FROM VOICE TO GESTURE: METHODOLOGICAL ASPECTS IN THE COMPILATION OF A TERMINOLOGICAL, TRI-LINGUAL, MULTIMODAL DICTIONARY

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1. Introduction

The First Forlì Conference on Interpreting Studies held in November 2000, highlighted the growing importance of community interpreting within the interpreting profession today (Garzone and Viezzi 2002: 296). Sign language interpreting falls within this context, and over the past ten years has gained greater recognition in Italy mirrored in research articles and a growing number of educational and training initiatives offered by both state and privately run institutions (see Amorini et al. 2000, Cameracanna and Franchi 1997, Carli et al. 2000, Gran and Kellett Bidoli 2000, 2001, Kellett Bidoli 2001, 2002, 2004a, 2005, forthcoming a, b, Stocchero 1995, Woll and Porcari Li Destri 1998). An Italian Sign Language (*Lingua dei Segni Italiana* - LIS¹) course was introduced at the Advanced School of Modern Languages for Interpreters and Translators (SSLMIT) of the University of Trieste in 1998 generating curiosity and enthusiastic participation among students, as well as several interesting graduate dissertations.

Over the past two years, a seemingly unrelated investigation has been conducted by several research units throughout Italy, within a MIUR COFIN national project entitled *Intercultural Discourse in Domain-specific English* coordinated by Professor M. Gotti², into how and to what extent the English language influences cultural and linguistic communication in contact with Italian. Among the research groups, Trieste has been represented within the University of Turin unit investigating *Intercultural Practices and Strategies of Textual Recasting* to verify whether the production/reception of written and oral English discourse within a number of different domains leads to a propensity for cultural and linguistic intrusion from English into Italian. Italian society includes a particular 'community of practice' within its confines, that of the

¹ Although LIS stands for *Lingua Italiana dei Segni* the Italian Deaf prefer to call it *Lingua dei Segni Italiana*. This is because the former version could imply that one is referring to a signed version of Italian rather than a sign language with its own rules of grammar adopted in a specific geographical area.

² See: http://www.unibg.it/cerlis/progetti.htm

Italian Deaf³ community, which was targeted by the Turin unit as a very particular area of interlinguistic/cultural contact to study.

Contact with the English-speaking world within the Italian Deaf community almost exclusively depends on written Italian sources: translated books and articles, subtitled films, Italian websites on British or American issues and press reports from English-speaking countries found in newspapers or on TV news which at set times of the day are delivered in simultaneous sign language (translated from the Italian bulletin) during brief news broadcasts on some TV channels (Kellett Bidoli 2004 a: 129). But direct contact between the Italian Deaf and English may occur on the Internet, during English language lessons at school or university (see Ochse 2001, 2004), during study abroad on cultural exchanges (Socrates, Erasmus or Fulbright Scholarships) or at public conferences on deaf issues in the presence of English native speakers. If necessary the Deaf may resort to help through specialized teaching assistance and/or the services of professional sign-language interpreters in all those instances of direct intercultural and interlinguistic interaction with the English-speaking world.

Until recently, the nature and extent of cross-cultural encounters between English and the Italian Deaf signing community had not been investigated. To this purpose a survey was conducted in 2003 among professional Italian signlanguage interpreters to determine the extent of English to LIS interpretation in Italy and discover which genres are commonly involved in order to better understand the market requirements of this specialized form of oral translation (Kellett Bidoli 2005). Data analysis revealed that interpreters with an active knowledge of English, who could if necessary mediate from English to LIS, are more numerous than expected, but interpretation is normally filtered through Italian; the source language (English) passes through Italian and is thus relayed from an aural/oral mode through headphones to the LIS interpreter who transfers the received message into a gestural/visual mode for the Deaf. Several genres emerged from the survey, the most common not within the context of community interpreting as might have been expected, but within conference interpreting in which a number of specific specialist fields were identified, and in particular the field of linguistics (conferences on various linguistic aspects of sign language).

After this first stage of investigation, four oral speeches in English (delivered by American native speakers) were subsequently selected, in the form of 115

³ It is an accepted convention in the literature to use "deaf" (with a lowercase "d") to refer to the audiological condition, while "Deaf" is used to refer to those deaf people who share a sign language and distinct cultural values.

minutes of video recordings taken in authentic conference settings⁴. The small corpus of speeches was composed of linguistics related topics containing 12,616 tokens of which there were 3,075 types. The speakers were video-recorded in small insets and a wide screen view of simultaneous interpretation into LIS provided a combination of multimodal parallel visual, oral/aural and gestural elements to analyse. The original video recordings in VHS were transformed into a digital corpus for electronic analysis of intercultural and interlinguistic features. Parallel corpora resulted in the form of:

- a written transcription in English of the original spoken discourses;
- transcribed glosses of the signs in LIS;
- a written 'interpreted' version in English of the signed corpus;
- a written 'interpreted' version in Italian of the signed corpus.

Detailed, contrastive, microtextual analysis was undertaken by aligning the parallel corpora to unveil intercultural and linguistic aspects of textual recasting during the mediation process from English to LIS. Alignment of the English and LIS transcriptions revealed evidence of disparity in the form of omissions and additions of information (from lexical items to whole chunks) leading to occasional instances of intercultural communicative failure through semantic misrepresentation or distortion. Detailed comparison of segments at microtextual level focussed on: word order asymmetries to detect syntactic anomalies; grammatical textual cohesion devices such as temporal succession, tense use and reference; substitution; intrusions; as well as lexical and cultural features of interest (see Kellett Bidoli forthcoming a and b). A few instances of cultural and linguistic intrusion from English were found but on the whole clear evidence emerged of awareness by the English-LIS interpreters of the need for adjustment during the mediation process to the specific linguistic and cultural traits of the target language.

The LIS corpus (composed of sign language glosses) was checked with the assistance of both a professional LIS interpreter and a deaf teacher of LIS. Several instances were found of unclear, ambiguous signing or even omission of technical phrases and lexical items related to linguistics. The perplexity and doubt experienced by the deaf expert made us wonder how much of the original

W.C. Stokoe, a paper on the evolution of sign language, presented at the First National Conference on Sign Language, *Studi, esperienze e ricerche sulla lingua dei segni in Italia*, ENS, Trieste 13-15 September 1995, published in Italian in Caselli and Corazza 1997; W.P. Isham, "Research on Interpreting with Signed Languages", C.J. Patrie, "Sequencing Instructional Materials in Interpreter Education", and B. Moser-Mercer, "The Acquisition of Interpreting Skills", all three papers presented at the International Conference "*Meeting of Sign and Voice*", University of Trieste, Trieste 12-13 December 1997, published in Gran and Kellett Bidoli 2000.

message reaches the Deaf end-user at a conference and sparked the idea that some form of didactic support could be developed for trainee interpreters to enhance their signing ability in this specialist field as well as bridge the gap between English and LIS.

During electronic analysis of the corpus, word counts, word frequencies and concordances were run of both the English and LIS (glosses) to detect lexical items related to the field in question and to determine language use and translation strategies in context. It was soon realized that this data could also be turned to good advantage to enable the compilation of the didactic support we were looking for, or rather, the compilation of a multimodal terminological data bank or glossary to be used by students. Hence, a pilot version of a trilingual terminological glossary of linguistics in English, Italian and LIS was produced in electronic format on CD-ROM to be used as a teaching aid targeted at interpreter trainees of LIS (Kellett Bidoli 2004b).

10 lexical items were initially selected to produce over 60 entries (including synonyms and cross-references) across the three languages, each accompanied by phonetic transcription in English, a definition, examples of usage in context selected from the concordances, linguistic comments and easily accessible images of signs illustrated singly or in signed sentences in context. This paper briefly discusses existing LIS dictionaries available to interpreters before passing on to methodological aspects encountered during the glossary compilation.

2. Italian Sign Language dictionaries

Traditional dictionaries are today increasingly based on large and diverse corpora of written and spoken text as their primary data source, providing lexicographers with a limitless tool to compile up-to-date core vocabulary as well as collecting less frequently used words. Because of the three dimensional, kinetic nature of sign languages and the frequent lack of word-to-sign equivalence, there are difficulties involved in representing, transcribing or simply illustrating them 'on paper', compared to oral languages that can be represented graphically through conventional alphabets more easily. Dictionary compilation of signed languages is extremely arduous and intricate as they are composed of individual signs that convey meaning predominantly through arm and hand movements but also through simultaneous non-manual features such as posture, eye movement, gaze, head, lip and shoulder movements and much varied facial expression. Each sign is distinguished from another through four universally recognized parameters: handshape, palm orientation, movement and location. Generally, in traditional sign language paper-based dictionaries, each entry consists in a rudimentary sketch or photograph of a signer waist up, with

arrows indicating movement, and transcription graphics chosen from one of the numerous notation systems that have been devised added below. A gloss of the meaning or nearest equivalent in spoken language is offered, but to the untrained eye, the whole resembles a mix of indecipherable Roman letters, numbers and abstract symbols. The average dimension of each static illustration is approximately 4x4 cm, which leads to a serious limitation in the number of signs presented per page, which is further reflected in the overall limited volume of entries offered in most printed sign language dictionaries. To further complicate matters, just as in spoken languages, compounds exist in sign languages, composed of more than one sign representing a single referent or concept. For example, in LIS the term 'intelligent' is composed of the signs 'HEAD+YES' in quick succession, requiring a more complex graphic representation because the four parameters of each of these signs differ. The parameters in some compounds may differ so much that arm and hand positions may have to be duplicated or triplicated in staggered stages in the same sketch (Radutzky 1992: 33). Therefore, because of the combined difficulties of graphic representation and space, the average size of sign language paper-based dictionaries is restricted and hence, of generic nature (Angelini et al. 1991, Magarotto 1995, Radutzky 1992, Romeo 1991). They are certainly of considerable use to students learning basic sign language, but of little help to the interpreter grappling with conference papers on topics such as: The role of bilingualism (words and signs) in the teaching of mathematics to deaf school children or Speech therapy as an aid to cognitive development in deaf infants.

Specialist dictionaries and glossaries in LIS are lacking. The reason for this is that sign language evolves at home and in clubs where non-technical everyday 'vocabulary' is used to discuss daily events. At work, deaf people find themselves isolated in a hearing environment and are thus obliged to communicate through speech and lip-reading. They may have access to specialized terminology for their job but they rarely need to use it when signing outside the workplace. Therefore, signs do not evolve and spread rapidly through the Deaf community to describe technical language during signed 'conversation'. Indeed, standard signs may not exist in LIS for numerous technical and complex terms found in spoken Italian or English. Interpreters may be hard-pushed to find an adequate solution to express an unfamiliar Italian term by joining together existing signs or inventing a new one. Newly coined signs will only catch on and be repeated in future if they are transparent enough to convey meaning to the Deaf and if frequently used by other interpreters. Often 'technical' signs differ in their configuration from one interpreter to another causing perplexity among the Deaf, as was discovered on analysing the corpus of conference speeches. Only one dictionary of specialized nature is known to the author containing religious lexis (Puricelli et al. 1993).

Today the problems of graphic representation and space can be overcome thanks to computer technology and the widespread adoption of alternative media such as CD-ROMs and DVDs to provide dynamic images of signs together with superimposed written information or hypertextual links. Electronic dictionaries of this kind have started to make an appearance in Italy, such as *Dizionario mimico gestuale* (Pignotti 1997) and *Dizionario Italiano/LIS* (Piccola Cooperativa Sociale "Alba" 2003).

Advantages in using an electronic format in this particular tri-lingual spoken signed combination are evident:

- the possibility to include dynamic illustration of sign language terminology and its exemplification in context as opposed to its static representation in paper-based dictionaries;
- the speed of instant access through hyperlinks to translation equivalents and related terms, versus turning over numerous printed pages;
- unlimited space to provide definitions and examples which are normally lacking in multilingual paper-based specialized dictionaries (Bowker 2003: 159): often only headwords and their multilingual equivalents are listed;
- graphics can be varied and made more interesting through the use of colour, insets and numerous creative visual as well as acoustic devices.

Video and/or CD-ROMs are an ideal, innovative media for conveying sign languages or any didactic support materials for the training of sign language interpreters.

3. Tri-lingual multimodal electronic glossary compilation

The basic starting point of the English-Italian-LIS glossary was a breakdown of the 12,616 tokens obtained from the linguistics corpus. As the corpus is a very small one it was not too problematic to visually scan the list to eliminate the most frequently used words in English which, as expected, were: the definite and indefinite articles, and, to, that, is, pronouns and prepositions; of no use for the purpose of this particular glossary.

Different styles of interpreter signing were apparent during observation of the videos and highlighted by the 'word count' of the LIS glosses. In one interpretation the use of the 'c'è' sign (there is), a common LIS sign, resulted as being the most frequently used. It occurred disproportionately 113 times compared to 55, 28, and 19 in the other three interpretations. Also 'ma' (but) was found to be the third most frequent sign used by an interpreter (28 occurrences compared to 14,13 and 13). The mouthed "pà, pà, pà" and accompanying hand gesture (parallel divided vertical palms) - which is a deictic marker that changes meaning according to context, often meaning 'thus', 'done this way', 'set out this way', 'so, so, so' - was the most frequently used sign in

the rendering of the Patrie speech with 51 occurrences compared to 3 in the Stokoe discourse and none in the others. However, in contrast to the other texts the Patrie text, on sequencing of interpreter teaching materials, did call for a means to transfer the idea of 'things' (texts, exercises, skills etc.) being presented in temporal succession; not such a necessary requirement in the other interpretations, for example:

"pà, pà, pà"

MATERIAL ACTIVITY TEACHER MUST ORDER IMPORTANT.

Interpreted as: A teacher has to sequence teaching materials and activities in an orderly manner.

However, the aim of this particular glossary is to offer a selection of English technical entries within the subject field of linguistics (from the subfields of sign language and interpretation) in the conference setting and render them in Italian and LIS. Thus, almost 300 lemmata were accordingly selected from the 3,075 types and concordances run for each using *Wordsmith Tools*. It was decided to produce a pilot version of the glossary in electronic format on CD-ROM to test it before compiling a full version (Kellett Bidoli 2004b). Only 10 English lemmata out of the 300 were selected that are commonly used in discourses on spoken and/or signed interpretation and language:

chunk fingerspell
classifier gesture
consecutive interpret
décalage language
field negation

which were extended to 27 items through the addition of synonyms and related terms:

chunk (verb) - chunk (noun).

classifier

consecutive (noun) - consecutive (adjective), consecutive interpretation, consecutively.

décalage - ear-voice span, lag, lag time.

field

fingerspell - fingerspelling.

gesture (noun) - gesture (verb).

interpret - interpretation, interpreter, interpreter education, interpreter training, interpreting, interpreting booth, booth.

language negation

The glossary was initially compiled as an 18-page Microsoft Word document before transfer into hypertextual format. An application in HTML was chosen to use a 'cross-browser' approach that permits access to the glossary through a wide choice of browsers and operative systems. Once the document in Word was transferred into hypertext the contents were split up into 87 separate HTML pages, all generated from the original 10 lemmata apart from 6 pages including the title, indices etc.

To view the CD-ROM one starts from a main menu by clicking on one of the following options:

<u>Premessa</u> (front matter or foreword in Italian, containing background information on the research project and its aims, followed by a bibliography) <u>Indice dei termini in inglese</u> (index of English terms) <u>Indice dei termini in italiano</u> (index of Italian terms) <u>Indice delle glosse in LIS</u> (index of LIS glosses).

A semasiological approach, which seems to be the dominant ordering in thesauri and dictionaries containing the specialized terminology of language for special purposes (LSP) was chosen, leading to an alphabetical ordering of the three separate indices. However, during initial compilation in Word format, headwords and corresponding articles in each of the three languages were ordered vertically and alphabetically irrespective of language. It was only through colour coding that the languages could be quickly, visually identified during compilation. On the pilot CD-ROM version after each headword, the corresponding 'clickable' equivalents in Italian and LIS are also colour coded. In the following example there are three monochrome articles for the lemma fingerspell. Where the word IMMAGINE (image) is located, the trainee interpreter can find an icon on which to click in order to obtain a dynamic image of the correctly signed lexical item, or a fully signed version of the example provided below the definition, in order to learn correct word order sequences and collocations that more often than not differ from English or Italian:

INGLESE

fingerspell verb ['finge spel-finger spel] eseguire in dattilologia eseguire in dattilologia

The use of the manual alphabet to spell out unfamiliar proper names and terms.

They fingerspelled for half an hour to practise word recognition, which is the single most difficult thing for sign language learners.

Note: Past tense and past participle: 'fingerspelled' or 'fingerspelt' (mainly in British English).

ITALIANO

eseguire in dattilologia sintagma verbale <u>fingerspell eseguire in dattilologia</u> Utilizzare l'alfabeto manuale per indicare l'ortografia di nomi propri o di termini non familiari.

Una delle cose più difficili da imparare per gli studenti della lingua dei segni è eseguire esercizi di dattilologia.

LIS

eseguire in dattilologia eseguire in dattilologia fingerspell

Utilizzare l'alfabeto manuale per indicare l'ortografia di nomi propri o di termini non familiari. IMMAGINE

Una delle cose più difficili da imparare per gli studenti della lingua dei segni è eseguire esercizi di dattilologia. <u>IMMAGINE</u>

Nota: Nella LIS per segnare **ESEGUIRE** si muove il braccio per arrivare allo spazio del segno **DATTILOLOGIA**.

Each article is headed by a main lemma (originally selected from the English corpus) followed by its syntactic category in English and Italian but not in LIS, as signs are often not the equivalent of single words but may often convey concepts expressed by whole phrases in spoken language. Abbreviations were avoided given the space a CD-ROM offers. Thus all abbreviations are made explicit with no need for an explanatory list.

Phonetic data is provided through phonetic transcription of the English lemmata in the International Phonetic Alphabet, first in British English followed by any American variant on the right where applicable. Computers permit the insertion of sound clips of the correctly pronounced lexical items, which can be accessed by the user through a click of the mouse on the phonetic spelling. Though not included in the pilot sample of the glossary, it is planned to make

sound recordings available in British and American English in the full version. Phonetic information on the Italian was deemed superfluous as the end users of the glossary are intended to be native speakers of Italian: Italian, hearing, interpreter trainees.

Following on from the phonetic data are bi-lingual translation equivalents of the headword, which are distinguished by colour. Though there may seem to be no difference between the Italian and LIS equivalents, by clicking on one or the other, bi-directional access can be obtained to separate articles which have the same definitions and examples but different notes, and the addition of imagery in the case of the LIS articles. The glossary is tri-directional, in that starting from an index or entry article in any of the three languages one can access information in the other two.

Next there follows a sentential definition of the headword to conceptually describe its individual denotational meaning in the context of linguistics, in as short, simple and unambiguous manner as possible.

Exemplification in context was obtained from concordances run to show all occurrences in the corpus for each lexical item as illustrated in the extract of concordances for **field** below:

rpreters but really its, it tries to be very comprehensive of the sign language **field** and it is pretty comprehensive. So I recommend that you get it. As I menti

e of scope that is an overview of research from fields other than my particular **field**. I also used um, availability in some of the choices I made, papers that I

've cited are either from the spoken language field, or not in the interpreting **field**, linguistics or psychology. So we're really very behind in research, there

ow what could we do to use this new language? Two important developments in our **field** of interest are, first recognizing that all children communicate gesturall

search that there is little to begin with. We are all kind of beginners in this **field** of research of interpreting and the quality is uneven. However, I think th

semiotics and writes well about it. It's of course the scientific discipline or **field** of study that considers signs generally, most generally. Thus, in semiotic.

The concordances provided a wide choice of examples, often several pages long, which led to the difficult task of selecting only one or two of the most representative and interesting.

Cross-reference entries (synonyms, related terms, compounds and derivations of interest) are included as separate text pages, sometimes without a complete entry, but guide the user to a headword with a complete one. For example:

INGLESE

consecutive interpretation noun/uncountable $[k \leftrightarrow n \text{ sekutIv In } t \text{ pr} \pm te \Sigma \leftrightarrow n]$ interpretazione consecutiva interpretazione consecutiva See: consecutive (noun)

Concordances revealed patterns of language usage, which led to the compilation of notes providing information on spelling variants and linguistic or semantic features of interest to interpreters. For example in the case of the head word **language** there are four separate observations noted:

Note:

- In Italian there are two separate terms for the above definitions: 1) *lingua* and 2) *linguaggio*. Also in LIS there two different signs;
- frequently related pre-modifiers are: A -, American sign -, B -, British sign -, conventional -, first -, gestural -, Italian sign -, local -, political -, real -, second -, sign -, signed -, source -, speech-based -, spoken -, target -, working -;
- frequently related verbs: to acquire, to adopt, to check, to define, to find out about, to go between two, to hear, to interpret, to listen to, to produce, to see, to sign, to shadow, to speak, to talk about, to test, to use, to work into, to work from, to write about;
- related expressions: language acquisition, language competence, language experience, language field, language interpreters.

The dynamic images provided by a deaf signer (a teacher of LIS) and inserted in the LIS text frames, were filmed with a digital camera in a naturally illuminated classroom. He wore dark cloths to contrast with the white wall behind him to highlight his signing. For each entry in LIS he signed the headword and then the full example. Each headword and example were

numbered and during filming separated by a rudimentary clapper board (small blackboard and chalk) to enable the spliced segments to be correctly positioned in the glossary. The 'clapper board' was invaluable as often several takes were made for each item to be filmed. Problems included false starts, loss of memory while signing long or more complex examples, signs that were too wide, high up or low down that exited the film frame and the author's elbow or arm that occasionally invaded the screen while juggling with the tools of the trade between each take: blackboard, chalk, duster and a large font size list of the terms and examples to be filmed. This list, contrary to plans, could not be used as a prompt during the filming, because it diverted the signer's gaze laterally instead of straight at the camera. Hence the signer's mnemonic capacity was occasionally stretched to the limit.

The methodology described above is essentially straightforward and simple and can be applied to any terminological dictionary including a signed language once a subject field has been identified and the lexis collected. Multilingual transcription of the original corpus was by far the most time consuming and arduous phase of the research (Kellett Bidoli forthcoming a).

4. Conclusion

Interpreters and translators alike rely on general and terminological dictionaries (specialist glossaries) for their work, and trainees even more so, lacking the years of experience that build up an expert's individual, subconsciously assimilated, lexical and world knowledge. Interpreters need so-called active or production-oriented dictionaries, those that provide translation equivalents in context in languages other than one's mother tongue.

Dictionaries other than general-purpose dictionaries in the Italian-LIS language combination are lacking in the area of LSP. The technical problems involved in the compilation of paper-based LIS dictionaries, which must convey linguistic information about a gestural three-dimensional language in two-dimensional format, are being overcome by the advent of the electronic dictionary through the application of sophisticated computer technology which has opened the way to a revolutionary means of processing and representing multimodal data. Any such electronic audio-visual support in this direction would be an invaluable aid for anyone involved in sign language interpreter training, not only from Italian to LIS, the common interpreting directionality in Italy, but also from English to LIS in view of the unceasing spread of English as an international language of communication or in other spoken language combinations. Trainee interpreters need stimulating material abreast of our technological times. When in doubt as to the semantic meaning of a word or sign, when in need of correct pronunciation or when tormented by polysemic

equivalence, they need swift access to dictionaries based on the real language of native speakers and signers.

Computer corpora provide a huge quantity of written or spoken material for lexicographers to process and interpreters to use, but also an incredible speed with which to select and sort lexical items compared to the card archives of the past. Corpus data once analysed and selected for the compilation of dictionaries, thesauri and glossaries can now be stored and presented on line, on CD-ROM or DVD, which provide limitless space and technological wizardry in the form of hyperlinks, acoustic, and visual features.

Corpus analysis of interpreted discourse in specialist subject fields is expected to yield a wealth of intercultural/linguistic features, that commonly emerge during interpretation from English to LIS. It is hoped that such findings will lead to the future compilation of invaluable, terminological, didactic tools in multimodal format for the training of future interpreters of sign language.

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