parents.

Judith: Yes.

Cindy: If their parents are Deaf, then the children understand Deaf [culture].

² The abbreviation is used for the sake of anonymity.

Judith: If the [hearing] interpreters are born to Deaf people, they learn the Deaf culture and they learn the Deaf sign language. But if they come from outside, then they don't know [Deaf culture].

Japie: At Unisa, do they have sign? Do they teach Afrikaans [sign language]?

Judith: I want to ask you. I just want to ask you. The woman that trains people to interpret, does she teach them Deaf culture and are they familiar with the Deaf? Yes or no?

Ella: Here at Unisa?

Judith: Yes, where they teach the interpreters.

Ella: That is in Johannesburg, at Wits, not here.

Judith: Yes, but I want to ask you, do they teach the interpreters the Deaf culture?

Ella: The interpreters don't all learn at Wits. But I think the woman interpreter on ETV at 6 pm – she learnt interpreting at Wits in Johannesburg.

Cindy: The interpreters that learn there, they learn a different sign language.

Ananias: They try to make one sign language.

Ella: I understand.

Ananias: They should respect each other's sign language and put all the sign languages on the TV.

Judith: Yes, Afrikaans on TV2. They have Afrikaans [spoken language] and should put Afrikaans sign language on TV2 too.

Karina: There is no Afrikaans sign language on TV.

Judith: They should also put it on TV.

Japie: There should be Black sign language, English sign language and Afrikaans sign language.

Ananias: I met IA. He can understand Afrikaans and English sign language.

Ananias: On the TV they have to talk very quickly, they can't stop, then they lose the meaning.

Judith: Yes, that's right.

Danie: Why do they put the good interpreter IA at 10 o'clock? Everybody's asleep, nobody watches then.

Corlien: They should put him at six o'clock. There is always an interpreter on six o'clock.

Danie: Where is the TV2 Afrikaans interpreter?

Cindy: Different sign languages, they teach each other.

Karina: They put Black interpreters on for White programs, and White for Black.

Judith: They must use many words.

Dewald: They are lazy.

All laugh.

Judith: yes.

Dewald: Subtitles - put on. Subtitles are the most important, otherwise they misunderstand.

Cindy: You should have both interpreter and subtitles.

Hermanus: I want both subtitles and interpreter, both.

Judith: Both.

Corlien: I like to have subtitles.

Danie: The interpreters should open their mouth wide so that the Deaf people can lip-read. IA is very good. Also, the interpreter should understand Deaf culture. If they don't understand the Deaf culture then they will misinterpret. Therefore there must be both, you must have interpreters and subtitles.

Dewald: The news is very fast, you can only show the main points on the subtitles.

Danie: Because the sign languages are different, I think subtitles are best. Like Deaf TV. Like that.

Dewald: DSTV now also has subtitles for their films.

Hermann: DSTV doesn't have subtitles...

Karina: They do, but because you don't understand English you don't notice them.

Hermanus: They must put subtitles in all the languages. Afrikaans, Zulu Xhosa. The same as the news program.

Zanita: All English

Judith: Better in English.

General agreement.

Ananias: The Black [Deaf] people say they prefer the subtitles in English, because when they go to school they are taught in English and not in Zulu or Venda. So they read the Black languages with difficulty.

Japie: We Afrikaans people want to have in subtitles in Afrikaans.

Karina: They [the Afrikaans Deaf] say that the interpreter must have Afrikaans subtitles.

Cindy: How?

Karina: There are many Deaf who want subtitles.

Ella: Should there be both subtitles and interpreter?

All unanimously agree.

Cindy: Zulu program, Zulu subtitles, Zulu sign language. English program, English subtitles.

Ella [to Ananias]: Are you saying that if the interpreter is Afrikaans, then the subtitles must be in Afrikaans, but if the interpreter is Zulu, then the subtitles must be in English?

All: Yes.

Cindy: It confuses me if the signs are Zulu sign language and the subtitles are in English...

Karina: Like IA who uses English sign language – English subtitles.

Cindy: We don't understand Afrikaans subtitles. Make it English for all. And more.

Judith: Yes... yes.

Hermann: The sign language of the Zulu and Sotho...

Cindy: There is also the sign language of the Venda.

Ella: So... one language for the interpreter and one language for the subtitles...

Cindy: I can't understand the Venda sign language, and I can only understand some of the Afrikaans sign language. Some of the Black people understand some of the Afrikaans sign language.

Karina: There seems to be a big difference between Afrikaans and the other sign languages.

Hermanus: The problem with the interpreters is that they hear the spoken language but they can't quickly translate into sign language, they struggle, it's very difficult for them when they have to recall. Also they have to bring the message that is in high language down to a lower language. The interpreter has to work hard. That's why he doesn't make nice full sentences, just half-half interpreting. You can't blame the interpreter.

Cindy: If the interpreter doesn't hear correctly then he misses that part and the message is not transmitted.

Danie: I found out that interpreters, for example, are Zulu and then they're trying to interpret into English for English people, then they struggle.

Corlien: They should stick to their own language groups. If they are Zulu, then they should interpret from Zulu.

Hermanus: Also, if the interpreter hears English, but must interpret into Zulu [sign language], it is very difficult.

Danie: They spell too fast, the word that he says, it's not clear.

Hermanus: Everybody struggles to understand interpreters, how?

Japie: If they use words, we can see what they mean.

Karina: Everybody struggles to understand the interpreters.

Japie: I flew to America, there I met some American Deaf. They sign very fast. I struggled to understand them. I could only catch a few mouthed words, that helped me to understand the signs. Even though American sign has a lot in common with Afrikaans sign language. I understood only a few words in the whole conversation. So I couldn't follow the conversation. I could only understand about five signs. I didn't understand, they spelt the English words too fast.

Danie: Deaf – he met about five deaf people there.

Japie: I understood nothing.

Karina: Nothing?

Ella: The sign language there...

Karina: We want more words – this helps to understand the interpreter.

Hermanus: (is having his own conversation with Danie)

Judith (pointing at Hermanus): Stop...

Cindy: I know IA. He uses my sign language.

Judith: And he speaks.

Karina: Yes, and he speaks.

Judith: It's very important that the words are there too.

Cindy: The signs must be big. Also sometimes the interpreter understands wrongly, then when he interprets it doesn't make sense.

Hermanus (interpreting Cindy's sign into AGT): The interpreter is listening and trying to sign together, but he doesn't understand [what he hears] fully... then he says something else. People don't talk about this, that interpreters don't understand correctly...

Hermanus: They (points at Cindy and Ananias) say the interpreter understands incorrectly...

Judith: Yes, yes. You ...

Hermanus: Wait, wait, let Ananias speak.

Ananias: The interpreters misinterpret and I get very frustrated. When I tell an interpreter I don't understand they just shrug their shoulders and carry on anyway!

Hermanus: In the old South Africa there used to be a TV programme, a church program for Deaf people. The Minister would preach and it would be interpreted into sign language. It was 10 minutes before the news.

Karina: Five minutes.

Hermann: That's a good idea, we should reintroduce it.

Hermanus: I know the pastor, he uses his own sign language which is Afrikaans [sign language].

Judith: I also [know him].

Hermanus: He speaks too. It's very important that he speaks. His name was Nicky. The preacher's name was Nicky and when Nicky sometimes spoke too fast, the interpreter misunderstood and then would misinterpret. But Nicky knew some sign language, so he would stop and tell the interpreter that he was wrong.

All laugh.

Judith: Speaking about interpreters... this misinterpreting. I also want to say, hearing people must not oppress Deaf people. They think that deaf people are stupid and can't do anything and that's not true. If they make an effort to talk with Deaf then they will understand what is the Deaf culture.

Karina: They don't listen, they just make their own decisions. Hearing people are the ones that decide there is only one sign language, even though the Deaf people say there are many.

Judith: Many people ask me, how is your culture, how? How do they learn to speak? How do they understand? Then I explain to them and they are amazed, because Deaf culture is different to that of hearing people.

Karina: Hearing people must respect the Deaf culture, their culture is different to Deaf culture. They must understand, because they also have different cultures.

Dewald: What I don't like... At my work, the people – when I ask what is going on, they say they don't know, but only all the hearing know, the Deaf people are excluded. I wanted to smack him.

Ella: You should have...

All laugh.

Hermanus: That sign Ella understood well! (Laughs.) Slap him in the face!

Danie: That's how to make friends!

Karina: Hearing people don't care for other people. They have no heart.

Ella: Yes, this is a problem.

Dewald: For a long time I said nothing. They exclude us from information. When you ask they still say they don't know. I never know whether to believe them. They will... they ignore you, yet if there is a problem, you would be unaware.

Judith: Because [they think] Deaf are dumb (= don't speak), that's why.

Danie: When I tell them I don't understand, they just look through me and then carry on talking and ignore me, just exclude me from their conversation. Then I miss information, or misunderstand.

Karina: The interpreters ...

Danie: Also, interpreters take shortcuts, they give like pidgin English, just saying one or two keywords and then they expected the deaf will understand what they are trying to say.

Danie: It sounds like this... fafafa one... fafafa two... How must we understand that?

All laugh.

Hermanus (laughing): Do you think they will catch that?

Cindy: The subtitles on now, I can't see them clearly, they're small and they confuse me, because they are not the same as the story.

Ella: Yes, they are confusing.

Ananias: They think they are interpreters because they have a paper... [certificate]. They mass-print them – I've seen that.

All clap and laugh.

Danie: They should get hard of hearing to interpret, they know our culture, and they know the culture of the hearing people.

Ananias: No ways, I don't want that!

Hermanus: No, hard of hearing don't hear everything. They can't interpret in a meeting, they hear on and off, like a switch.

Ananias: There is always a problem with the language with hard of hearing and Deaf. Hard of hearing prefer to use oral languages, spoken languages.

Hermanus: The interpreter doesn't use my Deaf sign language: that is not his sign language.

Ananias: The interpreters don't have respect for deaf people. They don't mix and get to know us.

Cindy:??

Hermanus: The TV interpreters are more interested in their salaries, they care for the salary, not for the Deaf people.

Danie: That's rude! (Laughs)

Karina: But this is how deaf people feel.

Also because the sign language doesn't follow the direction of words.

Hermanus: They must recognise sign language.

Danie: Sign language is our right. We must stand up for it...

Cindy: They are recognizing sign language...

Hermanus: The Deaf should have a protest march. There needs to be recognition of sign language.

Dewald: They only recognise one sign language. They recognise the 11 spoken languages and they are supposed to recognise sign language as the 12th language. They put a lot of effort into recognising and developing [spoken] languages but they do nothing for sign language.

Cindy: They are busy writing a book for sign language to be used in the schools...

Hermanus: But it's been 10 years now and nothing is being done.

Danie: Since I have left school they have not done anything to develop sign language. But it's too difficult to make only one sign language. We can't talk about one sign language – there will never be just one sign language.

Hermanus: They should rather just recognise each province. There are nine provinces, so they should recognise, for each province, one sign language.

Judith: Yes.

Ella: Yes, we have eleven spoken languages, how many sign languages? Three? Four?

Karina: How many sign languages are there?
Zanita: I think there are about four.
Dewald: Three
Hermanus: Two or three main ones...
Karina: Afrikaans sign language, Zulu sign language...
Ananias: Zuma - the government - should do something about it.
Karina and others: What is that [sign]?...
Hermanus: Zuma...
Karina: Oh, Zuma, that's Zuma.
(The group identified about 7 to 9 different sign languages that they were aware of.)
Cindy: It would be different, they recognized American Sign Language, and that hasn't changed since.
Danie:??
Hermanus: They mustn't try and change our sign language. They didn't change the sign language in America, they just left it, why don't we try that?
Danie: No, we don't want that.
Cindy: Can you really get only one in South Africa? No we can't have just one.
Hermanus: Because the culture is very closely linked to the language: you can't separate the language and the culture. If we only have one sign language, it will mean separating it from the culture. It will mean that the culture will die. It is the Deaf culture of these minority groups, like the Venda or the Zulus or Afrikaans.
Hermanus: If you're going to change the sign language, then you will change also the culture. If you break the sign language of the Venda, you also break the culture of the Venda people.
Karina: Yes, if you change the sign language, you will change the culture of the Venda and the Afrikaans [Deaf] people.
Hermanus: We must not change it. They must leave sign language, we must leave all the individual sign languages.
Danie: It's getting late, I will have to sms my boss...
Ananias: The government has been pushing ... but they shouldn't be pushing and forcing. The government is trying to push everybody, force everybody to speak English. This is having effect an effect on all the other languages. The older Venda Deaf people remembered to speak the language properly and signed the language properly. The old people had a pure language, now the young people come with the language that is mixed with English, and this has made everybody very confused.
Hermanus: Now they are forcing everybody to learn sign.
Karina: They want to try and force it that everybody learns sign language at school.
Danie: That is so stupid... force it on everybody.
All laugh.
Cindy: The interpreter does not have respect for the Deaf.
Ananias: the community doesn't have respect for Deaf either. Interpreters and hearing should respect the Deaf and their sign language.
Hermanus: What is Unisa doing for deaf people or disabled people?
Ella: Unisa says a lot but they do very little for anybody.
Hermanus: You heard what Dewald said, the hearing people at his work, they disrespect him.
Herman: Can you change the hearing language people? Don't try and change the hearing people's language. People should also respect deaf people's language and not try and change it.
Hermanus: Interpreters don't have any respect for the deaf clients.
Judith: When I was at school, I'm talking about the 1950s and 60s. Nobody had respect for the deaf. They forced us to do everything, even going to church. This is good, but it still made us very upset. There were no interpreters, but they expected us to listen, but we did not understand them. There was no respect for us during that time, nothing.
Zanita: Yes, that's true.
Hermanus: There was no respect, they just forced us to do everything, they just push their own will onto you. We had to go to church and there was no interpreter. We just had to sit there watching them.
Karina: The Minister was weird. We had to look at the numbers of the hymns in the church. It was so boring. When his hands went up, we knew we were almost at the end. We thought that he was trying to be a bat. We would look and say, okay, now it's almost finished, now it's "vlermuis" [=bat] time. We didn't know what he was saying. We had to look at the numbers of the hymns and just work our way through them so that we would know when church was finished.
Hermanus: I can hardly see the interpreter, the interpreter's so small. They must make the picture bigger. Long ago I had an old TV. And I thought maybe because the TV was so small, so I went and bought a new TV. I still couldn't see the interpreter, the picture was still too small. They need to make the interpreter picture bigger.
Judith: You have to sit right close to the screen. They should make it that you can sit comfortably a distance away. They should make it half-half.
Ella: Can they have Deaf interpreters to read the news? Employ Deaf interpreters?

Karina: Instead of the hearing interpreters.
 Everybody: How?!!!
 Judith: Yes, but how? How can they hear?
 Hermanus: It's not possible. They have to listen to the news in English or Afrikaans and then interpret.
 Ella: No, they don't listen, they just read.
 Danie: How do they do it?
 Karina: They can read. They have the words in front of them and they can just read.
 Dewald: What they read is on a screen, they stand behind the screen and they read so that the people watching the news can't see the screen. Deaf could do that.
 Lucas: You have to find some Deaf that can read well.
 Ananias: Yes, but you have to do it immediately. Read and then sign. We [i.e. the Deaf] could do it if we could see the words beforehand.
 Hermanus: They must prepare.
 Ella: They do. IA practices. He gets the time to learn, it's not immediate.
 Judith: Yes, but not always, sometimes he flounders.
 Hermanus: No they have to do it straight away.
 Karina: No, no, no, they do prepare. Before the time, they practice.
 Hermanus: Yes, but when they do the parliamentary speeches then IA struggles.
 Ella: Yes, that they have to do immediately, but for the news they have some time to prepare. IA always prepares.
 Hermanus, Danie, Cindy: Yes, but how are Deaf going to manage?
 Judith: Yes, but he has to read really fast.
 Hermanus: They need to hear when the music plays.
 Karina: If the TV writes in deaf language so that you can read it. I have seen how to make it so that you can write.
 Danie (to Hermanus): See the time?
 Karina: But I say they must put subtitles. (At Danie) Hey, are you paying attention? I said they must have subtitles.
 Hermanus: Yes, subtitles. Definitely.
 Karina: But how? How must the subtitles be?
 Corlien: They must be under the picture.
 Hermanus: It must be the words that are actually being spoken, not different. How are you going to look at the picture and the writing?
 Karina: Both, you mean both. They must also make the writing bigger for the subtitles. But we want Afrikaans.
 Corlien: We have the picture [of the interpreter], then we put the subtitles underneath.
 Hermanus: Yes, but then you must increase the size of the interpreter. Now to put subtitles under the interpreter, we won't be able to read them.
 Ella: Thanks everybody.
 Dewald: They are waiting for us, we need to go now, we can continue our discussion over lunch...
 Danie: The deaf children are different, the children born to Deaf parents are different.
 Hermanus: But they must have subtitles, with the Afrikaans News there must be Afrikaans subtitles, but with the other languages they must be English subtitles.
 Judith: Hearing people are suppressing us and oppressing us and dictating to us.
 Karina: People on the news program should speak clearly and openly mouth what is said, so that the Deaf people can lip-read.
 End of session.

APPENDIX E: CORPUS WORDLIST

967	index	54	same	30	come	22	sell	17	whatshrug
302	me	54	three	30	final	21	after	16	already
268	six	54	tomorrow	30	fly	21	age	16	band
245	say	53	bad	30	nine	21	baby	16	feel
217	how	53	cloud	30	show	21	boat	16	film
201	for	52	Capetown	30	ten	21	end	16	fraud
194	person	52	night	30	woman	21	establish	16	india
182	one	52	sofar	29	and	21	will	16	medal
151	look	51	police	29	half	21	work	16	mine
150	vot	49	danger	29	Johannesburg	20	allow	16	minister
141	four	49	do	29	know	20	bat	16	mpumalanga
141	past	49	time	29	maybe	20	change	16	open
130	have	47	america	29	name	20	farm	16	school
117	want	47	other	28	arrest	20	hundred	16	walk
114	rain	46	eight	28	full	20	include	16	West
111	SA	45	pay	28	gauteng	20	international	15	accept
106	second	45	with	28	house	20	on	15	approx
104	two	44	high	28	list	20	rape	15	because
103	future	44	month	28	play	20	swallowpill	15	close
102	level	43	point	28	South	20	where	15	cold
92	also	43	team	27	moneywad	19	break	15	cricket
91	now	42	but	27	new	19	china	15	department
89	area	42	few	27	plan	19	fight	15	drive
89	five	42	in	27	progress	19	hope	15	EastCape
88	why	42	march	27	sun	19	life	15	greet
85	first	41	world	27	test	19	lightning	15	hot
84	group	40	need	27	week	19	out	15	opportunity
82	car	40	own	26	bafana	19	place	15	Pakistan
80	money	40	wind	26	best	19	spread	15	service
78	yes	39	can	26	continue	19	system	15	staff
76	think	39	or	25	football	19	there	14	aim
75	who	38	all	25	happen	19	today	14	compare
74	finance	38	bank	25	offer	19	tour	14	givemoneywad
73	investigate	38	die	25	strong	18	discuss	14	go
73	qer	38	fine	25	very	18	Durban	14	however
73	they	38	give	24	africa	18	here	14	land
72	temperature	38	union	24	big	18	kzn	14	parliament
70	must	37	my	24	charge	18	link	14	salary
70	not	37	Rand	24	compete	18	many	14	save
68	coast	37	seven	24	day	18	off	14	some
67	court	36	stop	24	East	18	oppose	14	stand
67	year	36	take	24	inform	18	political	14	struggle
64	you	36	to	24	no	18	seize	13	back
63	but	35	total	24	North	18	side	13	billion
63	percent	35	welcome	24	shoot	18	small	13	child
62	match	34	ask	24	sport	18	soldier	13	crime
62	win	34	million	24	write	17	help	13	dollar
61	mean	34	put	23	agent	17	legal	13	girl
61	paper	33	both	23	cup	17	lose	13	hold
58	good	33	community	23	enter	17	man	13	hour
57	move	33	lookfor	23	false	17	notknow	13	leave
57	region	33	thousand	23	news	17	president	13	make
57	what	32	boss	23	phone	17	shop	13	morning
54	government	32	cannot	23	third	17	springbok	13	no=stop
54	more=future	32	next	23	trade	17	weather=cloud	13	question

13	quote	9	before	7	balance	6	replace	4	couple
13	saturday	9	boy	7	better	6	safe	4	different
13	thank	9	city	7	bomb	6	satur-day	4	dream
13	worry	9	cool	7	build	6	scotland	4	Euro
12	beat	9	damage=squish	7	card	6	separate	4	finish
12	bowl	9	drink	7	catch	6	Soweto	4	flood
12	celebrate	9	expert	7	cheap	6	spellend	4	freestate=orange
12	country	9	from	7	council	6	swim	4	friend
12	dry	9	job	7	difficult=hot	6	taxi	4	G20
12	hire	9	just=few	7	doctor	6	thursday	4	givepaper
12	important	9	light	7	dog	6	toilet	4	happy
12	invite	9	minute	7	explain	6	waddle	4	hotel
12	last	9	missing	7	fire	6	warn	4	interest
12	Limpopo	9	mother	7	fix	6	wednes-day	4	korea
12	nilnil	9	order	7	grow	6	young	4	language
12	party	9	rich	7	health	5	add	4	line
12	race	9	september	7	hijack	5	afraid	4	mask
12	skill	9	slitthroat	7	how=basis	5	between	4	mike
12	spend	9	squish	7	impact	5	box	4	mon-day
12	weigh	9	story	7	interesting	5	business	4	more=expand
11	amazing	9	tax=final	7	interfere	5	clothes	4	notbother
11	angry	9	under	7	lead	5	collapse	4	now=here
11	book	8	afternoon	7	live	5	committee	4	october
11	decide	8	agree	7	machine	5	decrease	4	omelette
11	develop	8	body	7	queue	5	definite=fine	4	openbook
11	drop	8	buy	7	return	5	education	4	over
11	drug	8	chiefs	7	right	5	fog	4	overseas
11	focus	8	eat	7	share	5	forgive	4	peace
11	forgetit	8	face	7	sing	5	hard	4	pirate
11	george	8	field	7	spiral	5	history	4	power=must
11	less	8	follow	7	visit	5	judge	4	practice
11	loan	8	free	7	water	5	Khayalitsha	4	profit=salary
11	medicine	8	front	7	way	5	lookat	4	proof
11	negotiate	8	game	7	wrong	5	monitor	4	punch
11	nil	8	hear	6	again	5	music	4	radio
11	safety	8	improve	6	are	5	old	4	reply
11	sit	8	lawyer	6	bird	5	oppress	4	rhino
11	suspend	8	local	6	born	5	read	4	risk
10	argue	8	New-Zealand	6	clear	5	secret	4	road
10	australia	8	positive	6	constitution	5	sentence	4	row
10	british	8	postpone	6	crowd	5	sign	4	rule
10	brother	8	pressure=impact	6	cut	5	slow	4	rural
10	Cape	8	price	6	england	5	transport	4	skin
10	complain	8	prison	6	exciting	5	tues-day	4	speak
10	contact	8	protea	6	expand	5	vote	4	special
10	enjoy	8	province	6	fire	5	weather=wind	4	start
10	Europe	8	push	6	goal	5	wednesday	4	sure=right
10	family	8	resource	6	gone	4	account	4	takeout
10	fourth	8	responsible	6	graph	4	although	4	then
10	manage	8	rugby	6	guilty	4	association	4	this
10	pretoria	8	skull	6	hmm	4	average	4	to coast
10	problem	8	stamp	6	industry	4	beach	4	tooth
10	prove	8	support	6	join	4	captain	4	township
10	public	8	surprise	6	lie	4	christmas	4	urine
10	run	8	teach	6	lookpaper	4	clean	4	wrap
10	stadium	8	thurs-day	6	marry	4	cloudclear	3	about
10	turnover	8	tree	6	meet	4	company	3	accuse
10	try	8	value	6	pipe	4	connect	3	against=match
9	attack	7	attackpl	6	poor	4	contract	3	airpipe

3	analyse	3	of	2	bronze	2	newspaper	1	approachend
3	apart	3	partner=brother	2	building	2	normal	1	around
3	appeal	3	petrol-in	2	burst	2	nose	1	arrive
3	august	3	policy	2	bury	2	notclear	1	athletics
3	ball	3	polokwane	2	catchdrop	2	notdisclose	1	atom
3	behind	3	pregnant	2	cell	2	notshow	1	backdown
3	black	3	profit	2	cent	2	operation	1	badge
3	blood	3	promise	2	central=region8	2	pass=improve	1	badlose
3	bosspl	3	protect	2	centre=sensitive	2	PnP	1	ballpl
3	catchup	3	punish	2	clap	2	prepare	1	bandlong
3	cellphone	3	qualification	2	collide	2	pressure=spiral	1	base
3	centre=city	3	qualifier	2	commission	2	prize=cup	1	basis
3	choose	3	rockinghorse	2	crisis	2	qualified	1	beaklong
3	cloudmove	3	satisfied	2	cry	2	qualify	1	beatwithstick
3	cloudopen	3	security=soldier	2	dam	2	red	1	beckon
3	confidence	3	sex	2	deal	2	reject	1	begin
3	control	3	shuttle	2	details=lose	2	represent	1	bible
3	daughter	3	sick	2	eagle	2	resolve	1	birth
3	decline	3	sleep	2	easy	2	Richards	1	birth=morning
3	decorate	3	sniff	2	empower	2	robbery	1	birthday
3	defence	3	square	2	energy	2	sack	1	blame
3	definite	3	suffer	2	engage	2	see	1	blow
3	demand	3	summit=mountain	2	Eskom	2	send	1	boast
3	diploma	3	sunday	2	examine	2	sensitive	1	bodyout
3	disappoint	3	T20	2	exchange	2	size	1	border=door
3	down	3	team=lose	2	exitpl	2	slice	1	bothcompete
3	draw	3	top	2	expensive	2	sorry	1	bothgroups
3	dress	3	transplant	2	export	2	strike	1	bothweigh
3	drinktea	3	true	2	fashion	2	success=improve	1	brain
3	encourage	3	tube	2	fine=best	2	thai	1	brave
3	english	3	understand	2	frauddeal	2	threecome	1	break
3	explode	3	wait	2	friendly	2	through	1	bull
3	far	3	warm	2	fry	2	thunder	1	bus
3	fast	3	watersurface	2	game=cup	2	tick	1	bush=brother
3	file	3	when	2	german	2	tofuture	1	butterfly
3	foot	3	which	2	high=size	2	top=important	1	by
3	force	3	white	2	hockey	2	topup	1	cablpl
3	Free-State	3	wicket=first	2	if	2	tower	1	calculate
3	fri-day	3	Worcester	2	intake	2	town	1	camera
3	game=team	3	yesterday	2	israel	2	twohours	1	camp
3	gather	2	act=Apaper	2	japan	2	upto	1	carback
3	gold	2	accident	2	july	2	use	1	careful
3	hand	2	alcohol	2	kzn=KK	2	use=however	1	careskull
3	holiday	2	alert=danger	2	learn	2	Wealth	1	carfront
3	hospital	2	alive	2	letter	2	writeoff	1	carmove
3	inflation	2	angola	2	levelD	2	yourindaba	1	carry
3	kidney	2	ballfallback	2	license	1	accommodation	1	carryskull
3	Kimberley	2	ballhit	2	like	1	accompany	1	case
3	kuifie	2	bandregion	2	lockmouth	1	across	1	chair
3	lower	2	bite	2	long	1	agenda=fist	1	chair=take
3	mandela	2	block	2	longbeard	1	allover	1	chance
3	metal	2	Brazil	2	low	1	almost=few	1	checkpaper
3	Metre	2	bread	2	may	1	alongcoast	1	chemistry
3	mix	2	breakegg	2	messup	1	amusement	1	cheque
3	nextto	2	bring	2	monday	1	answer	1	chopoff
3	nomoney	2	britain	2	net	1	approach	1	church=ask

1	circumstance	1	empty	1	heat	1	mense	1	pocket=salary
1	click	1	energy=captain	1	here=bury	1	mercedes	1	pole
1	clipseatbelt	1	energy=quote	1	hermanus=clap	1	messaround	1	position
1	cloudmix	1	engine	1	hideface	1	midday	1	power=sensitive
1	coastregion	1	england=practise	1	hit	1	million=000	1	pray
1	coastX	1	environment	1	hitegg	1	miner	1	prevent
1	collectpl	1	erase	1	hoe	1	mineW	1	previous
1	combine	1	escapefrom	1	hoistperson	1	misexchange	1	print
1	comeback	1	EU	1	holdbaby	1	mix=cook	1	private
1	come-go	1	every	1	holdpaper	1	moneywadmore	1	process=progress
1	comfortable	1	evidence=prove	1	holdskull	1	morning=however	1	proud
1	comment	1	excited	1	holdthumbs	1	mountain	1	puncture
1	competition	1	express	1	hole	1	mouth	1	pushaside
1	computer	1	faeces	1	home=group	1	mug	1	pushdown
1	confident	1	fail	1	honest	1	municipality	1	pushZ
1	confuse	1	fair=level	1	Hope	1	namepl	1	putin
1	contract=H	1	faith	1	howmuch	1	Namibia	1	putmemory
1	contract=full	1	father	1	howshrug	1	namibia=turban	1	put-on
1	cook	1	february	1	hyphen	1	narrow	1	quarter
1	cooldrink	1	fertiliser=spread	1	important=top	1	nilnilnil	1	register=put
1	counsel	1	fixchange	1	inblood	1	no=what	1	reindeer
1	coupletour	1	flow	1	inchoose	1	Northcoast	1	remember
1	covermouth	1	fluidpipe	1	informsread	1	Northregion	1	remove
1	crash	1	flythere	1	inlist	1	not=stop	1	respect
1	criminal	1	followpl	1	insurance=work+I	1	nothave	1	responsibility
1	cutbread	1	food	1	insure	1	notice	1	returnbaby
1	cuthorn	1	for	1	january=1CL2	1	notsay	1	ring
1	cutopen	1	former	1	jump	1	notunderstand	1	rocks
1	dance	1	fracture	1	June	1	notwant	1	rotate
1	dancemusicpl	1	France	1	key	1	notworry	1	runaround
1	date	1	freestate=orangearea	1	kill	1	notyet	1	runover
1	rabbit	1	friday	1	kimberly=CC	1	november=NN	1	russia
1	rainfront	1	fuckoff=first	1	knifekill	1	numberplate	1	S-africa-South
1	rainplacepl	1	fuel	1	left	1	offerO	1	sale
1	ready=struggleW	1	gangster	1	length	1	office	1	sanlam
1	december=person	1	gas	1	levelU	1	officer	1	saveball
1	deep	1	gate	1	levelX	1	official	1	sayC
1	degree	1	gatherup	1	license=L	1	oneperson	1	sayO
1	deputy=brother	1	general	1	lift	1	only	1	sayopen
1	Diesel	1	germany=durban	1	lightrain	1	openfuture	1	scale
1	difference	1	ghost	1	lightup	1	openmouth	1	science
1	dig	1	girlfriend	1	like=and	1	opportunity=OK	1	sea
1	direct	1	giveskull	1	lineup	1	orange	1	settlement
1	dirty	1	goalpl	1	literature	1	ostrich	1	shakehands
1	disabled	1	gofrom	1	Litre	1	otherside	1	shoe
1	disguise	1	gold=sun	1	london	1	oxygenmask	1	shoepair
1	dizzy	1	gomine	1	lookforward	1	park=slidearea	1	shootrifle
1	drawcircle	1	goto	1	lookout	1	partof	1	short
1	drill	1	gowith	1	lookpast	1	payback	1	showfilm
1	drip	1	grave=level4	1	lose=bad2	1	pension	1	shut
1	drivestiff	1	green=grass	1	love	1	permanent	1	sink
1	drizzle	1	gril	1	main	1	petrol	1	slave
1	dropin	1	groupgive	1	mall	1	phone+index	1	slicebread
1	dropout	1	guard	1	manipulate	1	physicsO	1	smallbaby
1	early=bad	1	hail	1	manypeople	1	picture	1	smell
1	earthquake	1	halfhour	1	march-converge	1	pill	1	smoke
1	Eastcoast	1	ham	1	maximum	1	pipemoneywad	1	smokedagga
1	eggflow	1	hangup	1	mbeki	1	pipeX	1	sms
1	egypt	1	hate	1	meat	1	playfootball	1	soccer
1	email	1	heap	1	medic	1	pocket	1	social

1	soda	1	transport					
1	sofarpast	1	trap					
1	soldier+F	1	treasury=lookfor					
1	son	1	trough=move2					
1	soso	1	trough2=levelX					
1	sotho	1	trust					
1	spendbig	1	tuesday					
1	spiralregion	1	turn					
1	spirit	1	twelve=two					
1	spoonmedicine	1	twelveoclock					
1	stage=floor	1	twooff					
1	stampbook	1	twoout					
1	step	1	twothreeday					
1	still	1	twoweek					
1	spreadsheet	1	type					
1	stop=Bo	1	underground					
1	stopwatch	1	undersurface					
1	Stoutastrant	1	uneven					
1	strange	1	union=association					
1	sugar	1	until					
1	surface	1	upmountain					
1	surprise=vot	1	uprise					
1	swaziland=sun	1	vagina					
1	swerve	1	victory					
1	takemoney	1	visitcome					
1	takeoff	1	visitlookM					
1	target	1	votO					
1	teabag	1	week-end					
1	tearoff	1	weightlifting					
1	terrorism=shoot	1	WestCape					
1	then=very	1	whale					
1	thesetwo	1	what=how					
1	theyfly	1	wheel					
1	theynot	1	wicket=target					
1	thin	1	wide=bigX					
1	threaten	1	wife					
1	throwdice	1	wife=marry					
1	throwdiscus	1	winner=B8					
1	tiebow	1	wish=tax					
1	tiehands	1	wood					
1	tieO	1	worker					
1	times=X	1	wrappresent					
1	tincan	1	wrapup					
1	tired	1	wriggleunder					
1	toC	1	Xhoza					
1	together=with	1	yacht					
1	tolevel	1	yawn					
1	totalin	1	Y-day					
1	totalthree	1	yellow					
1	toytoy	1	yes+join					
1	tradeZ	1	Yuan					
1	traffic							

APPENDIX F: CORPUS DATA

Table F1: Interpreter sign quality

Interpreter A					Interpreter B				
Frequency:	u0	x	q-	f1	FILE	u0	x	q-	f1
E10E031110	1	11	1	12	E10E061010	80	160	10	64
E10E051010	20	77	11	55	E10E081110	90	145	21	52
E10E161110	7	59	16	52	E10E091110	53	106	18	33
E10E171110	15	69	14	46	E10E101110	81	130	15	41
E10E221110	34	89	16	56	E10E290910	85	205	35	65
Totals (Average)	77	305	58	221	Totals (Average)	389	746	99	255
% Sign:									
E10E031110	0.2%	1.7%	0.2%	1.8%	E10E061010	5.2%	10.3%	0.6%	4.1%
E10E051010	1.2%	4.7%	0.7%	3.3%	E10E081110	5.1%	8.3%	1.2%	3.0%
E10E161110	0.4%	3.5%	0.9%	3.1%	E10E091110	4.6%	9.2%	1.6%	2.9%
E10E171110	1.0%	4.4%	0.9%	2.9%	E10E101110	4.7%	7.6%	0.9%	2.4%
E10E221110	2.1%	5.6%	1.0%	3.5%	E10E290910	4.5%	10.9%	1.9%	3.4%
Totals (Average)	1.1%	4.3%	0.8%	3.1%	Totals (Average)	4.9%	9.3%	1.2%	3.2%
Std dev	0.77%	1.49%	0.35%	0.66%	Std dev	0.30%	1.38%	0.49%	0.66%
% IU:									
E10E031110	1%	10%	1%	11%	E10E061010	26%	53%	3%	21%
E10E051010	7%	26%	4%	18%	E10E081110	28%	45%	7%	16%
E10E161110	2%	18%	5%	16%	E10E091110	26%	51%	9%	16%
E10E171110	5%	24%	5%	16%	E10E101110	29%	47%	5%	15%
E10E221110	13%	33%	6%	21%	E10E290910	28%	67%	11%	21%
Totals (Average)	6%	24%	4%	17%	Totals (Average)	28%	53%	7%	18%
Std dev	4.58%	8.48%	1.91%	3.52%	Std dev	1.48%	8.64%	3.13%	3.08%

Table F2: Polysemic signs

GLOSS	IA OTHER MEANINGS	IB OTHER MEANINGS
A@paper		agenda, act
aim		target, goal
and	also, like	
ask		church, pray
association	union	
bad		lose
bat	cricket	
best		fine
big		wide, width
box		prison cell
brother	join, partner	bush, partner, deputy
C	band, cape, coast	
can	allow	
captain	doctor, slave, energy	
car	drive	
charge		accuse
clap		Hermanus
cloud	fog, weather	
community		commission, League
compete	argue	enemies, fight, antagonism, shoot-at
cook		mix
court		justice, case
cup		awards, prize

danger@8		emergency, alert
door		border
Durban		Germany
E	English	
English		risk
euro		Europe
expand		more
false	gone	
few	just, dry, tomorrow, almost	little, just, dry
fight		oppose
finance	account	
fine	definite	definite, precisely, precise, manipulate, super
first		wicket, fuckoff
floor		stage
focus	analyse	
full		impact, force, contract, pressure, oppress
future		more, after
general		general secretary
grass		green
group	home	
happen	new	
here		bury
hire		replace, come
hope		peace
hot		difficult
how	basis	what
however		morning, mense (people), company, consumer, use, birth
important	top	top
improve	success, succeed, pass	develop, pass
level		pool, trough, grave, fair
live		accommodation
lookfor		treasury
lose		loss, details, team, mine, crisis, decline
manage	control	manipulate
marry		wife
match	meet, against	against
monitor	two weeks	
mountain		summit (as in G20 summit)
move		trough
must		power
(New) Zealand		Zambia
now	here	today, here, are, line
orange		Free State
out	wicket	
party	political	
pay2h		Shoprite, shop, stores, market, trade, transplant
person		December
places	circumstances	
play	game, team	game, team
practice	England	
praise	celebrate	celebrate
progress	process	continue
quote	energy	
resources		precious, poor, combine
rich		incentive, looking forward to, fortune
right	sure	
safety		responsibility
salary	profit	profit
save		earnings, save money, save people, shares, protect
sensitive	power, centre, city, centre	city, central, centre, town

shoot		terrorism
size		height, high, small, junior
soldier		security
spiral		pressure
spread		fertiliser, flood
square		area of land, town square
squish		damage, non-functioning, impact
stop	no, not	no
struggle		ready
sun		gold, Freestate, Swaziland
sure		final
table		stage
take		chairperson
target	aim, evaluate	
teach	coach	
test		competition
toilet	final, again	tax, prepare, final, wish
trade		market, deal, transplant, consumer, turnover
turnover		transplant
union		industry
want		will
weigh	decide	
wind		weather, storm, stormy
with		together
woman	wife	
work		action, workers
TOTAL	42	83

Table F3: Interpreter topic markers

Category	IA	IB
topic (t) signs	1117	1343
Raised eyebrows	813 (73%)	1082 (80%)
Frown	151 (14%)	70 (14%)
Mouthing	942 (85%)	1188 (81%)
Head movement	525 (47%)	583 (43%)
Foregrounding	508 (45%)	335 (25%)
Lexical signalling	next: 11 move: 26 after: 2 39 (3%)	next: 0 move: 43 after: 48 92 (7%)

Table F4: Interpreter mouthing

Interpreter A								
Frequency:	All v	All v0	same v0	no sign	other v0	v1	all v3	all vA
E10E031110	444	402	315	0	87	7	37	8
E10E051010	1174	1056	815	3	238	32	87	9
E10E161110	1169	955	725	3	227	74	145	8
E10E171110	1097	907	685	2	220	61	140	8
E10E221110	1104	918	725	2	191	58	139	6
Totals	4988	4238	3265	10	963	232	548	39
% Sign	All v	All v0	same v0	no sign	other v0	v1	all v3	all vA
E10E031110	67%	61%	48%	0%	13%	1%	6%	1.2%
E10E051010	71%	64%	49%	0%	14%	2%	5%	0.5%
E10E161110	69%	56%	43%	0%	13%	4%	9%	0.5%
E10E171110	70%	58%	43%	0%	14%	4%	9%	0.5%
E10E221110	69%	58%	46%	0%	12%	4%	9%	0.4%
Averages	70%	59%	46%	0%	13%	3%	8%	0.5%
Std deviation	1.37%	3.22%	2.88%	0.07%	0.92%	1.40%	1.80%	0.34%

% IU								
E10E031110	419%	379%	297%	0%	82%	7%	35%	8%
E10E051010	394%	354%	273%	1%	80%	11%	29%	3%
E10E161110	359%	293%	222%	1%	70%	23%	44%	2%
E10E171110	376%	311%	235%	1%	75%	21%	48%	3%
E10E221110	409%	340%	269%	1%	71%	21%	51%	2%
Totals	386%	328%	253%	1%	75%	18%	42%	3%
Std deviation	24%	34%	30%	0.40%	5.5%	7.3%	9.3%	2.23%
Interpreter B								
Frequency:	All v	All v0	same v0	no sign	other v0	v1	all v3	all vA
E10E061010	1092	874	633	3	236	32	190	21
E10E081110	1158	1057	794	5	264	13	89	40
E10E091110	806	715	459	3	254	13	78	21
E10E101110	1238	1115	737	6	377	23	100	15
E10E290910	1376	1233	829	2	406	30	114	21
Totals	5670	4994	3452	19	1537	111	571	118
% Sign:								
E10E061010	72%	58%	41%	0.20%	16%	2%	13%	1.4%
E10E081110	67%	61%	45%	0.29%	15%	1%	5%	2.3%
E10E091110	71%	63%	40%	0.26%	22%	1%	7%	1.8%
E10E101110	72%	65%	43%	0.35%	22%	1%	6%	0.9%
E10E290910	73%	65%	44%	0.11%	21%	2%	6%	1.1%
Averages	71%	62%	43%	0.24%	19%	1%	7%	1.5%
Std deviation	2.34%	3.11%	2.15%	0.09%	3.57%	0.51%	2.99%	0.58%
% IU:								
E10E061010	360%	288%	209%	1.0%	78%	11%	63%	7%
E10E081110	365%	333%	248%	1.6%	83%	4%	28%	13%
E10E091110	389%	345%	222%	1.4%	123%	6%	38%	10%
E10E101110	452%	407%	267%	2.2%	138%	8%	36%	5%
E10E290910	453%	406%	272%	0.7%	134%	10%	38%	7%
Totals	404%	355%	245%	1.4%	109%	8%	41%	8%
Std deviation	45%	51%	27.60%	0.59%	28%	2.7%	13%	2.9%

Table F5: Interpreter facial expressions

Interpreter A	Frequency										
	Eall	E2/E3	Mouth	E1	E2	E3	E4	E5	E6	E8	E9
E10E031110	444	415	62	3	170	247	8	20	7	36	7
E10E051010	1038	948	155	18	534	423	6	86	5	101	28
E10E161110	1322	1175	268	21	685	493	15	195	4	204	25
E10E171110	1288	1176	304	49	569	612	13	191	7	198	40
E10E221110	995	935	149	22	457	481	15	38	0	85	28
Totals	5087	4649	938	113	2415	2256	57	530	23	624	128
% Sign:											
E10E031110	67.5%	63.1%	9.4%	0.5%	25.8%	37.5%	1.2%	3.0%	1.1%	5.5%	1.1%
E10E051010	62.9%	57.5%	9.4%	1.1%	32.4%	25.7%	0.4%	5.2%	0.3%	6.1%	1.7%
E10E161110	77.6%	69.0%	15.7%	1.2%	40.2%	28.9%	0.9%	11.5%	0.2%	12.0%	1.5%
E10E171110	81.8%	74.7%	19.3%	3.1%	36.1%	38.9%	0.8%	12.1%	0.4%	12.6%	2.5%
E10E221110	62.5%	58.7%	9.4%	1.4%	28.7%	30.2%	0.9%	2.4%	0.0%	5.3%	1.8%
Averages	71.1%	65.0%	13.1%	1.6%	33.8%	31.5%	0.8%	7.4%	0.3%	8.7%	1.8%
Std deviation	8.79%	7.23%	4.63%	0.99%	5.74%	5.71%	0.31%	4.64%	0.40%	3.65%	0.54%
% IU:	Eall	E2/E3	Mouth	E1	E2	E3	E4	E5	E6	E8	E9
E10E031110	419%	392%	58%	3%	160%	233%	8%	19%	7%	34%	7%
E10E051010	348%	318%	52%	6%	179%	142%	2%	29%	2%	34%	9%
E10E161110	406%	360%	82%	6%	210%	151%	5%	60%	1%	63%	8%
E10E171110	441%	403%	104%	17%	195%	210%	4%	65%	2%	68%	14%
E10E221110	369%	346%	55%	8%	169%	178%	6%	14%	0%	31%	10%
Totals	394%	360%	73%	9%	187%	175%	4%	41%	2%	48%	10%
Std deviation	37.66%	34.24%	22.29%	5.25%	19.94%	38.49%	2.00%	23.70%	2.52%	17.70%	2.74%

Interpreter B											
Frequency:	Eall	E2/E3	Mouth	E1	E2	E3	E4	E5	E6	E8	E9
E10E061010	948	816	281	37	577	239	89	37	33	68	53
E10E081110	1215	1111	233	43	788	323	32	64	33	59	63
E10E091110	637	556	117	29	390	166	4	22	28	38	17
E10E101110	982	908	169	38	675	233	23	10	30	42	31
E10E290910	1076	903	282	60	614	289	51	49	39	95	33
Totals	4858	4294	1082	207	3044	1250	199	182	163	302	197
% Sign:											
E10E061010	61.2%	52.7%	18.2%	2.4%	37.3%	15.4%	5.7%	2.4%	2.1%	4.4%	3.4%
E10E081110	69.2%	63.2%	13.3%	2.4%	44.8%	18.4%	1.8%	3.6%	1.9%	3.4%	3.6%
E10E091110	55.5%	48.4%	10.2%	2.5%	34.0%	14.5%	0.3%	1.9%	2.4%	3.3%	1.5%
E10E101110	57.1%	52.8%	9.8%	2.2%	39.3%	13.6%	1.3%	0.6%	1.7%	2.4%	1.8%
E10E290910	57.1%	47.9%	15.0%	3.2%	32.6%	15.3%	2.7%	2.6%	2.1%	5.0%	1.8%
Averages	60.7%	53.6%	13.5%	2.6%	38.0%	15.6%	2.5%	2.3%	2.0%	3.8%	2.5%
Std deviation	5.5%	6.2%	3.5%	0.4%	4.8%	1.8%	2.1%	1.1%	0.3%	1.0%	1.0%
% IU:											
E10E061010	313%	269%	93%	12%	190%	79%	29%	12%	11%	22%	17%
E10E081110	380%	347%	73%	13%	246%	101%	10%	20%	10%	18%	20%
E10E091110	308%	269%	57%	14%	188%	80%	2%	11%	14%	18%	8%
E10E101110	356%	329%	61%	14%	245%	84%	8%	4%	11%	15%	11%
E10E290910	353%	296%	92%	20%	201%	95%	17%	16%	13%	31%	11%
Totals	344%	304%	77%	15%	216%	89%	14%	13%	12%	21%	14%
Std deviation	30.6%	35.3%	17.0%	2.9%	28.9%	9.6%	10.4%	6.2%	1.4%	6.2%	4.9%

Table F6: Interpreter head and body movements

Interpreter A							Interpreter B						
FILE	<h*			<b*			FILE	<h*			<b*		
	f	% Sign	% IU	f	% Sign	% IU		f	% Sign	% IU	Freq	% Sign	% IU
E10E031110	431	65.5%	407%	12	1.8%	11%	E10E061010	517	33.4%	171%	49	3.2%	16%
E10E051010	1040	63.1%	349%	27	1.6%	9%	E10E081110	665	37.8%	208%	28	1.6%	9%
E10E161110	776	45.6%	238%	15	0.9%	5%	E10E091110	684	59.6%	330%	27	2.4%	13%
E10E171110	760	48.3%	260%	14	0.9%	5%	E10E101110	710	41.3%	257%	40	2.3%	15%
E10E221110	448	28.1%	166%	11	0.7%	4%	E10E290910	561	29.8%	184%	32	1.7%	11%
Total	3455	48.3%	267%	79	1.1%	6%	Total	3137	39.2%	222%	176	2.2%	13%
Std dev	-	15.1%	95%	-	0.5%	3.2%	Std dev	-	11.6%	65%	-	0.7%	3.0%

Table F7: Interpreter substitutions

Interpreter A											
Frequency:	s	s0	s1	s2	s3	s4	s5	s6	s7	s8	s9
E10E031110	115	29	31	36	4	1	12	0	1	1	0
E10E051010	277	66	84	66	10	7	35	0	8	1	0
E10E161110	279	78	97	66	5	2	22	0	9	2	1
E10E171110	284	82	69	76	12	5	31	1	4	3	1
E10E221110	244	49	70	72	17	10	19	0	4	2	1
Total	1199	304	351	316	48	25	119	1	26	9	3
% Sign:											
E10E031110	17.5%	4.4%	4.7%	5.5%	0.6%	0.2%	1.8%	0.0%	0.2%	0.2%	0.0%
E10E051010	16.8%	4.0%	5.1%	4.0%	0.6%	0.4%	2.1%	0.0%	0.5%	0.1%	0.0%
E10E161110	16.4%	4.6%	5.7%	3.9%	0.3%	0.1%	1.3%	0.0%	0.5%	0.1%	0.1%
E10E171110	18.0%	5.2%	4.4%	4.8%	0.8%	0.3%	2.0%	0.1%	0.3%	0.2%	0.1%
E10E221110	15.3%	3.1%	4.4%	4.5%	1.1%	0.6%	1.2%	0.0%	0.3%	0.1%	0.1%

Total	16.8%	4.3%	4.9%	4.4%	0.7%	0.3%	1.7%	0.0%	0.4%	0.1%	0.0%
Std dev	1.0%	0.8%	0.6%	0.7%	0.3%	0.2%	0.4%	0.03%	0.2%	0.1%	0.03%
% IU:											
E10E031110	108%	27%	29%	34%	4%	1%	11%	0%	1%	1%	0%
E10E051010	93%	22%	28%	22%	3%	2%	12%	0%	3%	0%	0%
E10E161110	86%	24%	30%	20%	2%	1%	7%	0%	3%	1%	0%
E10E171110	97%	28%	24%	26%	4%	2%	11%	0%	1%	1%	0%
E10E221110	90%	18%	26%	27%	6%	4%	7%	0%	1%	1%	0%
Total	93%	24%	27%	24%	4%	2%	9%	0%	2%	1%	0%
Std dev	8.7%	4.1%	2.6%	5.3%	1.7%	1.2%	2.4%	0.2%	0.8%	0.3%	0.2%
Interpreter B											
Frequency:	s	s0	s1	s2	s3	s4	s5	s6	s7	s8	s9
E10E061010	324	77	53	98	16	28	29	2	13	5	3
E10E081110	363	86	50	115	27	22	22	5	15	6	11
E10E091110	252	60	25	69	7	35	31	4	9	4	7
E10E101110	328	100	46	85	7	27	29	2	13	1	17
E10E290910	358	75	54	130	9	31	29	9	10	1	10
Total	1625	398	228	497	66	143	140	22	60	17	48
% Sign:											
E10E061010	20.9%	5.0%	3.4%	6.3%	1.0%	1.8%	1.9%	0.1%	0.8%	0.3%	0.2%
E10E081110	20.7%	4.9%	2.8%	6.5%	1.5%	1.3%	1.3%	0.3%	0.9%	0.3%	0.6%
E10E091110	22.0%	5.2%	2.2%	6.0%	0.6%	3.0%	2.7%	0.3%	0.8%	0.3%	0.6%
E10E101110	19.1%	5.8%	2.7%	4.9%	0.4%	1.6%	1.7%	0.1%	0.8%	0.1%	1.0%
E10E290910	19.0%	4.0%	2.9%	6.9%	0.5%	1.6%	1.5%	0.5%	0.5%	0.1%	0.5%
Total	20.3%	5.0%	2.8%	6.2%	0.8%	1.8%	1.7%	0.3%	0.7%	0.2%	0.6%
Std dev	1.3%	0.7%	0.5%	0.7%	0.5%	0.7%	0.6%	0.2%	0.1%	0.2%	0.3%
% IU:											
E10E061010	107%	25%	17%	32%	5%	9%	10%	1%	4%	2%	1%
E10E081110	113%	27%	16%	36%	8%	7%	7%	2%	5%	2%	3%
E10E091110	122%	29%	12%	33%	3%	17%	15%	2%	4%	2%	3%
E10E101110	119%	36%	17%	31%	3%	10%	11%	1%	5%	0%	6%
E10E290910	117%	25%	18%	43%	3%	10%	10%	3%	3%	0%	3%
Total	115%	28%	16%	35%	5%	10%	10%	2%	4%	1%	3%
Std dev	5.7%	4.7%	2.3%	4.7%	2.4%	3.8%	3.0%	1.0%	0.6%	0.8%	1.8%

Table F8: Interpreter additions

Interpreter A									
Frequency:	a	a1	a2	a3	a4	a5	a6	a8	
E10E031110	71	3	25	31	7	4	0	1	
E10E051010	180	21	61	50	20	19	9	0	
E10E161110	234	27	74	79	13	15	23	1	
E10E171110	197	30	66	63	9	16	12	1	
E10E221110	171	16	64	58	8	11	12	5	
Total	853	97	290	281	57	65	56	8	
% Sign:									
E10E031110	10.8%	0.5%	3.8%	4.7%	1.1%	0.6%	0.0%	0.2%	
E10E051010	10.9%	1.3%	3.7%	3.0%	1.2%	1.2%	0.5%	0.0%	
E10E161110	13.7%	1.6%	4.3%	4.6%	0.8%	0.9%	1.4%	0.1%	
E10E171110	12.5%	1.9%	4.2%	4.0%	0.6%	1.0%	0.8%	0.1%	
E10E221110	10.7%	1.0%	4.0%	3.6%	0.5%	0.7%	0.8%	0.3%	
Total	11.9%	1.4%	4.1%	3.9%	0.8%	0.9%	0.8%	0.1%	

Std dev	1.3%	0.6%	0.3%	0.7%	0.3%	0.2%	0.5%	0.1%
% IU:								
E10E031110	67%	3%	24%	29%	7%	4%	0%	0.9%
E10E051010	60%	7%	20%	17%	7%	6%	3%	0.0%
E10E161110	72%	8%	23%	24%	4%	5%	7%	0.3%
E10E171110	67%	10%	23%	22%	3%	5%	4%	0.3%
E10E221110	63%	6%	24%	21%	3%	4%	4%	1.9%
Total	66%	8%	22%	22%	4%	5%	4%	0.6%
Std dev	4.3%	2.8%	1.3%	4.6%	1.9%	1.1%	2.6%	0.7%
Interpreter B								
Frequency:	a	a1	a2	a3	a4	a5	a6	a8
E10E061010	241	22	73	53	37	8	45	1
E10E081110	209	21	58	48	25	14	38	4
E10E091110	162	8	52	31	19	6	36	4
E10E101110	270	33	79	58	22	17	55	6
E10E290910	228	17	53	56	30	13	51	7
Total	1110	101	315	246	133	58	225	22
% Sign:								
E10E061010	15.6%	1.4%	4.7%	3.4%	2.4%	0.5%	2.9%	0.1%
E10E081110	11.9%	1.2%	3.3%	2.7%	1.4%	0.8%	2.2%	0.2%
E10E091110	14.1%	0.7%	4.5%	2.7%	1.7%	0.5%	3.1%	0.3%
E10E101110	15.7%	1.9%	4.6%	3.4%	1.3%	1.0%	3.2%	0.3%
E10E290910	12.1%	0.9%	2.8%	3.0%	1.6%	0.7%	2.7%	0.4%
Total	13.9%	1.3%	3.9%	3.1%	1.7%	0.7%	2.8%	0.3%
Std dev	1.8%	0.5%	0.9%	0.3%	0.4%	0.2%	0.4%	0.1%
% IU:								
E10E061010	80%	7%	24%	17%	12%	3%	15%	0%
E10E081110	65%	7%	18%	15%	8%	4%	12%	1%
E10E091110	78%	4%	25%	15%	9%	3%	17%	2%
E10E101110	98%	12%	29%	21%	8%	6%	20%	2%
E10E290910	75%	6%	17%	18%	10%	4%	17%	2%
Total	79%	7%	22%	17%	9%	4%	16%	2%
Std dev	11.8%	3.0%	4.8%	2.5%	1.8%	1.4%	3.0%	0.8%

Table F9: Interpreter omissions

Interpreter A											
Frequency:	omit	oS	oO	oP	oV	oQ	oT	oU	oL	o-bits	o-vital
E10E031110	53	3	5	4	2	18	0	0	3	18	10
E10E051010	169	13	19	8	3	58	1	0	12	55	36
E10E161110	163	17	10	14	4	57	2	1	7	51	34
E10E171110	148	11	9	24	5	50	0	1	7	41	26
E10E221110	122	12	13	13	8	46	0	0	9	21	33
Total	655	56	56	63	22	229	3	2	38	186	139
% Sign:											
E10E031110	8.1%	0.5%	0.8%	0.6%	0.3%	2.7%	0.0%	0.0%	0.5%	2.7%	1.5%
E10E051010	10%	0.8%	1.2%	0.5%	0.2%	3.5%	0.1%	0.0%	0.7%	3.3%	2.2%
E10E161110	9.6%	1.0%	0.6%	0.8%	0.2%	3.3%	0.1%	0.1%	0.4%	3.0%	2.0%
E10E171110	9.4%	0.7%	0.6%	1.5%	0.3%	3.2%	0.0%	0.1%	0.4%	2.6%	1.7%
E10E221110	7.7%	0.8%	0.8%	0.8%	0.5%	2.9%	0.0%	0.0%	0.6%	1.3%	2.1%
Total	9.2%	0.8%	0.8%	0.9%	0.3%	3.2%	0.0%	0.0%	0.5%	2.6%	1.9%
Std dev	1.1%	0.2%	0.2%	0.4%	0.1%	0.3%	0.1%	0.03%	0.1%	0.8%	0%
% IU:											
E10E031110	50%	3%	5%	4%	2%	17%	0%	0%	3%	17%	9%

E10E051010	57%	4%	6%	3%	1%	19%	0%	0%	4%	18%	12%
E10E161110	50%	5%	3%	4%	1%	17%	1%	0%	2%	16%	10%
E10E171110	51%	4%	3%	8%	2%	17%	0%	0%	2%	14%	9%
E10E221110	45%	4%	5%	5%	3%	17%	0%	0%	3%	8%	12%
Total	51%	4%	4%	5%	2%	18%	0%	0%	3%	14%	11%
Std dev	4.1%	0.9%	1.4%	2.1%	0.8%	1.1%	0.3%	0.2%	0.8%	4.1%	1.5%
Interpreter B											
Frequency:	omit	oS	oO	oP	oV	oQ	oT	oU	oL	o-bits	o-vital
E10E061010	162	21	9	25	10	53	0	4	2	39	44
E10E081110	190	25	20	25	22	68	1	5	2	22	73
E10E091110	116	12	12	15	5	48	0	0	7	17	29
E10E101110	166	29	17	14	13	54	1	4	6	28	64
E10E290910	221	28	21	11	14	86	1	0	12	46	64
Total	855	115	79	90	64	309	3	13	29	152	274
% Sign:											
E10E061010	10.5%	1.4%	0.6%	1.6%	0.6%	3.4%	0.0%	0.3%	0.1%	2.5%	2.8%
E10E081110	10.8%	1.4%	1.1%	1.4%	1.3%	3.9%	0.1%	0.3%	0.1%	1.3%	4.2%
E10E091110	10.1%	1.0%	1.0%	1.3%	0.4%	4.2%	0.0%	0.0%	0.6%	1.5%	2.5%
E10E101110	9.7%	1.7%	1.0%	0.8%	0.8%	3.1%	0.1%	0.2%	0.3%	1.6%	3.7%
E10E290910	11.7%	1.5%	1.1%	0.6%	0.7%	4.6%	0.1%	0.0%	0.6%	2.4%	3.4%
Total	10.7%	1.4%	1.0%	1.1%	0.8%	3.9%	0.0%	0.2%	0.4%	1.9%	3.4%
Std dev	0.8%	0.2%	0.2%	0.4%	0.3%	0.6%	0.03%	0.1%	0.3%	0.6%	0.7%
% IU:											
E10E061010	53%	7%	3%	8%	3%	17%	0.0%	1.3%	1%	13%	15%
E10E081110	59%	8%	6%	8%	7%	21%	0.3%	1.6%	1%	7%	23%
E10E091110	56%	6%	6%	7%	2%	23%	0.0%	0.0%	3%	8%	14%
E10E101110	60%	11%	6%	5%	5%	20%	0.4%	1.4%	2%	10%	23%
E10E290910	72%	9%	7%	4%	5%	28%	0.3%	0.0%	4%	15%	21%
Total	61%	8%	6%	6%	5%	22%	0.2%	0.9%	2%	11%	19%
Std dev	7.3%	1.9%	1.5%	2.0%	1.7%	4.1%	0.2%	0.8%	1.5%	3.4%	4.5%

Table F10: Interpreter errors

Interpreter A											
Frequency:	All X	X1	X2	X3	X4	X7	X8	X9	punct	WO	WTF
E10E031110	10	3	0	3	0	0	1	0	1	0	1
E10E051010	45	3	7	16	4	4	0	3	3	1	4
E10E161110	41	11	6	9	3	6	1	1	2	0	2
E10E171110	27	6	4	9	4	2	0	2	0	0	1
E10E221110	51	12	12	6	0	3	4	2	2	1	9
Total	174	35	29	43	11	15	6	8	8	2	17
% Sign:											
E10E031110	1.5%	0.46%	0.00%	0.46%	0.00%	0.00%	0.15%	0.00%	0.15%	0.00%	0.15%
E10E051010	2.7%	0.18%	0.42%	0.97%	0.24%	0.24%	0.00%	0.18%	0.18%	0.06%	0.24%
E10E161110	2.4%	0.65%	0.35%	0.53%	0.18%	0.35%	0.06%	0.06%	0.12%	0.00%	0.12%
E10E171110	1.7%	0.38%	0.25%	0.57%	0.25%	0.13%	0.00%	0.13%	0.00%	0.00%	0.06%
E10E221110	3.2%	0.75%	0.75%	0.38%	0.00%	0.19%	0.25%	0.13%	0.13%	0.06%	0.57%
Totals	2.4%	0.49%	0.41%	0.60%	0.15%	0.21%	0.08%	0.11%	0.11%	0.03%	0.24%
Std deviation	0.7%	0.2%	0.3%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.03%	0.2%
% IU:											
E10E031110	9%	2.8%	0.0%	2.8%	0.0%	0.0%	0.9%	0.0%	0.9%	0.0%	0.9%
E10E051010	15%	1.0%	2.3%	5.4%	1.3%	1.3%	0.0%	1.0%	1.0%	0.3%	1.3%
E10E161110	13%	3.4%	1.8%	2.8%	0.9%	1.8%	0.3%	0.3%	0.6%	0.0%	0.6%
E10E171110	9%	2.1%	1.4%	3.1%	1.4%	0.7%	0.0%	0.7%	0.0%	0.0%	0.3%
E10E221110	19%	4.4%	4.4%	2.2%	0.0%	1.1%	1.5%	0.7%	0.7%	0.4%	3.3%
Totals	13%	2.7%	2.2%	3.3%	0.9%	1.2%	0.5%	0.6%	0.6%	0.2%	1.3%
Std deviation	4.0%	1.3%	1.6%	1.2%	0.7%	0.7%	0.7%	0.4%	0.4%	0.2%	1.2%

Interpreter B											
Frequency:	All X	X1	X2	X3	X4	X7	X8	X9	punct	WO	WTF
E10E061010	170	36	24	21	19	42	3	22	12	26	12
E10E081110	213	50	32	28	25	30	4	42	8	8	15
E10E091110	137	36	22	17	20	13	3	24	9	3	12
E10E101110	229	59	29	17	31	47	5	39	3	15	17
E10E290910	263	77	33	25	18	60	5	41	6	16	25
Total	1012	258	140	108	113	192	20	168	38	68	81
% Sign:											
E10E061010	11%	2.3%	1.6%	1.4%	1.2%	2.7%	0.2%	1.4%	0.8%	1.7%	0.8%
E10E081110	12%	2.8%	1.8%	1.6%	1.4%	1.7%	0.2%	2.4%	0.5%	0.5%	0.9%
E10E091110	12%	3.1%	1.9%	1.5%	1.7%	1.1%	0.3%	2.1%	0.8%	0.3%	1.0%
E10E101110	13%	3.4%	1.7%	1.0%	1.8%	2.7%	0.3%	2.3%	0.2%	0.9%	1.0%
E10E290910	14%	4.1%	1.8%	1.3%	1.0%	3.2%	0.3%	2.2%	0.3%	0.8%	1.3%
Totals	13%	3.2%	1.7%	1.3%	1.4%	2.4%	0.2%	2.1%	0.5%	0.8%	1.0%
Std dev	1%	2.3%	1.6%	1.4%	1.2%	2.7%	0.2%	1.4%	0.8%	1.7%	0.8%
% IU:											
E10E061010	56%	12%	8%	7%	6%	14%	1%	7%	4%	9%	4%
E10E081110	67%	16%	10%	9%	8%	9%	1%	13%	3%	3%	5%
E10E091110	66%	17%	11%	8%	10%	6%	1%	12%	4%	1%	6%
E10E101110	83%	21%	11%	6%	11%	17%	2%	14%	1%	5%	6%
E10E290910	86%	25%	11%	8%	6%	20%	2%	13%	2%	5%	8%
Totals	72%	18%	10%	8%	8%	14%	1%	12%	3%	5%	6%
Std dev	13%	5.2%	1.2%	1.1%	2.3%	5.5%	0.3%	2.8%	1.4%	2.8%	1.6%

Table F11: Summary of categories (corpus studies)

CATEGORY	Type	INTERPRETER A			INTERPRETER B		
		f	% SIGN	% IU	f	% sign	% IU
visibility (u0)	Φ↓	77	1.1%	6%	387	4.8%	28%
articulation (x)	Φ↓	305	4.3%	24%	707	8.8%	50%
partial signs(q)	Φ↓	58	0.8%	4%	95	1.2%	7%
dialect (d)	Φ↓	621	8.7%	48%	867	10.8%	62%
unknown signs (x-)	Φ↓	25	0.3%	2%	44	0.5%	3%
iconic signs (I)	Φ↑	3898	54.5%	302%	4111	51.4%	293%
finger-spelling (z)	Φ↑Ω↓	244	3.4%	19%	301	3.8%	21%
reference signs (@)	Φ↑	877	12.3%	68%	833	10.4%	59%
voice (all)	Φ↑	4988	70%	386%	5670	71%	404%
same simultaneous voice (v0)	Φ↑	3265	46%	253%	3438	43%	245%
not same simultaneous voice (v0x)	Φ↓	963	13%	75%	1537	19%	109%
consecutive voice (v1)	Φ↓	232	3%	18%	111	1%	8%
indistinct voice (v3)	Φ↓	548	8%	42%	571	7%	41%
facial expressions (E) - all	Φ↑	5087	71%	394%	5129	53%	342%
raised eyebrows (E2)	Φ↑	2415	34%	187%	3096	37.5%	214%
frown (E3)	Φ↑	2256	32%	175%	1259	15.5%	88%
Emotive expressions - all	Φ↑	878	12%	68%	1029	13%	73%
closed eyes (E5)	Φ↓	530	7.4%	41%	203	2.5%	14%
head movements <h*/>	Φ↑	3455	48%	267%	3060	38%	218%
body movements <b*/>	Φ↑Ω↓	79	1.1%	6%	176	2%	13%
All shifts	Φ↑Ω↓	1199	17%	93%	1630	20%	116%
same level shifts (s0)	Φ↑Ω↓	304	4%	24%	393	5%	28%
paraphrase (s1)	Φ↑	351	5%	27%	227	2.8%	16%
simplification or more general shift (s2)	Φ↑Ω↑	316	4%	24%	492	6.1%	35%
explication or more specific shift (s3)	Φ↑Ω↓	48	0.7%	4%	67	0.8%	5%
adherence to SL structure (s4)	Φ↓	25	0.3%	2%	147	1.8%	10%
different information (s5)	Φ↓	119	2%	9%	134	1.7%	10%
meaningless replacements (s6)	Φ↓Ω↓	1	0%	0%	22	0.3%	2%
perspective shifts (s7)	Φ↓	26	0.4%	2%	60	0.7%	4%

borrowings from other segments (s8)	Φ↑	9	0.1%	1%	15	0.2%	1%
second attempts (s9)	Φ↑Ω↓	3	0%	0%	48	0.6%	3%
first person perspective (me, my)	Φ↑	69	1%	5%	146	2%	10%
additions - all	Φ↑Ω↓	853	12%	66%	1123	14%	80%
repeats (a1)	Φ↑Ω↓	97	1.4%	8%	102	1.3%	7%
directional SASL structure additions (a2)	Φ↑Ω↓	289	4%	22%	176	2.2%	13%
added explanations and explications (a3)	Φ↑Ω↓	281	4%	22%	244	3%	17%
added emphasis signs (a4)	Φ↑Ω↓	57	0.8%	4%	130	1.6%	9%
new information (a5)	Φ↑Ω↓	65	1%	5%	58	0.7%	4%
meaningless additions (a6)	Φ↓Ω↓	56	0.8%	4%	225	2.8%	16%
non-directional SASL structure additions (a7)	Φ↑Ω↓	13	0.2%	1%	140	1.7%	10%
anticipations (a8)	Φ↑Ω↑	8	0.1%	0.6%	24	0.3%	2%
omissions – all (o)	Φ↑Ω↑	655	9%	51%	862	11%	61%
omissions of vital structure (o-vital)	Φ↓Ω↑	139	2%	11%	276	3.4%	20%
omission of non-functional items (o-bits)	Φ↑Ω↑	186	2.6%	14%	157	2%	11%
interpreting errors – all (X)	Φ↓	174	2.4%	13%	1141	14%	81%
incorrect signs (X1)	Φ↓	36	0.5%	3%	247	3%	18%
inadequate equivalents (X2)	Φ↓	29	0.4%	2%	133	1.7%	9%
mistranslation or incorrect information (X3)	Φ↓	43	0.6%	3%	106	1.3%	8%
SL interference (X4)	Φ↓	11	0.2%	0.9%	111	1.4%	8%
incorrect referencing or structure (X7)	Φ↓	15	0.2%	1.2%	191	2%	14%
false starts (X8)	Φ↓Ω↓	6	0.1%	0.5%	23	3%	2%
cryptic keywords (X9)	Φ↓	8	0.1%	0.6%	166	2%	12%
incorrect logical pausing (punct)	Φ↓	8	0.1%	0.6%	38	0.5%	3%
incorrect word order (WO)	Φ↓	2	0%	0.2%	69	1%	5%
incoherence (WTF)	Φ↓	17	0.24%	1.3%	81	1%	6%

Φ: Increases (↑) or decreases (↓) **quality** of interpreting

Ω: Increases (↑) or decreases (↓) **speed efficiency** of interpreting

APPENDIX G: EXCERPT FROM INTERPRETER A (IA) TRANSCRIPT

Target text	Source text
<p><title-IAE10E051010sJWzim1649> <time=11.53></p> <ol style="list-style-type: none"> 1. \-1\ <hL/> Department_a3tv0 home=Igroup_s5tv0home </hL> <htR/> zA_s5X2f1E35v0affair z5ID_a5v0 </htR> IVlist_ Vwant_v0 <htR/> Ione_E3v0each person_v0 <hn> Iindex@_a2 </htR> <ht/> JZimbabwe_a3E3v0 <s0/> IVcome_E3v0 country_E3v0 </s0> </ht> <WTF> <omit-Qillegal> 2. <hf-> Ihere_d1¹E/8 <ht-> <s0/> name_v0 <hf> IVwrite_r3 </s0> <htR> same_v0 <hcR> Ipast_v0 JZimbabwe_tv0 person_v0per.\0\ 3. \0\ <omit-Mmilestoneforbaby> <hfL> <s1/> Ibaby_tv0 mother_a6v0 Ibirth_v0 Ismall_E2v0 <hfL/> alive_E25v0 Isofar_ </hfL> </s1> now_d1v0 <hn> Ione_E/1v1.\-1\ 4. \-1\ <htL/> <s1/> IVswim_v0 good_ </s1> <hR> z2NATAITI_xtE3v0namenatalie z1DUTOit_tE3v0, IVwin_sE3 Imedal_s2v0, woman_a5d1² </htL> <hfL> Iindex@_a2v0gold Isecond_a2 <ht/> Ualso_E3 <s1/> best_E3v0 </ht> Itime_rE3v0 <s1/>.\1\ <omit-Qatcommonwealthgames> <p><time=12.19></p> <ol style="list-style-type: none"> 5. \-0.5\ <hcR> z3ETV_v0 <omit-news> <hfL> <s5/> IVgreet_ <bf> IwelcomeO_v0, thank_ <hn> IVlookpl@51_v0youlookat </s5>.\0\ <p><time=12.22></p> <ol style="list-style-type: none"> 6. \-1\ <hf> Department_a3E2v0 <htR> z3H_tE2v0home z3A_tv0affairs <hR/> <a3/> z5ID_E3v0 Igroup_ </a3> <hn> Iindex@6_E/8 </hR> <hfL> VinvestigateM_s2rE3, Vwant_E2v0 <hR> Jtomorrow_a5f1u0E2 IJone_d1E3v0every <ht> person_E3, <omit-Qforeign> <hn>, <hfL/> <s1/> name_E3v0 IVput_rE3r3 </s1> </hfL> <ht/> other_v0 person_v0 country_v0 Ihere_d2³E25, Qwho_E25v0 </ht> Iin_E/9. 7. Vstart_E2 <htL> JZimbabwe_tE2v0 <hn> Ifirst_d1⁴E2v0. <omit-Qhundredsthousands> 8. <hR> other_tE2v0 <htL> country_tE2v0 <hn> <hR> <omit-prepin> SA_E2v0... <hn> <hfL> IVwarn_E2v0, <hn> must_v0 <hL> Ipaper_E25v0pape, <hcL> <s1/> IVstamp_E2v0 Ifuture_rE25 Iend_E3 </s1>.\1\ <p><time=12.39></p> <ol style="list-style-type: none"> 9. <hf> JJohannesburg_tE2v0 <hfL> city_d1v0 v3scene <omit-centre> <hn> department_s2v0 Iqueue_a3r3. 10. some_E2v0 person_E2v0people JZimbabwe_tE3v0 IVfeel_r <hn> <hf> IVstand_ <bf> IJeight_E3/6v0 <hL> Idaypl_d1⁵r3v0. 11. <hcL> IVqueue_r ... <hL> Inight_a3xv0 <hcR> IVsleep_, IVlie_, <a3/> tomorrow <ht> IVstand_ </a3> 12. <hR> SA_tE2v0 <hf> government_tv0 name_a2 IVaim_v0, Vwant_s9v0 <hR> Ione_E3v0each person_E3v0 JZimbabwe_E3v0, <hs>, 1000_s4X4v0 <hL> name_ <hfL> IVput_ <s0/> Iend_ <hf-> year_E2v0 </s0> Ibefore_v0 <hn>. 	<p><title-IAE10E051010eJWzim> <time=11.53></p> <ol style="list-style-type: none"> 1. home affairs plans to document all illegal foreigners in a similar process to the one registering Zimbabweans. 2. a milestone for this miracle baby: 3. the smallest child to survive in South Africa is turning one. 4. and golden girl Natalie du Toit does it again, taking gold and smashing the record at the commonwealth games. <p><time=12.19></p> <ol style="list-style-type: none"> 5. this is enews late edition, I'm Amy Brooks, good evening. <p><time=12.22></p> <ol style="list-style-type: none"> 6. the department of home affairs is doing some serious housekeeping. it intends to document and register all foreign nationals who are in the country, 7. and has already started with the hundreds of thousands of Zimbabweans. 8. other foreign nationals living in South Africa have been warned to get their papers ready. <p><time=12.39></p> <ol style="list-style-type: none"> 9. "this is the scene outside home affairs in Johannesburg city centre. 10. some Zimbabweans have been here for as long as eight days now, 11. most of them sleeping in the queue. 12. the South African government has set itself an ambitious target of trying to register thousands of Zimbabweans before the 31st of December.

13. some_s5f1v0 <ht> JZimbabwe_E3v0 <hfl> IVthink_s0E3v0 <ht/> Vcannot_E3v0no
IVwin_E3v3reach <hn>, </ht> <hn> ...
14. Qwhy_E3v0 <hf> IVthink_E3 <hn> <hR> IVqueue_E3v0 <htL> Iday_r3E3vdaysdaysdays
15. <omit-togetinside> \-3\.

<time=13.14>

16. \3\ Ime_ <hf/> <hR> Vnotknow_v0, Imaybe_d1v0 Ime_E2 JZimbabwe_v0 Umean_v0 </hf> <ht>
crime_d1E3v0, <hL/> Inot_E3v0so-un <hs> fair=level_f3E3v0fair E3/9 </hL>.
17. <hR> <a3/> qindex@6_x Iqueue_r3, <hf> Itime_v0 </a3> <hR>, <htL> toilets_v0, gone_d1v0no,
Inilnil_s2v0nothing.
18. Ime_v0 <hf> Jyesterday_d1⁶v0 <hL> IVcome@5_v0, <hCR> IVsleep_v3, <hfl> Icold_rE3v0 <hn>,
yes_a4v0
19. <omit-Pleftbaby>. \-2\

<time=13.31>

20. \1\ <s1/> Iindex@L_v3 IVqueue_f3E3 <-htL>, qer_x <htR> Iplacepl_mE3, <htL> same_v0 <hn>
</s1>.
21. <htR/> Qwhatshrug_a5d1\$E2, <omit-Qhomeaffairs> minister_tE2v0 IVsaypl_E2v3told z3UN_E2v0
z3HCR_E2v0, Iindex@R_v0she </ht>, <hL/> <s0/> happy_v0 Iindex@_f1 Iprogress_E3v0process
good_E3v0 </s0>.
22. <hf/> Vplan_v0 <hn> IVestablish_ <htR/> other_tE2v0 country_tE2v0 person_tE2v0 </htR> <hn>
Jafrica_s3E3v0 IplaceplM_E35/8 month_s5E5v0 Ifuture_name_v0 <hL> IVput_r3E/9.\2\

<time=13.47>

23. \1\ <hn> <s1/> Ifirst_d1E2v0 JZimbabwe_v0 <ht/> Usecond/first_X1xrE2v0 which_rE2v0
country_E2v0, <hs> notknow_v0 </ht>. </s1>
24. Iindex@6_a2E2 <hn>, <hf> IpaperO@51_r3E25v0applications <hn> <hfl> IVwrite_a3E2/8 <omit-
Qapprox> IJsix_tE2v0 <ht> Jthousand_tE2 namepl_7tv0name <hn> Zimbabwe_tE2v0zim
Iindex@_a2v3babwea
25. <hfR/> Ipast_v0last week_v0 </hfR> Isofar_s2 <a1/> IJsix_E2/1v0 Jthousand_E2v0thou </a1>.
26. <a1/> IJsix_tE2v0 Jthousand_tE3v0 </a1> <hL> <s1/> few_E3v3little <hn>, Imore_E3v0 <hR>
Jmillion=000_Ed3rv0 ItheyM@_rE3. </s1>
27. <htL/> Iindex@R_v3there department_v0depart </htL> <hL/> <hf> <s0/> Vinvestigate_rE/8
IVthink_v0 </s0> Iregion_E3/8 </hL> IJone_tE2v0 Ipoint_tE2v0 IJfive_tE2v0 <ht/> Jmillion_tE2v0
JZimbabwe_tE2v0 </ht> <hn> person_ <hn> Ihere_s2d1 <hn>.
28. <hfR> Iall@1234_tE2v0 Vmust_tE2v0 <hf> SA_a3x⁸f1tE2v0 Vneed_v0 Ipaper_v0
29. <omit-namereporter> \2\.

<time=14.15>

30. \-1\ <hfl> <s1/> parliament_tE25v0parl have_s4X4 <hf> Vargue@eo_d1E3/(pr) why_f3v0 </s1>,
<hfR> Iindex@6_a2f1 <omit-Qpresident> JZuma_E3v0 Iindex@6_a2E3 Ifly2hK_s2r3E3v0fufufly.

13. but many Zimbabweans believe that this target is near impossible
14. as they wait for days on end in these long queues,
15. just to get inside the home affairs office.

<time=13.14>

16. "I don't know if it's a crime to be a Zimbabwean, but it's so unfair.
17. and we don't know whether... to just mess the place here, there are no toilets, we have nothing."
18. "I came here yesterday, and we slept here and it was cold
19. and we have a baby. well, I left my baby at home."

<time=13.31>

20. but as these scenes play out across the country,
21. the home affairs minister told the UN HCR that she is pleased with the process.
22. and says plans are in process to document other foreign nationals from neighbouring countries in months to come.

<time=13.47>

23. exactly which country will be first is not known.
24. home affairs says it's received about 6000 applications from Zimbabweans
25. since the start of the process last week,
26. but this is a drop in the ocean
27. as the department estimates there are about 1.5 million Zimbabweans living in the country.

28. all of them need documents.
29. Jodie Jacobs, enews, Johannesburg.

<time=14.15>

30. a row is brewing in parliament over president Jacob Zuma's travels.

31. <hR/>
 z3DA_tE2v0 <hn> <s1/> Ishow_E3v1 Ime_E3 <ht> IVknow_E3v0 Iindex@4_X7 Ipresident_E3v0 Iindex@_E3 IVfly@_ <hf> when_d1E3v0 </hR/>, Itime_v0 but/very_X1x </s1>

32. <ht> Iindex@6_a2v3 Isoldier_s2tE2v0army <hfL> department_s2tE25v0 <ht> IVsay_E2v0 ...

33. <hfR/> Ipresident_E2v0 IVfly2h_mKE2v0 <hs>, IVzipmouth_s0v0zip <hn> </hfR/>, <htL> Iclose_a3 <hn>,</p>
</div>
<div data-bbox="61 221 400 259" data-label="Text">
<p>34. <ht> <s2/> IVshow_E25v0, <hs> Iwrong_E3v0noway </s2>.\0\ </p>
</div>
<div data-bbox="61 259 584 317" data-label="Text">
<p>35. \0\ president_tE2v0 <hfR> JZuma_tE2v0 Vhave_v0 <htR> IVfly2hK_r3E35/8 <ht> Iworld_s0v3planet <ht> 27_E3v0 IVfly@_v0 <-hf>, Isecond_a2f3E5 <htR> 133_E2v0 <hR> IVfly1hK_rE25v0 <s0/> South=A2_xE/8 africa_9xE2v3 </s0/>,</p>
</div>
<div data-bbox="61 317 584 375" data-label="Text">
<p>36. <hcR> Isofar_ <htL> Ipast_v0last year_v0 month_E2v0 Jmay_d1E2v0.</p>
<p>37. <hf> SA_E25v0 Isoldier_rv0army, z3SouthAfricanairForce_E3v0, <omit-Staxpayer> <ht> Qwhy_X3E2 Qwho_C3E2v0 <htL> IVpay@_E2v0 <hL> z5TAX_s4X4v0.</p>
</div>
<div data-bbox="61 375 584 413" data-label="Text">
<p>38. <hR> z3DA_s2tE2v0 <hn> <htL> Vwant_E3v0 <hf> IVinform_E3v0 <hn>, <hcR> Imore_E3v0, <hR> IVfly@_ Ito@_E3v0where, <hL> Imoney_E3v3hm, Ithey@51_s5v3comefrom.</p>
</div>
<div data-bbox="61 413 584 451" data-label="Text">
<p>39. <hR> minister_tE2v0 Isoldier_v0army <hL> IVsay_ <hs> <hf> Izipmouth_s0E25v0zip, <s1/> Iindex@paper_E/8 <ht> IVshow@_v0, <hR> Ino46_d1r3E/8. </s1></p>
</div>
<div data-bbox="61 451 584 509" data-label="Text">
<p>40. <htR> parliament_tE2v0parl <hf> Iindex@_a2E2/8 Ino_d1E3v0 <hs> IVsay_ Iindex@paper_E5/8 Ithere@_v0 v0not <hs> parliament_E3v0atparl. <omit-Vdiscuss> \0\ </p>
</div>
<div data-bbox="61 509 584 547" data-label="Text">
<p>41. \2\ Iindex@_ <hfR> Government_tE2v0 IVinform@_v0give, <hR> Isensitive_E3v0, <hn>,</p>
<p>42. IVzipmouth_s0v0zip <hfL> <a3/> IVput_E3/8 <htR/> C@paper_rE3v0classified </a3>...</p>
</div>
<div data-bbox="61 547 584 585" data-label="Text">
<p>43. Umean_s0E2v0 Ime_s7E2 IVsay_E2v0 </htR/>,</p>
<p>44. <hR/> z3DA_s2tE2v0 z6IF@_E2v0 v0you Vwant_E2v0, Iindex2@paper_s2E2 IVshow_s1v0 <hn> </hR/>,</p>
</div>
<div data-bbox="61 585 584 643" data-label="Text">
<p>45. <ht> Iindex@paper_a1hv0whojoint <hf> <omit-Qjoint> IVstand_rE5v0 <htR> Jcommittee_d1v0 <hn>, <a1/> Iindex@paper_v0this Iplace_v0, Inot_E3v0 <hs> parliament_s5f3E3v0parl </a1>...</p>
</div>
<div data-bbox="61 643 203 665" data-label="Text">
<p>46. <hn> easy_s2d1v0.\-1\ </p>
</div>
<div data-bbox="61 685 584 761" data-label="Text">
<p><time=15.20> </p>
<p>47. \1\ <s1/> <hf> Iindex@_v3how how=basis_d1v0have, Iprocess=progress_E2v0, <ht> same_rE3v0 </s1> <hfR> Ibefore_d110v0 <ht> Ipresident_tv0 Jmbeki_d1tv0 <ht> Ifly@_rtE2v0, yes_a4 <hn> <hL/> <hf> IVshow_v0 <hn> parliament_v0parl Ipast_v3 year_v3 2004_f3v0 ... </hL></p>
</div>
<div data-bbox="61 761 584 800" data-label="Text">
<p>48. <hR>¹¹ <hfL> Ipaper_ <hf> Ispreadsheet_d1v0spread Ilist_s5E/8 <htL> Iclear_s1v0 <hn> <htL> Ipast_E2v3last <hn> Isoldier_r3E2v0army <hfL/> boss_s2E/9 <omit-namelekota>.</p>
</div>
<div data-bbox="61 800 584 838" data-label="Text">
<p>49. Iindex@_f1v3 </hfL> <hL/> department_E2v0 IVsay_v0 <ht> Ipast!_E2v0before z5OK_v0 <hf> now=here_s2d2v0 Vchange_E3v0 </hL> <htR/> IVnotshow_s0E3/8, Qwhy_E3v0 <hf> Ivot_v3is,</p>
</div>
<div data-bbox="61 838 584 898" data-label="Text">
<p>50. <ht> IVsay_ </hR> <omit-Qjoint> Istand2_tE25v0 <htR> committee_d1tE2v0 v0DA <hn> <hfR> Ithere@L_d2E2/8, yes_v0must <hfL> Vmust_x <hL> IVinform_v3 <hfL> <a1/> Iindex@6_ Inot_f1E3v0 parliament_E3v0parl. </a1></p>
</div>
</div>
<div data-bbox="590 124 933 239" data-label="Text">
<p>31. the DA is demanding to know more about the president's movements,</p>
<p>32. but the defence ministry says,</p>
<p>33. all the details are classified,</p>
<p>34. and can't be released in a public forum.</p>
</div>
<div data-bbox="590 250 933 308" data-label="Text">
<p><time=14.32></p>
<p>35. "president Jacob Zuma has jetted off on 27 international flights and 133 domestic flights</p>
</div>
<div data-bbox="590 328 933 386" data-label="Text">
<p>36. since May last year,</p>
<p>37. all courtesy of the South African air force and ultimately, the taxpayer.</p>
</div>
<div data-bbox="590 386 933 424" data-label="Text">
<p>38. the official opposition wants to know more, like where he went and how much it cost,</p>
</div>
<div data-bbox="590 424 933 462" data-label="Text">
<p>39. but the minister of defence won't part with that information, saying it's classified.</p>
</div>
<div data-bbox="590 462 933 500" data-label="Text">
<p>40. and anyway parliament isn't the right place to discuss such things.</p>
</div>
<div data-bbox="590 500 933 558" data-label="Text">
<p><time=15.02></p>
<p>41. "some information of government will have to be sensitive</p>
<p>42. and will have to be classified.</p>
</div>
<div data-bbox="590 558 933 596" data-label="Text">
<p>43. and all we are saying,</p>
<p>44. to the member is that, if you want that information,</p>
</div>
<div data-bbox="590 616 933 638" data-label="Text">
<p>45. ask us from the joint standing committee.</p>
</div>
<div data-bbox="590 648 933 686" data-label="Text">
<p>46. it is not difficult, it is not... it is very easy, it's not technical, it's not rocket science."</p>
</div>
<div data-bbox="590 696 933 754" data-label="Text">
<p><time=15.20></p>
<p>47. in spite of that procedure, similar details of former president Thabo Mbeki's flights were revealed in parliament in 2004,</p>
</div>
<div data-bbox="590 754 933 792" data-label="Text">
<p>48. handed over in a convenient spreadsheet by the then defence minister Mesiwe Lekota.</p>
</div>
<div data-bbox="590 792 933 830" data-label="Text">
<p>49. the ministry won't comment on why it was fine then, or what might have changed in the interim,</p>
</div>
<div data-bbox="590 830 933 868" data-label="Text">
<p>50. repeating that the joint standing committee is the place to ask for such information.</p>
</div>
</div>
<div data-bbox="61 928 89 948" data-label="Page-Footer">
<p>389</p>
</div>

<p>51. <htR/> z3DA_tE2v0 <s1/> Ihmm_f3E3/8 </htR> <hs> <hR/> Inot_f1E3v0 IVaccept_E3v0 <hs> </s1> </hR>. \1\ <time=15.50></p> <p>52. \2\ <htR/> Minister_tE2v0 Iindex@R_E2 IVsay_x Iin_v0 </htR> <omit-Qroutine> <ht-hfL> Iclose_E3v0 <ht> Imeet=match_d1r2v0 <hn> like=and_d1E3v0Asoos <ht/> Jjoin=brother_E3v0joint IVstand_E3v0 </ht> Jcommittee_v0 <omit-Qonintelligence>, <hf> Iindex@CL_a2hv0here ...</p> <p>53. <hfR/> Umean_f3r2E2v0 ... z6IF_f2E25v0... </hfR> <hf/> minister_E25v0 Iindex@CL_IVsay_E2v0 </hf> <hR/> z6IF_f3E2v0 ...<hn> ...</p> <p>54. z5EXec_E2v0 </hR> <hn> committee_E2v0com <hn> Vwant_E2v0 <hfL> IVpaperLh@51_v0give <hn> Ime_rE2v0 <hn>, <htL/> Ime_E/8 Inot_v0 Vallow=can_s3v0 </htL> <ht> IVshow_s0v0, <s3/> SA_v0 community_v0 </s3> <hcL> <omit-Oinfo> Ivot_a4E/8.\2\ <time=16.11></p> <p>55. \1\ <htR/> Isoldier_E2v0arm minister_E2v0min </htR> <hfL> <s1/> IVholdpaper@51_E3v0keep <hs> Inot_v0 IVgive@_E/8 </s1> <hR> z3DA_tE3v0, <htL> IVbackdown_d1v0th <hR> Ino_d1E3,</p> <p>56. <hfR> Vplan_ <htL> Iprogress_s0 Imore_v0 <hn> <htL> Iquestion_rE3v0 <htR> Ishow_a3v0 <hR> parliament_v0 <htR> Qwhy_E3v0 <hf> IVinform2h_IVnotshow_s2E3v3, <IpaperCL-L/> <htL> <a13/> Ipast_E3v0before yes1h_a4v0, <hL> now1H=here_d1E3v0 <htL/> Inot_E3v0 </IpaperCL-L> Vallow=can_v0 </a13> </htL></p> <p>57. <omit-namereporter>. \-1\</p>	<p>51. it's an argument that the DA isn't buying. <t=15.50></p> <p>52. “the minister believes that it should meet in routine closed sessions like the joint standing committee on intelligence.</p> <p>53. and so what that means and so what the minister spokesperson saying is that</p> <p>54. the executive are in prepared to furnish me with information, as long as I don't furnish the public with that information. <t=16.11></p> <p>55. despite the defence minister's tough stance on the matter, the DA is refusing to back down,</p> <p>56. saying it plans to pose a series of new parliamentary questions asking why this information was deemed classified in the first place.</p> <p>57. Belinda Moses, enews, parliament.</p>
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¹ B-CL(2h)

² One of the few unconventional signs of AK: woman = X@ear.

³ =1CL@2

⁴ =important B@thumb

⁵ Starts with 1CL but splits to 2CL

⁶ Tomorrow with thumb to back

⁷ Handshape as though signing “hundred” and signing-space also correct for hundred, but says “name”.

⁸ Confusing: both handshape and voice emphasise “African” rather than “South African”.

⁹ X: unusual way to sign SA – also muffed – production effort overloaded?

¹⁰ Opposite of sofar: from present to past.

¹¹ Looks at the spreadsheet in the main picture.

APPENDIX H: EXCERPT FROM INTERPRETER B (IB) TRANSCRIPT

Target text	Source text
<p><IBE10E081110sJWschoolrape1757></p> <ol style="list-style-type: none"> 1. IVrape_tv0 IVattack@1CL_a3E3/8 IVrape_a1v0 school_s0E2v0 JJohannesburg_a5E2v0 age_tE2v0 15_u0tE2v0 girl_a3tE2v0 <s2/> bad_E2 IVsay_E2v0. </s2> <WO> 2. E/6 Industry_s0d1tE2/(pr) <s2/> Imoney/finance_X1tE2v0 Itree_s3X9E2v0grow Vsave_E2v0 </s2> <hn>, <WO-NNNV> 3. <s6/> Umean_E2v0 tax_X1d1AE2v0 <hL> Vsave_E3v0 Vcan_a4E3v0 Iquestion_a6E2. </s6> E2 <WTF> <omit-Pgovntlaunchecotax> 4. v0and SA_tE2v0 IVwin_s3E3/4v0Awen <omit-Qfifthandfinal> z5ODI_tE/1v0 <hn> <omit-Qagainstpakistan>,&br/> 5. <s1/> IVsay_E2 mean_E2v0 </s1> IJprotea_E25v0 <hs> IVwin_E3v0Awen good2h_a6. <hfL> <omit-Oseries> <p><time=00.24></p> <ol style="list-style-type: none"> 6. Iwelcome_s8v0 Inight_a3v0tonight E_ s2v0 <omit-Olateedition> 7. <s5/> thank_E2v0 IVlook_E2v0 Inight_sv0watch. </s5> <omit-namereporter> 8. Johannesburg_tE2v0 Ihigh_tE2v0 school_tE2v0 Iindex@_a2E2 <hn> IVfocus_s2E3v0 Iindex@_a1, 9. girl_tE2v0 age_tE2v0 15_tE2v0 Iindex@_E2 <hn> IVsay_s72E2v0 IVattack@CL_s2E3/9 IVrape_E3v0 IVattack@1CL_a3 <bf> Qhow_a2E/9 10. <hR> with_v0 other_s0 girl_X3 boy_C3d1v0 Ismall_a5X3E3v0 two/both_X1E3 <hR> vot_a3E3. 11. IJtwo_C1E2v0 <omit-Sboys> IVarrest_ <punct> 12. Ithey2h@_a2E/8 Jeducation_d1tE2v0 <omit-Sauthorities> IVsay_s3E3v0 <hn> Iangry_s2E3v3. <omit-aboutincident> <p><time=00.44></p> <ol style="list-style-type: none"> 13. /+1/ <htL> looklike_s0d1AE2v0 Ithey@_a2u0v0there <omit-Qordinary> school_v0 Iday_v0 Iyou@_a2hv3, z3JULES_tv0 <ht> Ihigh_v0 <hf> school_v0. 14. Ubut_E2v0 <htR> Isurface_f3E2v0 IVlook_s0 <htR> good2hM_s0hrE3v0fine, 15. <hR> Ubut_a2E2v0 police_s3tE2v0 Vare_s4dsE2v3 <s12/> Vinvestigate_E3/9 <ht> Qwhat_E3v0 <hs> <htL> Vhappen_v0 </s12> <hR> Ipast_v0last <hf> Jthurs-day_v0. <hfL> 16. girl_tE2v0 age_tE2v0 15_tE2v0 <hR/> IVsay_s2E2v0 <hn> Igroup_s2rE3v0 </hR> IVattack_a3E3/9 IVrape_v0 <omit-Qatschool> 17. <hcL> Itime_a2v0 <omit-Qmidday> <htR> break_X4E3 minute_a1X1f1v0time Ibetween_a6X1. 	<p><IBE10E081110eJWschoolrape></p> <ol style="list-style-type: none"> 1. a 15 year old pupil makes shocking allegations. 2. going green gets lucrative for companies, 3. as government launches a new eco-friendly tax incentive. 4. and South Africa take the 5th and final ODI against Pakistan, 5. making it a series victory for the Proteas. <p><time=00.24></p> <ol style="list-style-type: none"> 6. this is enews late edition, 7. I'm Amy Brooke, a very warm welcome. 8. a Johannesburg high school's been thrust into the spotlight 9. after it's alleged a 15-year-old girl was gang raped 10. by fellow pupils last week. 11. two boys have been arrested 12. and the educational authorities are infuriated by the incident. <p><time=00.44></p> <ol style="list-style-type: none"> 13. it seems like just another ordinary day here at Jules high school. 14. but while on the surface it all appears fine, 15. authorities are trying to get to the bottom of the drama that unfolded here last Thursday. 16. a 15-year-old girl alleges she had been gang raped at the school 17. during the midday break.

<p>18. <omit-SVshetoldpolice> 19. with_s0d1E2v0 friend_rE2v0 <hR> Iboth_a3E2 <htR> Icooldrink_tE2v0 <hR> IVgive@me_E2v0to<hn>, <hL/> Idrink_a3f2 <hn> IVshare@_v0 <hn> </hL> <omit-Sthreeboys>, 20. v0then Ime_s7v0 <ht/> Idizzy_s0rE2v0th, Vstruggle_a5d1E2v0th, </ht> Iindex@_a2X7E2v0she IVattack@1CL_E3v3 <hn>. <time=01.17> 21. police_E2v0, <s1/> <ht> Qhow_s5E2 <omit-Vcannot> <bs>, <hR> IVsay_E2v0 yes_E2v0can definite=fine_E2v0Apresies <hn> </s1> Idrug_E2v0 E2v0or <hR> Iswallowpill_a3X3E2 Vhave_a6X4E2v0 <ht/> qindex_f1, Qhow_a1E2/8 <bs>. 22. education_tE2v0edu department_tE25v0depart <ht> IVask_s2E3 <omit-Omedia> <omit-Vgive>
 police_s7v0 Iindex@_a2 <s1/> IVgather_E3/6 Ifirst_xv0 Vinvestigate_r Ifull_v0 <hfL> IVprogress_v0process. </s1> <s18/> <-ht> Ifilm_tE2/9(pr) <bs> Qwhat_d1\$vdontwant <hs> <htR> Ino_d1E3v0, </s18> 23. Ubut_E2v0 childpl_s0d1tE2v0 Ivot_E2v0here, <hn> <hcR> IVthink_f3E354v0, <hR> Ihmm_a3E3/8, 24. <hR/> Itotal_s4X9E3v0 <s4/> just_s0X2d1E3v3something <hn> bad_s2u0E3v3 Iarea_X2E3. </s4> </hR> <X9></p> <p><time=01.37> 25. /+2/ <htR> Ime_E2 IVthink_E2v0 childpl_E2v0 IVdrink_v1 together=with_ school_f3v0 <punct> 26. Vmust_v0Amoet <omit-Vbe-at> <ht> school_v0 Ino_a3d1v0 <hs> 27. IVwrite_s2rE/8v0exam Vfinish_v0, 28. <s13/> Umean_ IVgo_hv1Aweg Iindex@_a2h, Ubut_v0 <hR> Qwhy_u0 Ivot_u0here. <hs> </s13> 29. <hs> <s4/> Iindex@1234_E3/6 Itotal_E3 <omit-Oevidence> IVcompare_d1E3 false_d1E3v0wh </s4> Ivot_a4E3.</p> <p>30. E2 <s4/> other_s0E2v0 IplaceplM_s0rE2 </s4> <X9> Ime_a6X7E3v0 IVsay_s2v0 IVattack@1CL_s9X2E3 <hn> 31. <a8/> Qwhy_v0 <hn> Vmust_u0E3 </a8> Qwhy_E3v0 police_v0 <bf> Islow_f3E3v0, IVcatch_v0 person_s2r <hcR> IJtwo_s5hv0 Ithere@_a2u0. 32. <omit-Uincluding> child1h_xrv0children minister_d1tE2v0, <ht> z1KOnwanA_xu0tE2v0 IVsay_a2 Ipast_E2v0last Jmon-day_v0 Vvisit_v0 girl_E2v0 family_d1v1fam Ivot_a4 <hfL>. 33. Iall_f3rmOE2v0 <hn> <hf> Vmust_xv0 IVstand_s4X4v0, Vstop_s0X9d2E3v0 Iindex@_a2E3 Idrug_rE3v0. <punct> IVspread_s2E3 <hR> no/what_a4X1f3rE3, 34. Ualso/same_X1E2v3 <omit-SVwemustrain> boy_E2v0s Vmust_u0v0 Vrespect_d1v0 girl_v0 Ivot_a4. 35. <a3/> Vinvestigate_E3/8 Ifuture_ Qhow_f1v3. </a3></p>	<p>18. she told police 19. she and a friend had shared a cool drink given to them by three boys. 20. they became drowsy, and, she said, that's when she was attacked. <time=01.17> 21. police cannot yet confirm if drugs were involved. 22. the education department has appealed to the media to give it and the police the necessary time to complete all the processes and investigation, 23. but pupils here believe all the facts don't add up, 24. saying there's something sinister at play. <time=01.37> 25. "I think these kids were drinking together at the school 26. and I don't think they were supposed to be at school 27. since the exam was finished, 28. there's something that's fishy about this story, 29. the... the ends are just not adding up." 30. "there's been criticisms from various quarters 31. over the slow pace at which the police acted against the alleged rapists. 32. including from children's minister, Lulu Konwana, who visited the girl's family on Monday." 33. "all of us must stand up to fight the scourge of drugs, 34. but also to train our boys to respect girls." 35. <add></p>
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<p>36. police_tE2v0 <ht> Vinvestigate_E2/8 llevel_a2v0 <hs> no_f1E3v0, <hR> Ihigh_s2 province_u0d1E2v0 llevel_alfv0 Vinvestigate_al <hn>,</p> <p>37. Imaybe_s0E2v0 Ifuture_v0more IVarrest_Imaybe_a1E2/8 <bs>.</p> <p>38. <omit-namereporter></p> <p>39. IVrape_tv0 person_tE2v0 lindex@1234_s0E/6 Vdo_s2v0have area/approx_X1xE25v0around <ht> z4JoHannesburG_u0d1tE2v0
 <hR/> lindex@CL_a2E3/8</p> <p>40. <hn> IVrape_s2xtE3, <ht> lindex@CL_s2tE2, IVthink_s2E2v0 lindex@CL_a2 <hR> Itotal_E2/9 12_E2v0 woman_v0 IVrape_E2v0, <hf> IVrape_a1E5v0 <hR> Isofar_E5 Jaugust=eight_d1E2v0</p> <p>41. Iperson/one_X1v0 IVaim@CL_s0, IVfocus_s9 woman_v0 age_v0 19_v0 Ito_v0 21_hv0,</p> <p>42. lindex@_ party_s3v0papa Vmeet/match_s2X1, <s1/> IVinvite_E2v3have, IVgo@R_ </s1> H_X2d1v0hotel,</p> <p>43. Ithey@_a2¹ lindex@_a2 <omit-Qviolent> <hf> IVrape_s2v0. <omit-Qviolently></p> <p>44. Iquote_s0E2v0 IVsay_E2v0 lindex@_a2 Imy_s7v0 birthday_d1Ev0 IVcelebrate_f3E2/6, IVcome_u0v0 with_E/1v0,</p> <p>45. <htL> <s1/> IVdrink_v0 IVgive@_v0, Ieat_v0food, IVgive_r3v0, </s1>E2</p> <p>46. lindex@_s2f3tE2 <hL> trust_d1tE2v0 Ime_s2E2v0have <hn>,</p> <p>47. <htL> IVinvite_E3v0come with_v0 <ht> hotel_d1E/1v0 <hn>,</p> <p>48. IpersonCL@goto_a3xE3/4, IVbeat_E3/4v0, IVrape_E3v0.</p> <p>49. E2/6 <htR> Ime_u0E2 IVgofrom_E3 IVeat_E3v0food Imoney_E3v0Ageld </htR> Vtake_d1v3Atrek</p> <p>50. woman_v0 IVescapefrom@_r3v0Asnapsnapsnap,</p> <p>51. police_tE2v0 Vare_d1sE2v0 IVlookfor_E2 Iface_s3E2/9 IvotLh@picture_E2v3looking <hn>,</p> <p>52. IVthink_E2v0 Vhelp_s2E2v0 <hf> Vinvestigate_ <time=3.15></p> <p>53. E/6 <htL> JCapetown_tE25v0 <hn> Vwant_E2v0A IVstop_s2E2v0, <hn> Icar_s2E5v0 Irace_E3/9, <omit-Qoncityroads>, <htR> not_v0 legal_u0E/1 Ivot_xE/1.</p> <p>54. Iquote_a2E2 <hfR> Igroup_tE2v0 Iquote_a1E2 name_tE2v0, Ighost_tE2v0 Igroup_s2tE2/1v0squad,</p> <p>55. <a3/> Iall_E2 Ithey@_ VinvestigateO_r <hn> <hL> Qwhat_v0 </a3>,</s1/> Vhave_X4v0 disguise_d1E3/6 <hs> Vdontknow_v0 Qwho_E3v0 lindex@_E3 IVrace_s3r3E2, </s1></p> <p>57. <omit-SVtheysay> IVrace_s3r3E2v0, Ime_s7²E2v0self danger_X9E2</p> <p>58. same_E25v0 <hR> E3 Icar@car_E25/9 Icar@index_f1E25v3car <ht> danger_f1 <hfl> Qhow_a3X9E3v3Ahoe. <time=3.35></p> <p>59. Jsunday_d1tE2 Inight_tE2v0 JCapetown_tE2v0 <hR> z5MODDERDaM_tE2v0 <hf> Iroad_tv0,</p> <p>60. 100_E2v0 Icar_E2v0 <hf> Ilineup_E3/8 want_s0E2v0 <hn> IVrace_rE25/9,</p>	<p>36. “the police investigation has been escalated to a provincial level.</p> <p>37. and the possibility of more arrests haven’t been ruled out.</p> <p>38. Jodie Jacobs, enews, Johannesburg.”</p> <p>39. meanwhile a serial rapist may be on the prowl in and around Johannesburg.</p> <p>40. it’s suspected that 12 woman have fallen victim to the same sexual predator since August.</p> <p>41. the man targets woman between the ages of 19 and 21,</p> <p>42. picking them up at popular hangouts, then luring them to hotels,</p> <p>43. before violently raping them.</p> <p>44. the suspect allegedly tells his victims that it's his birthday and invites them to join him.</p> <p>45. he then treats them to food and alcohol.</p> <p>46. once he gains their trust,</p> <p>47. he asks them to accompany him to a hotel</p> <p>48. where he beats and rapes them.</p> <p>49. the women have only managed to escape</p> <p>50. when the suspect leaves to buy food or draw money.</p> <p>51. police are looking for the man in this picture</p> <p>52. who they think will be able to assist the investigation. <time=3.15></p> <p>53. Capetown is going all out to put the brakes on illegal drag racing on the city's roads.</p> <p>54. the new elite traffic unit, the ghost squad, has been used</p> <p>55. <add></p> <p>56. to conduct covert operations to root out offenders.</p> <p>57. they say that drag racers are not only putting themselves in danger</p> <p>58. but also the lives of other motorists. <time=3.35></p> <p>59. “a Sunday night on Capetown's Modderdam road.</p> <p>60. 100 vehicles are lined up either to participate</p>
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<p>61. <hL> v0or IVlook/lookfor_X1E2v0lookatwatch <a56/> Qwhat_d1\$u0v3for with_v0 </a56> <omit-Qillegaldrag> IVraceK_s2r3E3/9</p> <p>62. Ubut_E2v0 IVlook_s0u0xE2v3watch <ht> Qhow_f1E2/6, <hR> Ipersoncome@5_x³u0E25 <htL> Isurprise_d1gE5/6 <hL> Ime_X7f1v0i <htL> Vmonitor_s0rE2v0watch, <hR> Iindex@_E2 <hn>,</s2/> IVrace_rE2/9 IVlookfor_E2v3see, </s2/> <omit-Otwocars></p> <p>63. <hfR> Iquote_E25 <hR/> same_s0E3v0 sport_E3v0s </hR> Icar_E5v0, IVrace_rE5/1 <s1/> Icar@index_E2/6v3thisone, police_s2E2v0 Iindex@carLh_E2, Ifine_xE2 </s1> <hL> Ivot_a4E2. <time=3.56></p> <p>64. <s2/> IVrace_rE2/9 IVlookfor_E2v3see, </s2/> <omit-Otwocars></p> <p>65. Iindex@_a2x age_tE5v0 52_tE2v0, man_tE2v0 with_tE2v0 boy_X2tv0 18_u0tE2v0, Iboth_a3E3/8 <hn> IVcatch_E3/8 IVarrest_E3/8, <hn></p> <p>66. for_v0 danger_s2v0 IVdrive_v0. <hfL></p> <p>67. Ime_ <ht> IVthink_E2 <s1/> danger_E2 bad_s9xE2, <htL> Ivot_f3dgE2, </s1></p> <p>68. <omit-Qmany> Iaccident_X9r3E3v0powpowpow <omit-Speople> IVdie_E3v0 Ivot_a4f3E/9 Qhow_a6f1E/9.</p> <p>69. <omit-Pandallinnocentpeople></p> <p>70. Vhave_E2v0 Icar_f1E3 <hf> Irace_rE3/9, <a6/> Iindex@_E3/6, Vlook/need_X1x Vhope_v0, Iroad_IVrace_rE3/9 bad_, Uor_f1v3 </a6> <WTF> Iindex@_E2 <hcR/> personpl_r3E3/9 IVdie_E3. </hcR></p> <p>71. Uor_v0 <omit-Sperson> <omit-Qinnocent> <htR> IVdrive_s2f3E5v1, Icar@eo_E5 IVswerve_E/9 IVrunover_X3E/6, IVcollide_C3E3/4v0boom vot/how_a4X1xE2. <hfL></p>	<p>61. or watch illegal drag races.</p> <p>62. but unbeknown to them they are being watched:</p> <p>63. by an elite traffic unit called the ghost squad who drive unmarked sports cars. <time=3.56></p> <p>64. in hot pursuit of the two cars,</p> <p>65. a 52-year-old man and his 18-year-old son are arrested</p> <p>66. and charged with reckless and dangerous driving.</p> <p>67. “I think the worst of all</p> <p>68. it’s being, we’ve had so many accidents with people have been killed</p> <p>69. and it’s all been innocent people.</p> <p>70. um, where the... these drag races are involved, the people who were killed</p> <p>71. were innocently driving in the road and they’ve have been collided with.</p>
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¹ Done from the ear – Afrikaans dialect

² s: Must come as a surprise to Deaf that IB is a public nuisance...

³ x: LH is doing what? Also has 1CL or U-CL...