

**Referential choice by native speakers and
learners of Japanese**

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**A thesis submitted in partial fulfilment of the requirements for the
degree of Master of Arts of the Australian National University.**

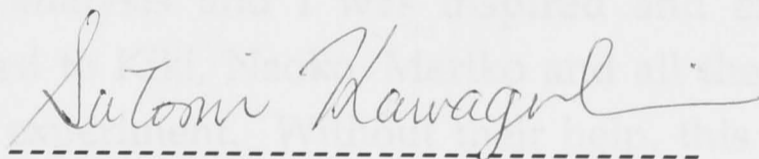
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Acknowledgments

Declaration

I am indebted to many people for their help and support in completing my work. Firstly, I would like to thank my supervisor, Professor Manfred Pongratz, for his direction, available comments and constant encouragement. He helped me to find the topic of the thesis in the first place and guided me into the fascinating world of second language acquisition. I received many ideas while I was undertaking course work in 1994 and had many discussions with him. He was very helpful and his support was indispensable. I am also deeply indebted to Ms Kirsten Huter who permitted me to quote some of her unpublished results on the developmental stages of FL. She also gave a lot of critical comments on my work and I was inspired and encouraged. My gratitude extends to all informants who participated in my work. Without their help, my work would not exist. I would also like to thank my friend, Lisa Smith, who proof-read my work patiently. Last but not least, I would like to thank my parents who gave me an opportunity to study at the A.N.U. The support and encouragement from everyone around me has enabled me to complete this work without losing my sanity.

This thesis contains the results of an original investigation, except where otherwise indicated, and has not been submitted for publication or examination at this, or any other, university.



Satomi Kawaguchi

This work was carried out while I was in receipt of a A.N.U. Master Scholarship.

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I am indebted to many people for their help and support in completing my work. Firstly, I would like to thank Professor Manfred Pienemann, my supervisor, for his direction, invaluable comments and constant encouragement. He helped me to find the topic of the thesis in the first place and guided me into the fascinating world of second language acquisition. I treasure meeting him while I was undertaking course work in 1994 and feel privileged to have been able to work under his supervision. My thanks also goes to Dr. Anthony Liddicoat, my second supervisor, who helped me throughout the year by reading everything I wrote and giving me precious advice. I also wish to thank Dr. Masa Oonishi who gave me precious advise about syntax of Japanese. The staff of the Department of Modern European Languages were very supportive and their assistance was indispensable. I am also deeply indebted to Ms Kirsten Huter who permitted me to quote some of her unpublished results on the developmental stages of JSL. She also gave a lot of critical comments on my analysis and I was inspired and encouraged. My gratitude is extended to Kiki, Naoko, Mariko and all the informants who participated in my experiment. Without their help, this work would not exist. I would also like to thank my friend, Jennie Smith, who proof-read my work patiently. Lastly, I am grateful to my parents who gave me an opportunity to study at the A.N.U. The support and encouragement from everyone around me has enabled me to complete this work without losing my sanity.

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Abbreviations used in text

COS	canonical order strategy
CT	caretakers talk
FT	foreigner talk
GSL	German as a second language
IFS	initialization-finalization strategy
IL	Interlanguage
JSL	Japanese as a second language
NNS	non-native speakers
NS	native speakers
SCS	subordinate clause strategy
SLA	second language acquisition

Abbreviations used in glossing

EP	emphasis particle
P	particle
OBJ	object
SUBJ	subject

Abbreviation used in statistics

df	degree of freedom
p	probability level

Transcription Conventions

=	contiguous utterances
-	a short untimed pause
(0.0)	intervals within and between utterances
.	a stopping fall in tone, not necessarily the end of a sentence
,	continuing intonation, not necessarily between clauses of sentences
?	a rising inflection, not necessarily a question
!	an animated tone, not necessarily an exclamation
<u>xxxx</u>	emphasis is indicated by underlining
hh	audible aspirations
.hh	breath in
hh.	breath out
(())	description of some phenomena eg. ((cough)) ((laugh))
()	items enclosed within single parentheses are in doubt

Symbols used in the transcription

∅	ellipsis
*	following sentence is ungrammatical

TABLE OF CONTENTS

ACKNOWLEDGMENTS

ABBREVIATIONS

ABSTRACT 1

CHAPTER 1: LINGUISTIC SIMPLIFICATION AND SLA

- 1-1 What is simplification in SLA? 2
- 1-2 Who uses simplified register? 3
- 1-3 Is simplification by NS and NNS the same? 3
- 1-4 Why is the notion of simplification important to understand SLA? 4
- 1-5 How is simplification measured? 5
- 1-6 Simplification and referential management 7

CHAPTER 2: THEORETICAL BACKGROUND

- 2-1 Referential choice in language
 - 2-1-1 Universal principles of referential choice 9
 - 2-1-2 Language specific rules for referential choice 11
 - 2-1-3 The function of pronouns and ellipsis 12
- 2-2 Nominal ellipsis in Japanese discourse
 - 2-2-1 The definition of ellipsis 13
 - 2-2-2 Characteristics of nominal ellipsis in Japanese 15
- 2-3 Referential management in SLA
 - 2-3-1 Referential management in German and English as second languages 20
 - 2-3-2 Referential management in Japanese as a second language 20
 - 2-3-3 Referential choice in NS-NS interaction in Japanese 21
- 2-4 Memory capacity and referential choice 25
- 2-5 Two approaches for referential management 28
- 2-6 Stages of second language acquisition
 - 2-6-1 Task variation and interlanguage performance 30
 - 2-6-2 The ZISA group's developmental model and

Clahsen's processing strategies	31
2-7 Rough sketch of Japanese syntax	34
2-8 Acquisition stages in Japanese	42

CHAPTER 3: EXPERIMENTAL DESIGN

3-1 The aim of the study	44
3-2 Hypotheses	45
3-3 The informants	47
3-4 Task	48
3-5 Taping sessions and recording equipment	50
3-6 Romanisation	50
3-7 Method of data analysis	50

CHAPTER 4: RESULTS AND DISCUSSION

4-1 Developmental stages of learners	56
4-2 Overview of results	61
4-3 Overview of NNS's performance	63
4-4 Potential ambiguity and referential choice	
4-4-1 Full noun	64
4-4-2 Ellipsis	73
4-4-3 Potential ambiguity and referential choice in SLA	77
4-4-4 Summary of potential ambiguity	80
4-5 Distance	82
4-5-1 Results for distance using three tasks	82
4-5-2 Results for distance with picture sequence task	89
4-6 Episode/paragraph boundaries	92
4-7 Summary of referential choice in JSL	102

CHAPTER 5: CONCLUSION

5-1 Summary of research questions	111
5-2 Summary of the major findings of the study	
5-2-1 Referential choice in FT in Japanese	112
5-2-2 Referential choice in JSL	113
5-3 Discussion	115

BIBLIOGRAPHY

ABSTRACT

This study into referential choice by native speakers and learners of Japanese has revealed some significant features in three different types of speech: 1) NS (native speakers) -NS interaction, 2) FT (foreigner talk) and; 3) NNS's (non native speakers') speech production. Both NS in FT and NNS simplified the referential choice (ie. the use of full noun and ellipsis as referential forms). The study, however, provides some evidence to support the thesis that the development of referential management by NNS correlates to the development of their syntactic acquisition. This experiment was conducted to discover the underlying mechanism for referential choice. The procedure is based on the recency/distance approach and the episode/paragraph approach, which were firstly developed by Givón (1983) and Tomlin (1987) respectively. The result indicated that the potential ambiguity and the episode/paragraph boundaries affected the referential choice both for NS and NNS of Japanese. Excessive use of both full nouns and ellipsis were observed in NNS's speech, however only excessive use of full nouns was observed in FT. This may be explained in terms of the different underlying mechanisms of referential choice by NS and NNS: different cognitive orientations for the use of two principles: 1) clarity principle; and 2) information economy principle (Williams: 1988). Furthermore, the development of use of full nouns and ellipsis by NNS went through different paths in accordance with their syntactic development.

CHAPTER 1

LINGUISTIC SIMPLIFICATION AND SLA

1-1 What is simplification in SLA ?

Linguistic simplification, such as the absence of obligatory elements in a sentence, is a common phenomenon in second language acquisition (SLA) discourse. It has been well reported that such features of simplification exist similarly within English, German, French and Finish (Meisel, 1980, 1983). The most plausible interpretation for the use of a simplified register by a language learner is that it is one of their strategies to achieve optimal communication with limited knowledge of a given language. Examples of typical simplified features reported are: the use of free morphemes to replace inflectional morphemes; the elimination of redundant morphology; the lack of any kind of movement rules; a reduced lexicon; reduplication; the absence of functional words; and a preference for topic comment order (Larsen-Freeman and Long 1991).

The sentence,

* I met \emptyset man

is an example of simplification which is widely observed in non-native speakers' speech production where an obligatory element, an article, is absent. Another example of simplification is,

* He speak English

where the verb suffix "-s" for third person-singular is omitted.

The most prominent features of language learners' simplification are the absence of copulas and elements in sentences expressing directionality. Pienemann (1980) suggests the motivation for leaving out these sentential elements is "semantic redundancy". For example, in the sentence "I went to Japan", three elements, "went", "to" and "Japan"

indicate direction. The omission of "went" and/or "Japan" will lead to loss of meaning, but "to" itself does not have meaning and is a multiple marking of semantic relations, accordingly, omission, *"I went Japan" does not lead to communication break down. Non-native speakers (NNS), therefore, are likely to leave "to" out of the sentence.

1-2 Who uses simplified register ?

Simplification is not a feature specific to language learners. It is widely observed in pidgin in NNS-NNS conversational interaction. Further, it is also seen in native speakers' (NS) speech adjustment: when NS speak to NNS; when NS speak to babies. The former is called foreigner talk (FT) and the latter, caretakers talk (CT), motherese or baby talk. Thus, simplified register is observed both when people with limited knowledge of a given language communicate with others (language learners and pidgin) and when NS speak to those who are assumed not to have a full competence of a given language (FT and CT). In short, linguistic simplification takes place to achieve effective communication when people without full knowledge of a given language are involved in the interaction.

When a speaker feels it is necessary to simplify one's language seemed to be universal regardless of the different types of simplification (Blum-Kulka 1983, Meisel 1980). It is because, as many studies have suggested (Larsen-Freeman and Long 1991, Schumann 1978a in Larsen-Freeman and Long 1991, etc.), all simplifications arise from universal principles.

1-3 Is simplification by NS and NNS the same ?

Ferguson (1971) termed NS's conversational adjustment for NNS as "foreigner talk" (FT) and there has been much research reporting the findings of the NS's reduced or "simplified" variety of language in their FT. Typical FT features include the use of shorter utterances, lower syntactic complexity, and avoidance of low frequency lexical items (Long 1983).

The question, then, arises: is linguistic simplification by NS and by NNS the same? It seems they are not the same because, generally speaking, only NNS's speech involves errors such as omission of obligatory

elements, expansion by adding redundant elements, or replacement or rearrangement of elements such that similar meaning is conveyed in a different sentence construction.

Meisel (1980) suggested that simplification in FT and language learners' discourse is similar in its features but that they are different in nature: there are two kinds of simplification: "restrictive simplification which facilitates the use of the acquired grammatical system and elaborative simplification which prepares the next step on the learner's way toward the target variety of second language (L2)" (Meisel 1980: 13). Both types of simplification are seen in SLA discourse but only the latter is observed in FT.

Meisel (1980) claimed the different nature of simplification in NNS's speech and in NS's FT is due to different psychological processes: language learners' simplification is a result of the strategies aiming at optimal communication within the limited knowledge of a given language; NS's FT, by contrast, is a linguistic and conversational adjustment to increase the comprehensibility of what the NS is saying (Long 1982). NS modify their language toward NNS because they attempt to lighten the NNS's interactional burden by avoiding conversational trouble and repairing the discourse when trouble occurs (Long 1981). Simplification also provides easier access to comprehensible input resulting in effective communication and leading to successful language acquisition (Chaudron 1978 in Long 1982).

Schumann (1978) claimed that simplification, whether by NS or NNS, arises from the sociolinguistic and psychological distance between the learner or the member of a particular group and mature speakers of the target language. Thus, simplification in SLA is the result of a psychological process rather than the result of compromised production of NS and NNS's interaction (Meisel 1980, 1983).

1-4 Why is the notion of simplification important to understand SLA ?

If it is true that the feature of a simplified register is similar across languages because the process of simplification is based on a universal operating system, why do errors occur with NNS's simplified speech

production but not in the user of FT? How do NS know that the omission of particular elements will not lead to a grammatical error? Is it simply because of a different grammatical knowledge for a given language, or a different understanding concerning which elements can be left out without resulting in communication break down?

Although comprehensive studies have discussed what is simplified and why simplification takes place (Meisel 1980, Schuman 1978 for pidgin, Blum-Kulka for lexical simplification, Long 1982 in FT), there is still no satisfactory answer as to exactly how simplification is performed by both NS and NNS, and whether it truly facilitates communication. In addition, how simplification and its underlying principles differs between NS and NNS, and amongst NNS in different language developmental stages has to be answered. Further, if it is true, as Meisel (1980) described, that NNS do both restrictive simplification and elaborate simplification whereas NS do only elaborate simplification, why this happens has to be answered. To do so, an analysis of the mechanism which underlies the omission process by NS and NNS is indispensable.

If all the above questions are answered and they reveal the underlying system of the simplification principles employed, a better understanding of SLA will be achieved: do learners and mature speakers of a language have the same system for simplification based upon a universal principle? If not, what is the origin of these differing systems? What causes learners to simplify the language in an ungrammatical way, is it because of language-specific constraints or the difficulty of language processing? Even though learners' simplification is sometimes ungrammatical, it appears to be systematic: the omission of particular elements such as article, preposition and copula, derivational simplification, etc. An examination of the system employed is important for a complete understanding of SLA and for possible teaching applications.

1-5 How is simplification measured ?

The notion of simplification is complicated and it is hard to define its criteria. According to Meisel (1980), there are various kinds of linguistic simplification and each simplification has its own criteria. Simplification of surface structure, for instance, is measured by the number of elements

in the surface structure and simplification of this kind is achieved by supplying fewer elements. The criteria for derivational simplification is the number of rules applied to construct the sentence. "Introduction by additional rules may result in more explicit and therefore simpler constructions" (Meisel 1980: 15). Psychological simplification is defined from the point of language processing time and memory capacity.

Therefore, simplification does not always function to reduce complexity of surface structure and it may, in fact, lead to an increase in complexity resulting from learners' overgeneralisation by introducing additional rules. Although Blum-Kulka and Levenston (1983) claimed that simplification is "the result of making do with less words", there are cases where additional elements are added to make more explicit constructions. **"He will goes to Tokyo"* is one example of this kind where the verb "go" is marked for third-person-singular even after the auxiliary. In this case, the morphological complexity increases due to the overgeneralisation of derivational rule. In this sense, the above utterance is the cognitively more redundant speech. Accordingly, simplification is not explained by simply measuring the reduced elements in the surface structure because it may be achieved by simplifying either the underlying structure or the psychological structure.

Meisel (1980) suggested that simplification, regardless of whether elements are omitted or introduced, is one of the strategies employed by both native speakers and language learners in their interlocution, and results from a common psychological process. That is, simplification occurs through the psychological process of seeking effective communication when the person with limited knowledge of a given language is involved: native speakers attempt to facilitate communication by using a simplified register hoping that it is beneficial to language learners; language learners use a simplified register seeking optimal communication with limited knowledge of the language and limited time for speech production. In short, the simplified register is the product of restricted function which does not lead to communication break down. Accordingly, the simplified register is the manifestation of cognitive processes reducing psychological complexity. Thus, simplification is the result of psychological process and, therefore, it should be measured in the light of psychological complexity but not by

surface complexity. By psychological complexity it means information processing (such as time and memory capacity) for the speech production.

1-6 Simplification and referential management

Simplification with the selection of referential form is commonly observed in SLA and FT. When we describe an entity or a person, there are several ways to mention the reference. The possible referential form for "Chopin", for instance, is as follows.

- (1) Chopin who was a famous composer in the 19th century
- (2) Chopin
- (3) that person / the man
- (4) he
- (5) \emptyset (as in: Chopin was born in the 19th century and \emptyset composed a lot of piano concertos.)

(1) is a NP plus description, (2) is a NP alone, (3) are non specific NP, (4) is a pronoun and (5) is ellipsis. The selection of referential form is conditioned not only by the syntax of the sentence in which the reference appears but also by discourse context.

The acquisition of competence of referential management in dynamic discourse production is an important issue in SLA. Tomlin (1990) investigated the use of referential forms by ESL learners and NS of English and he identified that ELS learners' referential choice was different from that of NS of English: the use of nominals is dominant throughout discourse in ESL speech, whereas nominals and pronouns were alternated by NS of English.

Williams (1988) also provided evidence to show the use of zero-anaphora (ie, ellipsis) between NS and NNS differed significantly both quantitatively and qualitatively. Furthermore, Hills (1986) reported that subject-pronoun omission is widely observed in SLA, but the omission occurred more frequently in earlier stages of language acquisition and the feature decreased gradually.

Further, Onaha (1987) claimed that the use of referential forms seen in NS's speech to NNS is different from that used by language learners in

Japanese. The results of her empirical study of Japanese showed less frequent ellipsis of the particle and nominal occurred in FT than in NS-NS interaction.

The speaker's choice of referential form, especially the psychological measure of coreference largely depends on cognitive processes as described in the following chapter. Accordingly, the simplification of referential choice is assumed to involve the reduction of psychological complexity (ie. the reduction of information processing). Therefore, it is interesting to know what cognitive processes reflect decision on the syntactic form of reference and how it differs between NS-NS interaction and the simplified register (ie. language learners' speech and FT). The analysis of referential management in such speech could provide some explanation of the underlying system of simplification which may in turn provide an explanation for NNS's deviation (ie. how the system of simplification differs between NNS and NS).

In my study, the system and underlying process of linguistic and cognitive simplification of referential management in Japanese is examined. Both language learners' speech and NS's speech adjustments for NNS are analysed to discover the similarities and differences. Further, the development of referential management by language learners is investigated for a better understanding of SLA.

CHAPTER 2

THEORETICAL BACKGROUND

In this chapter, I would like to discuss the theoretical background to my research. Linguistic simplification is observed both in NNS's and NS's speech and the discovery of differences within the system of simplification by these speakers will facilitate understanding of SLA. The simplification of referential choice, which is the manifestation of the speaker's cognitive information processing, has been widely reported in SLA studies. The simplification of referential choice occurs to reduce the psychological complexity of coreferential retrieval. It is interesting to investigate whether there is a relation between the simplification of referential choice (ie. psychological complexity) and second language learners' developmental stages (ie. syntactic complexity). The developmental stage of a given learner is decided by his/her syntactic complexity of speech production (Pienemann 1980; Pienemann and Johnston 1987). Accordingly, the investigation of referential choice will reveal the influence of syntactic development of language learners' on his/her ability to deal with psychological complexity.

2-1 Referential choice in language

2-1-1 Universal principles of referential choice

The selection of the referential form of an entity or a person (ie. nominal NP, pronominal NP or ellipsis) in dynamic discourse production is complicated and little is understood regarding how people make this selection. Referential choice does not only depend on the syntax of the given language, it also largely depends on the various contextual factors such as whether the information is new or already given, and on cognitive constraints, such as limited capacity of working memory; how

long the distance is between the referent and its antecedent and how many competitive items co-exist in the current working memory.

Hinds' (1977, 1982) investigation for the selection of references suggested that referential choice is not optional. Chafe (1976) suggested a universal constraint regarding referential management where "given information" is presented in a "weaker manner" than "new information" in all languages. The "weaker manner" signifies weaker stress, pronominalisation or ellipsis through which the reference is not mentioned explicitly. This, according to Chafe, is because the speaker has to activate or reactivate the hearer's consciousness to introduce the new information, whereas the speaker does not have to do so to continue to maintain already established information. The speaker is able to assume that the hearer already knows the reference.

Thus referential choice is universal where new information is referred to in explicit form to activate the hearer's consciousness and the given information in inexplicit form to maintain the same referent. This can be explained in terms of lexical redundancy. Viewing language as a means of communication, it is natural for speakers to bypass the redundant elements in their utterance according to the "principle of information economy" (Pienemann 1993). That is as long as this reduction does not accompany a loss of meaning leading to communication break down. Accordingly, the use of inexplicit referential forms is preferred to avoid the repetition of the explicit referent which has already been given to the hearer. Pronominalisation and ellipsis are devices used to achieve this sort of "principle of information economy".

Thus the referential choice of the speaker is listener-oriented (Clancy 1980). The counter examples of this are children's "egoistic speech" (Piaget 1955) and adults' "inner speech" (Vygotsky 1962): in children's narratives and/or explanations, extensive use of pronouns is observed even when the antecedent is ambiguous; the omission of predicate arguments is common with adults' inner talk. These types of speech are speaker-oriented where speakers are more or less talking to themselves. Except for the above two types of speech production, referential choice is based on the speaker's assumptions about the listener's current knowledge of the reference.

2-1-2 Language specific rules for referential choice

Although referential choice, whether explicit form or inexplicit form, is universal, the referential system is language specific. The realisation of the inexplicit form of the reference is a lexical pronoun in languages such as English, French and German, and is ellipsis in languages such as Spanish, Italian, Japanese and Mandarin.

Taraldsen (1978) proposed that the omitted arguments are realised by inflectional morphology, especially in the agreement system. He argues that zero-pronouns (ie. ellipsis) are possible when the language has a rich agreement system because the reference of the zero-pronouns is recoverable from the morphemes in the sentence. For example, in Spanish, subject omission is quite free. As can be seen below the verb has a full agreement system and the form of the verb changes according to the subject. Therefore the subject is clear from the linguistic environment and, accordingly, Spanish speakers do not need to express the subject explicitly.

(Spanish)	hablo	"I talk"
	hablas	"you talk" (sing.)
	habla	"he/she/it talks"
	hablamos	"we talk"
	hablais	"you talk" (pl.)
	hablan	"they talk"

Andrews (1994) argued that the agreement marker functions in a similar way to the pronoun in Spanish, and that the person and number of the subject is recovered from the agreement marker. As shown below the omitted argument of "hablo" can be created from its lexical entry.

```
hablar: V, PRED 'talk' (subj)
hablo SUBJ [PERS 1]
          [NUM SG]
          PRED 'talk' (SUBJ)
          SUBJ [NUM SG]
          [PER1  ]
```

In languages such as English and German, by contrast, subject omission is not free because the agreement system is not as comprehensive as in languages such as Spanish and Italian: ie. only present tense verbs whose subject is third-person-singular are marked by the suffix "-s". Therefore, according to Taraldsen, the omission of the subject is limited in English due to restrictions on recoverability.

Taraldsen's speculation is true with languages like Spanish and Italian, however, is not applicable for languages like Japanese, Mandarin and Korean. Although these languages have maximum freedom for ellipsis or zero-pronoun, they do not have agreement systems. This indicates that some languages do not require an agreement system to recover omitted items. They must, however, have some system to retrieve the reference of ellipted elements (see 2-2).

2-1-3 The function of pronouns and ellipsis

Although there is a difference in inexplicit referential forms, the selection of an inexplicit form against an explicit form is similar across languages and the function of these inexplicit referential forms, pronouns and ellipsis, are also similar. Pronouns and ellipsis function as cohesive devices which link individual sentences (ie. a part) to the whole context (McNeill 1987). According to MacNeill, there are two ways of connecting information context: cohesiveness and deixis. Cohesiveness connects a given reference and discourse theme or topic (anaphora). After a full noun is used to introduce a new reference, a pronoun/ellipsis is used as a cohesive device, for repeated mentions of the same object. As a result, the use of pronouns/ellipsis is a signal of coreference indicating a second reference is coherent with the first one. Marslen-Wilson et al (1982 in McNeil) postulated that referential shift from explicit to inexplicit correlates with the degree of embedding. Their empirical study suggested that the more the sentence is embedded (ie. story, episode, event introduction and event maintenance in increasing order of embeddedness), the more inexplicit the referring form (ie. NP plus description, NP alone, non-specific NP, pronoun and ellipsis in increasing order of inexplicitness) used to indicate the stronger cohesive link in the discourse.

Deixis, on the other hand, connects utterances directly to the point of the utterance in terms of time, place and person. For example, "here" and "there" indicate place from the reference point of the speaker: "here" means somewhere close to the speaker; "there" means somewhere far away from the speaker. "I", "you" and "she/he/they" indicate person as determined by current speaker and listener of the interaction: "I" is the current speaker; "you" is the current listener; "she/he/they" are people who are not included in the current interaction.

The distribution of cohesiveness and deixis is complementary in conversations and narratives.

2-2 Nominal ellipsis in Japanese discourse

2-2-1 The definition of ellipsis

Kuroda (1965) postulated that nominal ellipsis is a discourse feature functioning similarly to the pronominal in English. He called this feature "zero-pronominalisation". Native speakers of Japanese use nominal ellipsis freely in their conversation. Consider the following interaction:

(1) A: kinoo gakkoo ni itta ?
 yesterday school (locativeP) went
 (Did (you) go to uni yesterday?)

B: un, itta yo.
 yes went (EP)
 (Yes, (I) went.)

(2) A: sibikku de satoo-san ni aimashita yo.
 civic (P) Mr Satoo (indirect OBJ-P) met (EP)
 ((I) met Mr Sato in Civic.)

B: soo. gen'kidesheta ka?
 really was fine (question)
 (Really. Was (he) fine?)

A: un, kon'do min'na de aotte itteoita yo.
 yes next time all of us (P) meet told (EP)
 (Yes, (I) told (him) that all of us should meet together next time.)

In example (1), A asked B whether s/he went to school and B answered that s/he did. The subject in both utterances is omitted. In (2), both SUBJ and OBJ omissions are observed. A initiated the conversation saying that s/he met Mr Satoo in Civic where the SUBJ (ie. the speaker) is omitted. After the statement, B asked A whether Mr Satoo was fine however the SUBJ (ie. Mr. Satoo) is omitted. In reply to this, A said 'yes' and added that s/he told Mr Satoo that they all should meet together next time. This time both the SUBJ (ie. speaker = I) and the OBJ (ie. Mr Satoo = him) in the main clause are omitted. Thus a Japanese sentence has freedom for nominal ellipsis. Even though these elements are left out of the surface structure, Japanese people are able to retrieve the reference of ellipted items and understand the meaning of the sentence. In other words, the speaker needs to select which elements are to be omitted from the surface structure so as not to cause communication break down.

Hinds (1982) argued that one of three types of elements may be omitted in Japanese: a main verb, a NP (with its accompanying particle), or postpositional particle. Hinds (1982: 11) followed Halliday and Hasan (1976) in defining ellipsis as:

Ellipsis isthe omission of an element or of several elements from the surface form of an utterance, and with them further stipulate that not every instance in which a speaker supplies information from his or her own 'knowledge structures'..... Ellipsis occurs when an element in the surface frame pattern is omitted.

Some linguists (Hinds 1982, Norman 1976, Thomas 1978) distinguish between ellipsis and deletion claiming that ellipsis is a surface notion whereas deletion involves the notion of deep structure (ie. underlying structure) which is explained by transformational and GB theory. One example of deletion, but not ellipsis, is Equi-NP deletion (transformational concept) or control (LFG concept).

I want to \emptyset go to Sydney.

(SUBJ of the embedded clause is omitted.)

Information about the omitted element is supposed to exist in the deep structure. In the example above, the deletion of the element is explained differently according to the above-mentioned approaches:

Transformational grammar explains it as the movement of the element; GB theory supposes it involves binding and raising; LFG proposes that it is subject control. The deleted elements are controlled by the subject of the main clause.

Thus, ellipsis is a surface structure notion and deletion is an underlying structure notion. Ellipsis operates under the speaker's assumption that the addressee is able to understand the elements omitted from the surface structure. In this case, the speaker passes the language processing to the addressee by ellipting elements in the sentence (cf 2-3-3).

In this study, only ellipsis of the surface structures is considered. Following, I will show the characteristics of ellipsis in Japanese discourse in terms of its antecedents, functions and constraints.

2-2-2 Characteristics of nominal ellipsis in Japanese

Antecedents

There are two kinds of antecedents found with nominal ellipsis in Japanese: linguistically encoded antecedents (anaphora); and non-linguistically encoded antecedent (deixis).

(a) Linguistically encoded antecedent (anaphora)

(1) A: takashi wa moo gakkō ni ikimashita ka?
Takashi (topic) already school (locativeP) went (question)
(Has Takashi already gone to school?)

B: Ee [ø] moo ikimashita yo.
yes already went (EP)
(Yes (he) has already gone.)

(2) A: Kyōo Yamada san ni aimashita ka?
today Mr Yamada (OBJ-P) met (question)
(Did you meet Mr. Yamada today?)

B: iie [ø] aimasendeshita.
no did not meet
(no, (I) didn't meet (him).)

When B answers, "Takashi wa" and "Yamada san ni" respectively are omitted from examples (1) and (2). The retrieval of the reference is assumed to be easy when the antecedent is clearly presented in the preceding sentence.

(b) Non-linguistically encoded antecedent (deixis)

(b-1) Ellipsis where the reference is situationally recoverable

(3) (looking at apples at a fruit shop)

[ø] mittsu kudasai

three give me (polite)

(Lit. Give me three (apples)).

(ie. Could I have three apples?)

(4) (looking at a friend's new dress)

[ø] suteki ne. [ø] doko de katta no?

nice (EP) where (locative P) bought (question)

((The dress) is beautiful. Where did you buy (it)?)

(5) (eating a piece of cake with a friend)

[ø] oishii ne.

delicious (EP)

((This cake) is delicious.)

In the above examples, the ellipsis has a deictic function and there is no linguistic cue nor antecedent for the ellipsed element. The ellipsed elements are present in the context of the utterance and situational factors enable the hearer to recover the reference.

(b-2) Ellipsis whose reference is experientially recoverable

(6) (talking to a friend who has just come back from the job interview)

[ø] doo datta?

how was

(How was the (job interview)?)

(7) (talking to a friend just after finishing the examination together)

[ø] muzukashikatta ne.

was difficult (EP)

((The examination) was difficult.)

In these examples, there are no clues, for the reference is presented neither linguistically nor situationally, however common knowledge and/or shared experience between the speaker and the hearer enable the hearer to retrieve the reference. In other words, the speaker's assumptions about the hearer's knowledge are the key for the ellipsis.

(b-3) Ellipsis whose reference is pragmatically recoverable

(8) kinoo [ø] sidonii ni ikimashita.

yesterday Sydney (locative P) went

(Yesterday, (I) went to Sydney.)

(9) [ø] kono hon o yondakotogaarimasu ka?

this book (OBJ) have ever read (question)

(Have (you) ever read this book?)

In Japanese, it is the norm to omit "I" and "you" as the subject of a statement or of an interrogative. Only when the speaker intends to make a comparison, are they expressed clearly as below.

(10) A: kinoo watashi wa sidonii ni ikimashita.

yesterday I (topic) Sydney (locative P) went

(Yesterday, I went to Sydney.)

B: watashi wa ichinichijuu uchi ni imashita.

I (topic) whole day home (locative P) stayed

(I was at home whole day.)

"watashi (I)" in (10) is used comparatively in the discourse: in A, I, not you, went to Sydney; in B, I, not you, stayed at home .

Function

(a) Avoiding lexical redundancy

One of the main functions of nominal ellipsis in Japanese is to avoid repetition. Use of ellipsis enables the speaker to avoid lexical redundancy. The speaker uses nominal ellipsis when he/she assumes the listener is able to retrieve the reference and passes the need for processing to search for the omitted element on to the hearer.

(b) Increasing cohesion

The omission of an already introduced topic is a common phenomenon in Japanese which increases the cohesion of the discourse. This is because sentences are governed by one topic until the introduction of the next topic (Hata: 1980). Hata explained this phenomenon of "big sentences" in Japanese and is as follows:

(topic + wa) + (several small sentences where the topic is omitted)

In a Japanese "big sentence", a topic is introduced by the topic marker "wa" and it is followed by several sentences where the topic is omitted. Generally speaking, the omission of the topic lasts until a new topic appears. The "big sentence" is governed by the same topic and, accordingly, the cohesion of these sentences becomes very strong. This explains the use of nominal reference at the introduction of a new topic at the discourse boundary, world shift, view point change and/or episode change (Clancy 1980).

Constraints

Ellipsis can be divided into two types in terms of different kinds of antecedents, namely linguistically encoded and non-linguistically encoded antecedents. This corresponds to their different functions: the former has an anaphoric function and the latter deictic function. The constraints on ellipsis with non-linguistically encoded antecedents are related to the environment of the utterance or extra-linguistic knowledge, common knowledge and/or experience between the speaker and the

hearer, world knowledge, etc. This sort of information provides the reference for the ellipted element.

Through their empirical studies, many linguists have suggested that constraints on ellipsis with linguistically encoded antecedents are strongly related to the limited capacity of the human short-term memory: the limited capacity of human information processing, namely the time, the number of the items in working memory and focus. These cognitive constraints are linguistically manifested: the distance (ie. the number of clauses) between the ellipsis and its antecedent is the manifestation of the time (Givón 1983, 1984); the number of the competitive references in the immediately preceding discourse corresponds to the number of the items in the working memory; episode/paragraph boundaries indicate focus (attention) shift (Tomlin, 1990). The key factor for the use of ellipsis is the recoverability of the antecedent.

Characteristics of nominal ellipsis in Japanese discussed above is summarised in the following table.

Antecedent	<ol style="list-style-type: none"> 1. Linguistically encoded (ie. anaphoric) 2. Non-linguistically encoded (ie. deixis) <ul style="list-style-type: none"> (situational) (experiential) (pragmatical)
Function	<ol style="list-style-type: none"> 1. Avoiding lexical redundancy 2. Increasing cohesion
Constraints	(cognition) Limited capacity of the human memory <ol style="list-style-type: none"> 1. time 2. the number of item in the working memory 3. focus (linguistic manifestation of cognitive constraints) <ol style="list-style-type: none"> 1. distance between reference and its antecedent 2. the number of competitive reference in the immediately preceding discourse 3. episode boundary

Table 1 Nominal ellipsis in Japanese

2-3 Referential management in SLA

2-3-1 Referential management in German and English as second languages

Many articles have been published regarding pronominal omission in SLA as a non-native deviation in languages such as English and German. Meisel (1980) described missing personal pronouns as linguistic simplification. He claimed simplification is a common psychological process for natural SLA and it is one of the strategies for smooth communication. Pienemann (1980, 1993) explained the missing pronouns in GSL study in terms of semantic redundancy: the omitted element is a multiple marking of the same referent and its omission does not lead to communication break down.

Hills' (1986) empirical study has suggested that pronominal omission¹ is extensive at the early stage of language acquisition decreasing later. In William's (1988) study of three varieties of speakers (ie. ESL learners, NS of English and Singaporian speakers of English), she claimed that the learners tend to conform to other norms, such as "information economy principle" and "hyper clarity production principle", when they cannot conform to the prescriptive norm. Excessive pronominal omission occurs when the learner feels the production of the pronominal is semantically redundant and he/she simply leaves it out according to the "principle of information economy". Excessive use of the full noun-phrases occurs when he/she intends to clarify the reference according to the "hyper clarity production principle". Further, Tomlin (1990) has reported that referential management differs between native speakers and learners of English. The learner tends to use full noun phrases instead of the pronominal. Tomlin suggests this is one of the learners' communication strategies which ensures that the learner is fully understood.

2-3-2 Referential management in Japanese as a second language

Despite the fact that many studies have been reported regarding referential choice by second language learners in English and German,

¹ He called it "pro-drop"

very little has been identified about the selection of referential forms in second language discourse in Japanese.

The concept of nominal ellipsis in Japanese is different from pronominal omission in languages such as English and German. The function of nominal ellipsis in Japanese corresponds to pronominalisation in English and German, and the use of nominal ellipsis is the norm when an already introduced reference is inexplicitly expressed in Japanese. The retrievability of the reference determines the choice of referential forms, whether ellipsis or pronominal. Clancy (1980) investigated the distribution of both referential choice in subject position in narrative discourse in both English and Japanese. She found that only full NP and ellipsis were used in Japanese discourse. Further, the distribution of the English pronouns and Japanese ellipsis was similar. She concluded that the English pronouns do not correspond to the Japanese pronouns but to ellipsis: the ordinary form of inexplicit reference in Japanese is ellipsis.

2-3-3 Referential choice in NS-NS interaction in Japanese

Referential choice, either full nouns or ellipsis, is the interaction of the clarity of reference and "principle of information economy". Supplying a full noun minimises the ambiguity and "principle of information economy" (ie. use of ellipsis) minimises the redundancy. An equilibrium of these two will lead to most effective conversation and the equilibrium is realised by the speakers' appropriate assumption of referential retrieval by the addressees.

In Japanese, after a character or an entity is introduced with full mention of the reference, then, ellipsis is used to maintain the reference. Clancy (1980) called this phenomena "chain of ellipsis". When the topic changes, the "chain of ellipsis" is disturbed and full mention of NP occurs. Therefore, ellipsis does not occur across episode/paragraph boundaries in Japanese conversation. After episode/paragraph boundaries, reference is coded with a full noun. This is very similar to the "chain of pronominalisation" (Nagy 1971) where already introduced nominals are pronominalised as in English.

How do people interpret the omitted element? Ellipsis is the signal to initiate the appropriate antecedent search in memory. The search for the

ellipted element may be explained by the lexical entry. Firstly I will show the retrieval of a word in the mental lexicon based on Levelt (1989), and then, I will apply this concept for the retrieval of an omitted element.

According to the lexical hypothesis, speakers' mental lexicon is a "passive storage of declarative knowledge" (Levelt 1989: 185). Preverbal message activates lexical items in the mental lexicon and activated lexical items, in turn, trigger encoding processes. Mental lexicon consists of four features: (1) specification of meaning; (2) syntactic property; (3) morphology; and (4) form specification (especially phonology). These four features are said to be inter-related.

The process of grammatical encoding requires meaning specification and syntactic property but not morphological nor phonological specification. Morphology and phonology are relevant to phonological encoding of a word. Therefore, lexical entry can be divided into two parts. Kempen and Huijbers (1983) termed meaning and syntactic properties of lexical entry as "lemma" and claimed that lemma "points" the corresponding form. Tip of tongue phenomenon shows the lexical entry is divided into two parts: a speaker has retrieved the lemma (meaning and syntax) but cannot access its form (morphology and phonology).

Levelt (1989) explained the process of specification of lemma information using the verb "to give". In the preverbal stage, the speaker has to have a conceptual specification: a person (X), a thing (Y) and a target. This activates the specification of argument of the conceptual function (X, Y, Z). When the conceptual specification meets the message, the lemma is retrieved and the syntactic property is then available to the speaker. Furthermore, syntactic information of the lemma specifies the item's syntactic category: the syntactic category of "give" is V. This is followed by specification for grammatical function: "give" requires SUBJ, direct-OBJ and indirect-OBJ. After their specifications are achieved, lexical pointer "points" to the corresponding form and form information becomes available. Morphological and phonological properties are then added to lemma information.

Memory search for the omitted argument is closely related to the mental lexicon. The lemma for the English verb 'give' is as follows:

give: conceptual specification:

CAUSE (X, (GO poss (Y, (FROM/TO (X, Z))))))

conceptual arguments: (X, Y, Z)

syntactic category : V

grammatical functions : (SUBJ, DO, IO)

relations to COMP : none

lexical pointer : 713

diacritic parameters : tense

aspect

mood

number

pitch accent

(Levelt 1989: 191)

When any grammatical argument of 'give' is left out, a memory search for the missing element(s) begins. 'Give' requires three arguments (X, Y, Z). The verb 'give', out of context, gives a mental image where the movable object (Y) moves from (X) to (Z). In addition to this information, the conversational context helps to retrieve an appropriate reference of the omitted element(s), X, Y and/or Z.

In the case of the Japanese verb 'yomu' (read), for instance, the lemma specifies that it requires subject and object arguments. Furthermore, subject and object specifies that they should be a human (ie. the one who has an ability to read something) and decodable material respectively. As soon as the addressee hears a sentence with 'yomu' where the subject and/or the object are omitted, he/she associates the obligatory verbal argument and then, initiates a memory search for the appropriate reference. These obligatory elements should be a human for the subject and decodable material for the object. This entry in the mental lexicon helps the addressee with the memory search. The lexical quality of the NP related to various verbals is different and knowledge of them is supposed to be reflected by recognition of each verb by Japanese speakers. In this sense, the addressee requires the background knowledge of the lexical entry of verbals, which is supposed to be language specific, to retrieve ellipted arguments. This is the interpretive mechanism of omission from the addressee's point of view.

How do Japanese native speakers decide which element is to be left out from the surface structure? The assumption is that the speaker omits elements which, he/she thinks, the addressee is able to discern from the context. The cognitive process model of anaphoric ellipsis by the speaker is this: when (1) speaker is continuing the thematic reference without any interference by other references; (2) where no competitive reference exists in the immediately preceding discourse; and (3) within the episode/paragraph boundaries, the native speaker of Japanese assumes the reference of the omitted elements is retrievable by the addressee with the help of conversational context cues.

Speaker misjudgments about the addressee in terms of ability of recoverability do, however, occur. Even so, conversation is interactional and information is constantly modified by the participants. Therefore, omitted arguments can be supplied when the speaker realises that the addressee does not understand the reference. In this case, the sentence requires 'repair' often using post posing.

Hinds (1976) postulated the notion of 'postposing' in Japanese. Postposing is a phenomenon where the ellipted item is added after the sentence final verb. Postposing is common in Japanese conversation. In English, relative clauses recur endlessly after the main clause. For example,

I saw a man [who has an dog [which was chasing a cat [which has white fur]]] -----

Unlike English, Japanese, being a left branching language where the verbal occurs in sentence final position, all the relative clauses are required to recur before the main clause in Japanese sentence.

watashi wa [[[[shiroi ke no] neko] o oikaketeita]
 I (topic) white fur (genitive) cat (OBJ P) chasing (progressive) (past)
 inu o katteiru] otoko o mita.
 dog (OBJ P) have man (OBJ P) saw
 (I saw a man who has a dog which was chasing a cat which has white fur.)

Therefore, the speaker of Japanese has to process their complete mental image of the reference from the abstract concept before he/she utters the main verb. When the speaker realises that his/her utterance did not

convey the whole idea after finishing the sentence, postposing is an effective strategy to repair the own utterance without disturbing the syntactic property or the flow of the conversation.

otoko o mita yo. inu o katteiru otoko.

man (OBJ P) saw (EP) dog (OBJ P) have man

(I saw a man! The man who has a dog.)

kinoo itta yo. sidonii ni

yesterday went (EP) Sydney (locative P)

(I went! To Sydney.)

Misjudgment about the recoverability of an ellipted item is common and postposing is able to alleviate the ambiguity. The function of postposing is not always repairing the utterance's ambiguity but also emphasis: special prominence is placed in the first phrase, and additional information is given by the postposing phrase.

In summary, ellipsis is the phenomenon where an element or several elements are left out from the surface structure and this is the result of "principle of information economy". This phenomenon is controlled by memory constraints and ellipsis occurs when the speaker assumes the ellipted item(s) are retrievable by the addressee. When addressees realise that an element is ellipted, they initiate a memory search for the reference with the help of the conversational context. Nominal ellipsis is blocked and full nouns are used to clarify the reference because of the attention focus shift when the paragraph topic changes. A full noun also appears when a competitive reference exists in the discourse. Further, it is possible that a full noun or less explicit form of a full noun may be supplied to continue the reference.

2-4 Memory capacity and referential choice

Speech production is largely depended on human memory. Short-term memory (or working memory) consists of currently activated information and it is only a small part of human memory. All items in working memory are attended (ie. the locus of attention is short-term memory) and these items are currently available for retrieval. The large amount of remaining memory is called long-term memory and

information stored in it is passive (Atkinson et al 1990). On top of them, Levelt (1989) assumes that there is a highly task-specific memory called "the syntactic buffer" for grammar formulation.

Memory, regardless of whether it is short-term or long-term memory, has three stages: 1) encoding, where new information is encoded into the memory; 2) storage, where encoded information is maintained in the memory; and 3) retrieval, where encoded information is recovered from the memory.

The role of short-term memory in understanding language is highly complicated. At the encoding stage, selected information is placed in the short-term memory. Then, encoded items are maintained at the storage stage. The capacity of memory storage has two constraints. Firstly, the maximum number of items in short-term memory appears to be seven, give or take 2 (ie. 7 ± 2): this does not differ amongst individuals (Miller 1956 in Atkinson). Secondly, another limitation is time: items in short-term memory decay in time (after only a couple of seconds) (Reitman 1974 in Atkinson). All items in short-term memory are in a "state of activation" and these items lose activation if the memory capacity exceeds the limits. This is called "forgetting" and it occurs because the items in the short-term memory cannot constantly keep at a critical level of activation, resulting in an inability to recall (Atkinson et al 1990). At the retrieval stage, an item in the short-term memory is recalled. Access to the information is immediate because items are conscious and active. It has been reported that the retrieval time changes according to the number of items in the working memory: the more items contained, the longer the retrieval time (Sternberg 1966 in Atkinson et al 1990).

The selection of referential form, either NP or ellipsis, in dynamic discourse production is deeply related to the working memory. The use of ellipsis is possible only when it is retrieved by the hearer, ie only when the activated reference is in the working memory. The newly introduced referent into the working memory, on the other hand, is coded by the NP because they are not activated (Tomlin 1989). Thus, the locus of referential choice is in the working memory and the attention (ie. the activation of items in the working memory) decides the referential form. Therefore, when the attention of previously available memory is disrupted, NP is used to reactivate the referent.

In addition to the long-term memory and the working memory, the syntactic buffer plays a crucial role for grammar formulation. In conversation, the formulation of grammar is said to be largely automatic. In speech by native speakers of a given language, 2-3 words per seconds are produced and all words are selected from a mental lexicon. Working memory has but a limited capacity, and is not capable of processing great amounts of grammatical information. The formulation of grammar should be automatic if speakers process information at this speed: if it is not automatic and has to be attended, speech should be very slow. Levelt (1989) assumed that grammatical processing has to access a "syntactic buffer" where information is temporarily held until it is generated as a speech. In other words, a syntactic buffer is necessary because it enables automatic grammatical processing. A syntactic buffer can handle highly specific information and stores the results of grammatical encoding. Once the system automatizes, it becomes "a capacity-free (automatic) process".

Psycholinguists represented by McLaughlin (1987) viewed the acquisition of complex cognitive skill, such as second language acquisition, as the gradual accumulation of automatized processing. Language production requires the integration of various skills, but people are able to pay only certain degrees of attention at a time because human processing capacity is limited. Information processing for speech production become automatized through learning, and acquired automatic process is hard to be suppressed or be altered. It is, however, very hard for second language learners to attain automaticity of language processing.

Pienemann (1994) claimed that this automatic grammatical processing and memory is available only for mature users of a given language: the language learner cannot operate grammatical processing automatically because he/she has not acquired the prerequisite for language-specific processing and cannot access the syntactic buffer.

McLaughlin (1987) showed results from several empirical studies which supported the idea that most second language learners do not attain a degree of automacity. Dornic (1979 in McLaughin 1987) investigated decoding and encoding processing speed of bilingual people. He discovered that the processing speed for both decoding and encoding of

second language is slower than that of first language even though the processing speed became faster according to the experience of second language. This result may be explained in terms of automaticity in language processing: the processing of first language is automatized but not for the second language. Therefore, processing speed of the first language is faster than the second language. Hatch et al (1970 in McLaughlin 1987) demonstrated that NS's syntactic processing was automatized. They conducted an experiment in which subjects were asked to cross out certain letters in a text. The subjects consisted of NS and various proficiency levels of NNS of English in this study. The results showed that NNS of lower proficiency level found the target letters in an equal frequency for both content words and in function words, whereas NS found the target letters more frequently for content words. McLaughlin (1987) attributed this result to different attention distribution: NNS pay equal attention (ie. equal cognitive effort) for both syntax (such as function words) and semantics (such as content words); NS pay more attention to the semantics because syntactic elements are automatically processed. Thus, the automaticity of syntactic processing is the feature specific to the native speaker of a given language.

2-5 Two approaches for referential management

There are two main approaches to explain referential choice, whether full noun or pronoun, in English: the recency/distance approach (Givón 1983; Givón, Kellog, Posner & Yee 1984; Clark and Senegal 1979; Clancy 1980) and the episode/paragraph approach (Tomlin 1987, 1990). Both approaches attribute referential choice to the limited capacity of human short-term memory.

The recency/distance approach

The recency/distance approach looks at memory capacity in terms of the time and the number of items in the working memory at a given time. Givón (1983) and his associates ran several empirical studies and have demonstrated a relationship between referential distance and the amount of coding material needed to maintain the reference.

Chafe (1976) postulated that given information is conveyed in a weaker manner than new information, that is, either weakly stressed or pronominalised. With given information, the speaker assumes that the

listener is conscious of that information at the time of the utterance, whereas, the speaker has to activate the listener's consciousness for new information. If it is so, how much information can be treated as given information? Clancy (1980) speculated that cognitive limitations decide the referential rule because human memory is able to deal with only a fixed number of explicit references. Her empirical study of Japanese and English showed similar result to Givón's (1983): two cognitive constraints; time and interference, in the working-memory.

Furthermore, Clark and Senegal (1979) have shown that the retrieval time for the reference of a pronoun increases according to increased distance between a given referent and its last antecedent. This difference in retrieval time indicates a "recency effect" and, furthermore, the results of the study imply that recent speech is in a "highly available" state and accessibility for retrieval gradually decreases according to time.

The episode/paragraph approach

The episode/paragraph approach claims "alternation between noun and pronoun to be a function of the limited capacity of working memory, which is manifested in the text artifact primarily through its paragraph, or episodic organisation" (Tomlin 1987: 456). According to this approach, the choice of a full noun or pronoun corresponds to a different "focus" of attention: when a particular referent is in a "state of high focus" or "foregrounded" a pronoun is used, whereas when it is in "low focus", a full noun is used. Tomlin (1987) suggested that the linguistic unit and its psychological effect upon the listener/speaker correlate to the limited capacity of the working memory. This connection is shown by the use of a full noun across episode boundaries and a pronoun within the episode boundaries in order to maintain the reference. This is necessary because of the different state of focus for that referent.

Both approaches agree that cognitive constraints and linguistic constraints are interrelated when it comes to the referential choice.

2-6 Stages of second language acquisition

2-6-1 Task variation and interlanguage performance

It is important to use a reliable measurement for deciding the current stage of a second language learner's linguistic development taking into account the fact that a subject's performance varies from task to task. Larsen-Freeman (1975) described a major problem in the elicitation procedure for morpheme studies: the amount and quality of morphemes elicited is lexically dependent, therefore, results can differ according to the lexicon used in the task. Morphemes are not the only result of performance variation, syntax is also affected by the task (Bailey and Madden 1982 in Larsen-Freeman and Long 91, Hyltenstam 1983 in Larsen-Freeman and Long 1991).

Tarone (1988) reported that different levels of performance and amounts of discourse were elicited from second language learners according to different tasks. This is because some tasks favour accuracy while others favour complexity or fluency. For example, task performance in an open setting tends to be more fluent than in a closed setting. Task performance in a closed setting, on the other hand, tends to be more accurate than in an open settings (Rahimpour 1995). Further, the performance of here-and-now tasks are more fluent than that of there-and-then tasks. Performance of there-and-then tasks, by contrast, are more accurate than that of here-and-now tasks (Robinson 1995). Robinson attributed this performance difference to the cognitive load taxed by different tasks. He claimed that displaced reference to events (ie. there-and-then) involves a greater level of cognitive operations in terms of attention, memory and reasoning demands.

Thus, accuracy and fluency are not reliable variable for the measurement of second language development. How, then, can we decide the acquisition stage of a particular learner? Pienemann (1992 in Robinson 95) and Pienemann, Johnston and Brindley (1988) claim that language acquisition is a bi-dimensional linear acquisition of successively more complex structures and, therefore, certain structures emerge in developmental sequences regardless of the individual learner. Johnston (1985) claims that second language learners' speech production, in terms of structural complexity, does not differ between linguistic interviews and

natural, spontaneous speech interviews. Furthermore, Rohimpour (1995) concluded, in his task variation and interlanguage performance study, that task type and task condition affect accuracy and fluency but they do not affect the complexity of sentence structures. Therefore, the complexity of sentence structures in learners' speech production can be a useful criterion for determining the stages of language acquisition. For this reason, I will utilise the syntactic developmental stage as a criterion for deciding learners' developmental stages originally developed by the ZISA² group.

2-6-2 The ZISA group's developmental model and Clahsen's processing strategies

There is a vast amount of literature discussing the many different theories, models and hypotheses of SLA. One such discussion is that of the ZISA Group's "Multidimensional Model". This model explains SLA according to two individual axes: developmental features and variational features. The Group suggests that all second language learners undergo a series of developmental stages and the transfer from one stage to the next is the result of the accumulation of a language "processing" strategy. Variational features, in contrast with the developmental features, differ according to the individual and are influenced by his/her psycholinguistic and sociolinguistic orientation. The features determine the learner's orientation to standard or simplified language usage.

It is noteworthy that the ZISA Group redefined the terms "development", "proficiency" and "acquisition", and claimed that learners' development cannot be measured by proficiency and/or accuracy (Pienemann and Johnston 1987). Instead, the Group suggested that learners' development should be explained in terms of the features observed in their production because all L2 (second language) learners pass through developmental stages in a fixed order. This idea is supported by the ZISA group's GSL study of word-order acquisition rules: both adults and children showed a five stage developmental sequence, and they accumulated new rules in the five stages (Clahsen 1980; Pienemann 1980; Meisel, Clahsen and Pienemann 1981).

²Zweitsprachenwerb Italienischer und Spanischer Arbeiter

Clahsen (1987) provided an explanation for each stage and a reason for the IL (interlanguage) developmental sequences. Each of the stages is realised by the combination of the three "speech-processing strategies": canonical order strategy (COS); initialization-finalisation strategy (IFS); and subordinate clause strategy (SCS). The developmental sequences for GSL word order rules and the strategies are as follows:

<u>Stage</u>	<u>word order rule</u>	<u>strategies</u>
Stage X	(canonical order) S V O	[+COS, +SCS]
Stage X + 1	(adverb preposing) ADV initialization/finalisation	[+COS, +IFS, +SCS]
Stage X + 2	(verb separation) SEP disruption and movement into salient position	[-COS, +IFS, +SCS]
Stage X + 3	(inversion) INV internal movement	[-COS, -IFS, +SCS]
Stage X + 4	(verb-end) V-END sub-categorization	[-COS, -IFS, -SCS]

The structure of the sentence becomes psychologically more complex with progression through each stage. "The psychological complexity of a structure is dependent on the degree of reordering and rearrangement of linguistic material involved in the process of mapping underlying semantics onto surface forms" (Pienemann 1994 summarising Clahsen 1984). To be able to psychologically process more complicated structures, the learner has to remove the constraints. As can be seen in the above table, learners use a combination of strategies. Strategies become available in stepwise accumulation according to the above stages and, in turn, create a processing constraint, which blocks development. When a constraint is removed, the learner can move to the next stage, signifying the acquisition of a step of psychologically complex processing.

In Stage X (+COS, +SCS), learners do not require any grammatical knowledge of the TL (target language): the focus is meaning and sentences are processed in canonical order where the semantics of the information can be directly mapped onto surface grammatical structures (Clahsen 1984). This is similar to the idea suggested by Foder and Bever (1965) in which the unit of speech perception corresponds to the constituent.

In Stage X+1 (+COS, +IFS, +SCS), the strategy IFS is added while the previous strategies, COS and SCS, are preserved. Preposition of an adverb, which does not disturb the canonical order but involves the movement of the element from one salient position to another salient position, is typical in GSL at this stage. This stage is still a "pre-syntactic" stage because a knowledge of grammatical categories is not needed (Pienemann and Johnston 1987).

The construction of sentences involving verb separation in German occurs in Stage X+2 (-COS, +IFS, +SCS). Here the canonical order is disturbed (ie. COS is abandoned): verbs which were located in a non-salient position (ie. non-initial/final, eg. V in SVO) are now able to be moved to a salient position as in SV₁OV₂. In this stage, grammatical knowledge (specifically, element categorization) is required.

Learners at Stage X+1 and X+2 are able to process the movement of elements only to a salient position because the strategy IFS blocks internal movement (ie. from non-salient to non-salient). In Stage X+3 (-COS, -IFS, +SCS), IFS strategies are released and, accordingly, the process of internal movement is available for learners at this stage. Constructions such as inversion of the subject and inflected verb form in German belong to this stage. These grammatical rules are language specific, and thus a grammatical knowledge of the TL is a prerequisite for language processing.

The Stage X+4 (-COS, -IFS, -SCS), where all three constraint strategies are removed, is the last stage identified by Clahsen (1984). Now the grammatical sub-strings are recognised, and learners are able to process elements across strings. Subordination is now available to learners.

Thus Clahsen provides an explanation for each stage of the development and processing strategies used by the learner. This provides a better understanding of SLA.

This hypothesis has been supported by studies of GSL and ESL. In addition, Pienemann and Johnston's (1985) ESL study suggested some morphological items could also be analysed in terms of the same strategy. Further, they claimed universality for the processing constraint. One item of empirical evidence which supports this is that IL development follows the suggested developmental model regardless of typological differences in learners' L1 (first language) backgrounds.

b. Mariko ga sashimi o tabeta.
 (noun) (particle) (noun) (particle) (verb)
 SUBJ OBJ predicate
 Mariko (subj marker) raw fish (obj marker) eat (past tense)
 (Mariko ate raw fish.)

c. Tsukue no ue ni inu ga iru.
 (noun) (particle) (noun) (particle) (noun) (particle) (verb)
 desk (genitive) top (locative) dog (SUB) there is/exist
 (There is a dog on top of the table.)

(2) Adjectival:

Yuki wa shiroi.
 (noun) (particle) (adjective)
 TOPIC³
 snow (topic marker) white
 (Snow is white.)

(3) Copula:

Kare ga Ikeda-san desu.
 (pronoun) (particle) (noun) (copula)
 SUBJ Complement predicate
 he (subj marker) Ikeda-Mr. is
 (He is Mr. Ikeda.)

Each element of the above sentences can be expanded by modifiers. Example ((1)-a) above may be changed into the following sentence which is modified by other nouns and an adverb.

4) [Hiroshi no imooto no] [amerika ni sundeiru]
 (noun) (particle) (noun) (particle) (noun) (particle) (verb)
 Hiroshi (genitive) younger sister (genitive) America (locative) live

Yoshiko ga kinoo totsuzen kita.
 (noun) (particle) (adverb) (adverb) (verb)
 Yoshiko (SUBJ marker) yesterday suddenly come (past tense)
 (Hiroshi's sister, Yoshiko, who lives in America suddenly came yesterday.)

³ syntactically subject, but pragmatically topic.

adding separate words such as make, can, want, seem for the causative, potential, desiderative and evidential respectively.

(6)	<u>kowas-u:</u> eat	kowas-areru stem - (passive)	(passive)
		kowas-eru stem - (potential)	(potential)
		Kowas-itai stem - (desiderative)	(desiderative)
	<u>Nom-u:</u> drink	Nom-aseru stem - (causative)	(causative)
	<u>Kak-u:</u> write	kak-areru stem- (passive)	(passive)
		kak-aseru stem - (causative)	(causative)
		kak-aser-areru stem - (causative) - (passive)	(causative-passive)
		kak-aser-are-tai stem - (causative) - ((passive) - (desiderative)	(causative-passive-desiderative)
	<u>atsu-i:</u> hot	atsu-soo stem-(evidential)	(evidential)

Compound Sentences and Complex Sentences

Japanese uses various strategies to combine clauses such as using inflection and grammatical words (co-ordinators, subordinators and structural nouns). The subordinate clause always precedes the main clause in Japanese.

Compound sentences

Definition: Sentences containing two or more independent clauses joined by co-ordinators (and, but, etc.).

When two simple sentences are combined in a very similar to English "and" coordination, the predicate in the first sentence is inflected as a linking form, which is called "te-form" in Japanese. Sentence (7) following, is an example of this, where the predicate of the first sentence "itta" is replaced by the te-form "itte" to be conjoined with the second

sentence. By using the linking form of the verb, two independent sentences are combined into one, and the subject of the second independent sentence can be dropped as it is the same as the first one.

(7) 'and'

(simple sentences)

Taro wa ginkoo ni itta.
Taro (topic P) bank (locative P) go (past)
(Taro went to the bank.)

Taro wa okane o oroshita.
Taro (topic-P) money (OBJ-P) withdraw (past)
(Taro withdrew money.)

(compound sentence)

Taro wa ginkoo ni itte, \emptyset okane o oroshita.
Taro (topic-P) bank (locative-P) went-and money (OBJ-P) withdrew
(Taro went to a bank and \emptyset withdrew money.)

When combining two sentences which express contrastive ideas, like those coordinated by 'but' in English, a disjunctive coordinate conjunction 'ga' is placed between the two sentences.

(8) 'but'

(simple sentences)

Taro wa kaimono ni itta.
Taro (topic-P) shopping (locative-P) go (past)
(Taro went shopping.)

mise wa shimatteita.
shops (topic-P) be closed (past)
(The shops were closed.)

(compound sentence)

Taro wa kaimono ni itta ga, mise wa shimatteita.
Taro (topic-P) shopping (obj2-P) went but shops (topic-P) be closed
(Taro went shopping but the shops were closed.)

Complex Sentences

Definition: Sentences containing one or more dependent, or subordinate, clauses, in addition to the independent, or main, clause.

1. Relative Clause

A relative clause modifies a noun and gives additional information about it. The function of a relative clause is similar to an adjective. In English, relative pronouns, such as what, which and who, occur at the beginning of a relative clause, whereas in Japanese, a relative clause precedes a noun which is modified and the relative clause does not take any relative pronoun or special grammatical word. Following are the examples of NPs containing relative clauses, and of sentences which contain such NPs:

(9) Kinoo itta resutoran

yesterday went restaurant

(The restaurant which (I) went to yesterday.)

(10) Mari-san ga sukina eiga-staa

Mari-Miss (SUB P) like (adj) movie-star

(the movie star whom Mari likes)

(sentences containing a relative clause)

(11) Kinoo itta resutoran wa totemo yuumei desu.

yesterday went restaurant (topic-P) very famous is

(The restaurant which I went to yesterday is very famous.)

(12) Mari-san ga sukina eiga-staa wa osukaa o totta.

Mari-Miss (subj-P) like (adj) movie-star (topic-P) Oscar (OBJ-P) won

(The movie star whom Mari likes won an Oscar.)

In (9), 'Kinoo itta' ((I) went to yesterday) is the modifier (ie. subordinate clause) of 'resutoran' (restaurant). (11) is a complex sentence where the noun phrase 'kinoo itta resutoran' (the restaurant (I) went to yesterday) functions as the topic of the sentence. Likewise, in (10), the subordinate clause 'Mari-san ga sukina' (Mari likes) modifies the noun 'eiga-staa' (movie star), and in (12), the noun phrase which contains this relative clause functions as the subject of sentence.

2. Adverbial Clauses

The adverbial clause functions as the modifier of the predicate of the main clause, and expresses notions such as time (when), condition (if), reason (because), purpose (in order to) and manner (as). In English, the adverbial clause can either precede or follow a main clause (ie. both of the following are grammatical: when I arrived at home, it began to rain; It began to rain when I arrived at home). In Japanese, by contrast, an adverbial clause, like other subordinate clauses, always precedes the main clause. Sentences (13) through to (17) are the examples of complex sentences which contain adverbial clauses:

(13) Uchi ni tsuita toki, ame ga furi-dashita.

home (locative P) arrived time rain (SUBJ-P) fall-started

(When I arrived at home, it began to rain.)

(14) Moshi ashita ame ga futtara,

if tomorrow rain (SUBJ-P) fall (conditional)

uchi ni iyoo.

home (locative P) stay (volitional)

(If it rains tomorrow, I will stay at home.)

(15) Okane ga nai node, resutoran e ike-nai.

money (subj-P) not exist (adj) because restaurant (allative-P) can go-negative

(Because I have no money, I cannot go to the restaurant.)

(16) Nihon e iku tame, okane o tameteiru.

Japan (allative P) go in order to money (OBJ P) save (progressive)

(In order to go to Japan, I am saving money.)

(17) Akachan ga oki-nai yoo, chiisai koe de hanashimashoo.

baby (sub-P) wake up-(negative) so that small voice in let's speak

(Let's speak in a small voice so that a baby will not wake up.)

3. Complement Clauses

Japanese complement clauses involve a structural noun and behave as noun phrases. 'Koto' and 'no' are the most "colourless" structural

nouns. They are juxtaposed to a clause with a verbal or adjectival predicate, and then the whole clause is nominalised to function as an NP.

(18) Hikooki no naka de tabako o suu.
airplane (genitive-P) inside (place-P) tobacco (OBJ-P) smoke
((They) smoke inside the airplane.)

(18) changes to a noun phrase by adding the nominalizer 'koto' and once it becomes a noun phrase it can be placed in a slot where other noun phrases occur.

(19) Hikooki no naka de tabako o suu
airplane (genitive-P) inside (locative P) tobacco (OBJ-P) smoke
koto wa hooritsu de kinshisareteiru.
(nominalizer) (topic-P) law by forbid (passive)
(Smoking tobacco inside the plane is forbidden by law.)

In (19), the noun phrase nominalized with 'koto' behaves as a topic in the sentence.

(20) Tomu ga nihon e itta no wa itsu disu ka.
Tom (SUBJ) Japan (locative) went (nominalizer) (topic) when (copula) (question)
(Lit. When was it that Tom went to Japan?)
(ie. When Tom went to Japan>)

(20) is an example containing the nominalizer "no": the sentence "Tom ga nihon e itta" (Tom went to Japan) is nominalized by "no" and appears in the subject slot of sentence..

Another type of complement clause is that which ends in the question marker "ka" or "ka-doo-ka". "Ka" is used with question words to make embedded content questions, while "ka-doo-ka" is used for making embedded yes/no questions such as 'I don't know whether he comes or not' in English.

(21) Kare ga kuru ka-doo-ka wakaranai.
he (SUBJ-P) come whether or not (I) don't know
(I don't know whether he comes or not.)

2-8 Acquisition stages in Japanese

Extrapolating upon Pienemann's (1987) five stages of language acquisition (see below), Huter (1995) has suggested four phases as realised in Japanese as a second language (JSL).

Stage 1:	A B C
Stage 2:	A B C X
Stage 3:	X A B C
Stage 4:	X A B C -> A X B C
Stage 5:	X A B C -> X B A C

Huter (1995) has presented the results from a 2-year longitudinal study of 5 English-speaking-learners of Japanese. The syntactic features in each of the four phases identified by Huter are as follows:

<u>Phase 1</u>	1. Copula-S inc NP:	S -> NP N cop
	2. Verb-S inc. NP:	S -> NP NP V
<u>Phase 2</u>	3. Complex NP:	NP -> N no/ya/to NP
	4. Verb inflection:	V -> V-ending
	5. Meaningful order of elements:	NP -> N ₁ no N ₂ P
	6. Adverb-fronting	S -> X S
<u>Phase 3</u>	7. Quantifier:	NP -> qu NP
	8. Adjectives:	NP -> adj NP
	9. Coordination:	S -> S coordinator S
	10. Adverb:	VP -> adv V
<u>Phase 4</u>	11. Subordination (S-initial):	S -> sub clause S
	12. Subordination (S-internal):	S -> NP sub clause NP V
	13. Clause-chaining:	S -> cl. cl. cl. cl. -----
	14. Aspect-marking:	V -> V-te V
		S -> S aspect P
	15. Adjective inflection:	adj -> V adj -> adv
	16. Nominal adjectives:	adj N -> N adj na N adj V -> adv V

In the first phase, learners acquire basic sentence structures and basic categories including canonical order of copula and verb sentences (including existential verb sentences).

The second stage is the extension of NP, VP and sentences: this happens first in the sentence-final position and then, the sentence-initial position. Therefore, the learner is able to produce complex noun phrases in this stage. Furthermore, the learner is able to mark tense and negation. The learner, however, is unable to produce a combination of verb morphemes (eg. negative and past) at this phase.

In the third phase, the learner acquires the ability to place modifying elements before the modified and to change some category features thereby establishing new subcategories. Consequently, the learner starts to use quantifiers and adjectives before NP, and adverbs before verbs.

In the fourth phase, the learner is able to produce more complex constructions. In this phase, the clause and syntactic category of lexical items can be changed.

The results are explained on the basis of Pienemann's (1994) psycholinguistic theory of SLA: that the development of syntax is constrained by limits in the ability to process information.

CHAPTER 3

EXPERIMENTAL DESIGN

3-1 THE AIM OF THE STUDY

In spite of the fact that many studies have been reported regarding referential choice in ESL and GSL, only very little has been identified about this referential management in JSL. The present study was undertaken to address several questions raised by the researcher regarding the choice of referential form by NS and language learners of Japanese. This study will focus on the use of nominal ellipsis with a linguistically encoded antecedent (ie. anaphora). The questions which will be answered in this study are as follows:

- (1) With regards to referential choice: do different types of speakers alternate between full noun and ellipsis?
 - (a) Are there any differences in the distribution of referential choice among three groups (ie. NS-NS interaction, FT as NS's simplified register, and NNS)
 - (b) If so, are there any differences among NNS according to acquisition stages of syntax?
 - (c) Do NS change the selection of referential forms when they speak to NS and when they speak to those who do not have full competence in the language (ie. FT)?
- (2) What are the constraints for the referential choice in NS-NS interaction, FT and NS's speech production?
- (3) What is the underlying mechanism for the selection of referential form in SLA discourse in Japanese?

There are two major approaches to referential choice (ie. whether full noun or pronoun) in English. One is the recency/distance approach developed by Givón (1983, 1984) and his associates and the other is the episode/paragraph approach postulated by Tomlin (1987, 1990) (cf. Chapter 2). In this study, I would like to examine whether the constraints for referential choice in English, that is, recency/distance and episode/paragraph boundaries, also apply in Japanese, and whether the full noun or ellipsis corresponds to the English pronoun. In addition to two constraints affecting referential management, ambiguity of context, a further constraint, will also be investigated. I would like to demonstrate that the use of referential forms in Japanese discourse differs between NS-NS interaction, FT and NNS's speech production. Furthermore, that NNS's referential management changes according to their second language development.

3-2 Hypotheses

(1) Regarding referential choice by different types of speaker:

(a) There are differences in selection of reference forms in NS-NS interaction, FT and NNS's discourse.

(b) There are differences in NNS's selection of referential forms according to his/her acquisitional stage of syntax.

(c) NS vary their referential choices when speaking to NS and to NNS.

(2) Regarding the constraints on deciding referential choice in Japanese:

The choice of referential form, either full noun or ellipsis, is due to the limited capacity of human working memory. The cognitive constraints consist of time, the number of items in short term memory at the current moment and ability to focus. These constraints manifest themselves as linguistic constraints in the following ways: the number of clauses which intervene between a given referent and its antecedent; the number of items in the immediately preceding discourse which may lead to potential ambiguity; and episode/paragraph boundaries

which indicates the activation of the memory after the boundaries.

(a) Potential ambiguity

The potential confusion of the referent affects the choice of referential form. The potential ambiguity is measured as follows: when there is no competitive entity and the current reference is the only one, the potential ambiguity = 1; when there is one competitive reference other than the current reference, the potential ambiguity = 2, and so forth.

1. There is a difference in the use of full noun between NS, FT and NNS when: 1) the potential ambiguity = 1; and 2) the potential ambiguity ≥ 2 .

2. There is a difference in the use of ellipsis between NS, FT and NNS when 1) the potential ambiguity = 1; and 2) the potential ambiguity ≥ 2 .

(b) Distance/recency

1. There is a difference in the distance between a full noun and its antecedent among NS, FT and NNS.

2. There is a difference in the distance between ellipsis and its antecedent among NS, FT and NNS.

(c) episode/paragraph boundaries

There is a difference in the choice of full noun and ellipsis within the episode/paragraph boundaries amongst NS, FT and NNS.

(d) These constraints have a different effect on NS-NS interaction, FT and NNS's discourse.

3-3 The informants

Two groups of people, NS and NNS of Japanese, participated in the study forming three different types of production dyads:

- (1) NS-NS interaction (as a control)
- (2) NS's speech production toward NNS (ie. FT)
- (3) NNS's speech production (to NS)

NS (as FT)

Four native speakers of Japanese, Mariko, Kiki, Naoko, and Satomi, were participants: all have taught Japanese at either the Japan Centre, Australian National University or the Department of Modern Languages, University of Canberra in 1995. All of them have completed or have been undertaking a course in applied linguistics or applied Japanese linguistics at post graduate level in Australia and have trained to become Japanese teachers. All of them have lived in Australia for more than one year and less than six years.

These native speakers interviewed the learners of Japanese and their speech production was analysed as FT.

NNS

All the NNS joining this study were students at the Japan Centre, Australian National University in 1995 and all of them are native speakers of English. Only native speakers of English were selected so as to avoid the effect of first language transfer. The detail of the learners are as follows;⁴

Two first year students: Kate, Irisa

Three second year students: Simon, Megan, Sangeeta

Two third year students: Natasha, Helen

⁴ Note that "first, second and third year" do not correspond to the developmental stage of acquisition.

Among these informants, Kate, Irisa, Simon and Megan have never been to Japan while Sangeeta, Natasha and Helen have. Sangeeta studied at a high school for one academic-year in Japan in 1993. Natasha and Helen were exchanged students and studied one academic-year at universities in Japan in 1994.

NS-NS (as control)

As a control, interaction between native speakers (Kiki and Mariko, Naoko and Satomi) was investigated.

3-4 TASK

Natural conversation is the most desirable way for examining referential choice. However, data collection of this kind is very difficult and, moreover, the data involves several problems for analysis. Firstly, there have been many reports (Ferguson 1975; Long 1981, 1982, 1983; Chaudron 1983) that in free conversation between NS and NNS, questions from NS often elicit one word answers from NNS, especially beginners. Secondly, it is difficult to compare referential management between different interlocution with natural conversational data because it involves many factors affecting referential choice, and accordingly, the analysis will not reveal the influence of each factor on referential choice. Due to these limitations, picture tasks⁵ were adopted for this research. The picture task utilised in this study was produced at the Language Acquisition Research Centre (LARC), University of Sydney, and is specially designed for the purpose of eliciting various kinds of syntactic structures from the learner. In this way, language learners are encouraged to talk and it is appropriate for all levels of learners.

Three tasks: (1) a picture recognition task; (2) a picture sequencing task; and (3) a picture difference task, were used for speech elicitation. The overview of the task is as below:

⁵The university of Sydney Language Acquisition Research Centre, (1994), *Communicative tasks: handbook and tasks*, A division of the National Languages and Literacy Institute of Australia.

(1) Picture recognition

Either "librarian" or "police officer" picture recognition tasks were used. Both consist of five pictures in which the different activities of the person's daily routine are drawn. The pictures were shown to the participant individually one after another and they were asked to describe each picture. NS played the role of facilitators in NNS-NS interaction.

(2) Picture sequence

Either a "picnic sequence" or a "playing ball sequence" was used. The "picnic sequence" is the story of a family going to a picnic, while the "playing ball sequence", is the story of a boy and a girl who have broken a window while playing ball. Each story is made up of six pictures. The six pictures were shown to the participants all at once and they were asked to decide the chronological order of the pictures describing the story according to the chosen order.

(3) Picture difference

This is an interactional task which is designed to be carried out by two people. Either the "park picture difference" or the "animal picture difference" task was used. In these tasks, the pictures shown to each interlocutor are similar but contain approximately 10 differences. For example, each picture has a cat but one cat is big and black and the other is small and white. Each pair of participants was to find the differences between their pictures by questioning their partner about his/her picture or by describing his/her own picture.

All the picture tasks used here are appropriate for the analysis of referential choice in terms of potential ambiguity (ie. how many competitive characters/entities exist in the immediately preceding discourse) and the distance between a referent and its antecedent. Task (1), picture recognition (each picture describing an episode within a story), is adopted to look at referential management within and after the episode/paragraph boundaries. To ensure correct interpretation of the existence of episode boundaries, the pictures were shown to the informants one by one. Task (2), the picture sequence (six pictures

describing a story), is useful for examining referential management in terms of distance.

The role of either interviewer or interviewee was assigned to the participants. Native speakers of Japanese mostly played the role of interviewer, however, the role separation was not absolute and occasionally the interviewee would ask questions of the interviewer, or both of them cooperated to achieve the object of the picture difference tasks.

3-5 Taping sessions and recording equipment

All taping sessions were carried out in the recording laboratory in the Department of Linguistic, Australian National University to ensure the recording quality of the speech.

In the taping sessions the learners are encouraged to speak sentences instead of one-word answers such as "yes", "no" or a noun. Each session was about 30 minutes in duration.

3-6 Romanisation

The Hepburn romanisation system is used except for long vowel sound which I have chosen to transcribe as double vowels (*aa, ee, ii, oo, uu*) in place of the usual bar above the vowel. English orthography was used for the native speaker of English when they used English words.

3-7 Method of data analysis

(1) The distinction between anaphoric ellipsis and deictic ellipsis

Ellipsis is divided into two categories in terms of its antecedent: ellipsis with a linguistically encoded antecedent (ie. anaphora); and ellipsis with a non-linguistically encoded antecedent (ie. deixis). Only ellipsis indicating coreference is dealt with in this study, deictic ellipsis is not considered. Anaphora has to be analysed independently from deixis because it is closely related to human cognition, namely working short-term memory. In this case, successful nominal ellipsis in Japanese requires the retrieval of its reference by the hearer.

(2) The distribution of referential forms

Hypotheses:

Regarding referential choice by different types of speaker:

- (a) There are differences in selection of reference forms in NS-NS interaction, FT and NNS's discourse.
- (b) There are differences in NNS's selection of referential forms according to his/her acquisitional stage of syntax.
- (c) NS vary their referential choices depending on whether they speak to NS or to NNS.

The distribution of referential forms in the three different discourse types (ie. NS-NS, FT as NS's simplified register, NNS's speech production) are analysed. The frequency of use of noun phrases, pronouns and ellipsis is tabulated according to different functions; that is, topic introduction, topic reintroduction and topic continuation.

(3) The measurement of factors affecting referential choice and accompanying problems

From a cognitive point of view, successful ellipsis activates its antecedent noun phrase in the hearer's memory enabling the antecedent to be retrieved. On top of this, competing references should not exist in working memory at the current time. It is, however, extremely hard to measure successful ellipsis as only unsuccessful ellipsis can be identified when the hearer questions the referent of the ellipsis. Even when the referent is not questioned it is hard to know whether the hearer has obtained the correct referent or not. In addition, the use of ellipsis is like a "guessing game" between the speaker and the hearer in their dynamic discourse production and it is impossible to measure empirically whether the hearer's consciousness of the reference has been activated or not (Williams 1988). Furthermore, factors other than the recoverability of the reference, such as the difficulty of the task, may be involved in the selection of the reference form.

Considering these difficulties, measures from two approaches for referential management, namely the recency/distance approach and

episode/paragraph approach, have been adopted to identify the use of ellipsis for NNS, NS's simplified register and NS. The measurement used in these approaches are: referential distance; potential ambiguity; and episode/paragraph boundaries. Clark and Sengul (1979) have shown that an increase in the distance between a reference and its antecedent resulted in longer retrieval time. Givón's (1983c, 1984 in Williams) empirical study has proven that full reference is preferable to a pronominal with an increase in referential distance. Thus the first mention of a referent is explicitly presented (ie. full reference) and the continuation of the same referent is inexplicitly presented (ie. pronoun or ellipsis) because the hearer is able to recover the reference easily from the preceding discourse. Short term memory, however, is limited and the retrieval of the referent is possible only when the antecedent is in a preceding clause or in a sentence relatively close to the current macroposition (Van Dijk and Klintsch: 1983). The limited capacity of short term memory is well illustrated in an experiment by Clark and Sengul (1979). In this experiment it was found that the retrieval time of an anaphoric expression is shorter when the referent is mentioned in the immediately preceding clause than in the two or three clauses before. Further, Tomlin's (1987, 1990) empirical study suggested that the major factor for referential choice was the focus shift of attention which is manifested at episode/paragraph boundaries.

My method of analysis is adopted from Givón (1983; 1984), Williams (1988) and Tomlin (1987, 1990).

Potential ambiguity

Hypotheses:

1. There is a difference in the use of full noun between NS, FT and NNS when: 1) the potential ambiguity = 1; and 2) the potential ambiguity \geq 2.
2. There is a difference in the use of ellipsis between NS, FT and NNS when 1) the potential ambiguity = 1; and 2) the potential ambiguity \geq 2.

Potential ambiguity looks at the presence or absence of other references in the immediately preceding discourse. This measure is adopted to identify a potential source of confusion. When there is reference for the ellipsis only (ie. there are no

competing characters) in the immediately preceding discourse, the potential ambiguity is "1". If there is a second character as well as the reference, the potential ambiguity is "2". If there are two characters as well as the reference, the measure is "3" and so on.

Referential distance

Hypotheses:

1. There is a difference in the distance between a full noun and its antecedent among NS, FT and NNS.
2. There is a difference in the distance between ellipsis and its antecedent among NS, FT and NNS.

Referential distance measures "the distance to the left in terms of number of clauses, or how far back in the discourse the last mention of the topic or referent associated with the referential device can be found" (Williams: 1988). When the referent of the ellipsis is found in the same clause, the referential distance is "0". When the referent is in the immediately preceding clause, the referential distance is "1" and so forth.

Episode/paragraph boundaries

Hypothesis:

There is a difference in the choice of full noun and ellipsis within the episode/paragraph boundaries amongst NS, FT and NNS.

"An episode is defined conceptually as a semantic unit in discourse organisation consisting of a set of related propositions governed by a macroposition or paragraph level theme. Episode boundaries represent major breaks, or attention shift in the flow of information in discourse. In typical narrative discourse, major changes in time, place or characters correspond to episode boundaries"

(Tomlin 1987: 460)

The referential forms used by each participant within and after episode/paragraph boundaries are classified and tabulated.

(4) Determining the learner's acquisition stages

I have chosen to follow the acquisition stages postulated by Huter (1995) (cf. Chapter 2). Huter proposed the following four stages of acquisition for Japanese as a second language. Further stages or subdivision of a stage may be speculated if necessary.

<u>Stage</u>	<u>Features</u>
Stage 1	canonical order of copula/verb/existential sentence
Stage 2	sentence-final modification (Sentence + X)
Stage 3	modification before the sentence (X + Sentence)
Stage 4	insertion of an element at the verb-frontal position (Verb + X: complex verb phrase)

(5) Statistical test

Although this study does not aim to quantitatively discover differences of referential choice in JSL, statistical tests were used to look at NS's linguistic adjustment; that is, whether their modification in NS-NNS (ie. FT) interaction is significant or not.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter is based on findings concerning referential choice in Japanese by three different types of speaker, NS, FT and NNS. Among NNS, how their referential choice changes in accordance with their development of syntactic structure was also analysed.

Three kinds of variables were used for the analysis to draw a clearer picture of referential management by respective types of speakers. The first variable is that of potential ambiguity. This variable was adopted to find out whether the number of entities in the immediately preceding discourse affects the choice of referential form. The second variable is the distance between a given referent and its antecedent. In this case, the number of clauses intervening between the two were counted to measure the distance. The third variable is the episode/paragraph boundaries. The forms of reference used by each type of speaker was analysed both within the episode/paragraph boundaries and after the boundaries in the discourse.

The object of this chapter is to test the hypotheses raised in the last chapter and answer the question of whether there are differences between the three types of speakers in terms of referential choice and how language learners develop their referential management. An analysis of the results of the experiments are provided. Statistical tests were carried out to test the difference in performance of speakers.

4-1 Developmental stages of learners

Prior to the analysis of referential choice, the learners' developmental stages were investigated. The following Table 4-1 shows the various features found in the sentences produced by NNS: syntactic features of the sentence, NP and VP appearing in learners' speech production were tabulated according to the learner.

Although Huter (1995) has identified four phases (cf. 2-8), I would like to suggest that the fourth stage be divided into phase 4, 5 and 6. The division for phase 4 and 5 is empirically supported, and for phase 5 and 6 is theoretically supported. As described below, phase 4, 5 and 6 contain syntactic features which require a different level of information processing. In addition, my data suggested that relativization (Phase 6) occurs at the highest level of developmental stages and this stage is independent of previous stages (cf. Table 4-1). While my data supported the division of Phase 5 and 6, it did not show the necessity of division of Phase 4 and 5: non of my informants fell into Phase 4. However, this was cross-sectional study and only 7 learners were participated to the experiment. It is possible to say that one of them belonged to Phase 4 because I coincidentally did not choose the learner who belongs to this stage. This is one weakness of the cross-sectional study and longitudinal study may identify the division of Phase 4, 5 and 6.

The features of Phase 4, 5 and 6 are as follows.

Phase 4: adj P -> adv adj

VP -> adv V

V-te V

Phase 5: V/copula-X₁-X₂

Sentences including subordinate adverbial clause

(after): V(past) - ato ni

(before): V(present) - mae ni

(when): V-toki ni

(while): V(stem)- nagara

(if), (in order to), (because), etc.

Phase 6: Sentences including relative clause (S-initial)
 Sentences including relative clause (S-internal)

In Phase 4, internal insertion or inflection of elements is required. In phase 5, with "V/copula-X₁-X₂", verb/copula have to be inflected for insertion of two additional elements after the verb/copula. On top of that, "X₁" also has to be inflected for "X₂". An example VP from Helen's speech of this kind is:

shikar-are-teiru
 scold (passive) (progressive)
 (is being scolded)

In this case, the verb "shikaru" is inflected for the passive "-rareru" and also is inflected for the progressive "-teiru". Another feature placed in Phase 5 is the adverbial subordinate clause. In this case, a decision must be made as to the tense of main and subordinate clauses, the use of complementiser, and the ordering main and subordinate clauses. For example, Natasha's sentence,

* tsugi no e wa ø niku o yakusuru maeni
 next (genitive P) picture (topic P) meat (OBJ P) bake before
 ø soosu o nut-teiru=nutteiru.
 sauce (OBJ P) apply-progressive
 (Before ø_j bakes the meat, ø_j is applying sauce.)

is ungrammatical with the wrong inflection on the verb in the adverbial clause: it should be the plain form "yaku" (bake) instead of "yakusuru". Other requirements (ie. the use of complementiser, the inflection in the main clause, the ordering of main and subordinate clauses) are correct.

Phase 6 involves the construction of the relative clause; firstly in sentence initial and then, sentence internal position.

(sentence initial)
 (Natasha)

ø doroboo o oikakeru shigoto wa chotto
 robber (OBJ P) chase job (topic P) a bit

abunai to omoimasu.

dangerous (P) I think

(I think a job where ø chases a robber is a bit dangerous.)

(sentence internal)

(Kiki)

omawarisan ga doroboo ni haitta hito o

police officer (SUBJ P) robbery (indirect OBJ P) broke in person (OBJ P)

tsukamaete=tsukamaeteimasu.

arrest (progressive)

(A police officer is arresting a person who broke in for robbery.)

In Natasha's speech the relative clause appeared in the topic slot (ie. sentence initial) and with Kiki's speech, in object position (ie. sentence internal). Information processing across sentences is the final stage of language acquisition, especially in sentence internal position.

Phase	Features	Meg	Kat	Iri	Sim	Sam	Nat	Hel
1	Copula-S inc. NP	-	2	1	1	-	2	-
	Verb-S inc. NP	14	7	8	7	13	16	13
2	NP -> N no/to/ya NP		1		1	1	3	2
	V -> V-ending	1	14	12	14	10	25	11
	NP -> N ₁ no N ₂	2	2	1	11	9	24	12
	S -> X S	1	1	7	5	4	6	3
3	Quantifier				6	1	13	3
	NP -> adj NP	1			3	1	2	4
	S -> S conjunction S		2	1	4	6	3	2
	VP -> adv V			3		1	1	2
4	adv P -> adv adj			1	2		1	
	VP -> adv V			3		1	1	2
	V-te V			1		3	3	1
5	V/copula - X ₁ - X ₂				6	2	1	2
	Subordinate clause after: V(past)-atoni before: V(present)-maeni while: V(stem)-nagara when: V(past/pres)-tokini			1	2	6	1	1
6	Relative Cl. (S-initial)						5	4
	Relative Cl. (S-internal)						3	4

Meg (Megan), Kat (Kate), Iri (Irisa) Sim (Simon), San (Sangeeta), Nat (Natasha), Hel (Helen)

Table 4-1 NNS's Syntactic Features

In Table 4-1, features which are indicated "-" are syntactic features which appeared as a part of features of higher stages. For example, in Megan's utterance,

demo ame ga futte-imasu.
 (conjunction) (SUBJ) (particle) (verb) - (progressive)
 but rain (SUB P) is raining
 (But it is raining)

the sentence structure is "conjunction + sentence" and counted as a feature of phase 3, "Conj-front". However, this sentence is also a canonical verb sentence ("verb-sent" in stage 1). In this case, this sentence feature is counted as Stage 3, rather than Stage 1 even though it includes a feature of Stage 1. Within the sentence, the NP and VP are also analysed separately. Megan's sentence also contains a complex verb ("V -> V-ending" of stage 2) and therefore, this feature is counted as Stage 2. Thus, the features of speech production were analysed at sentence level, NP level and VP level. Following is another example from Natasha's speech,

<u>saigoni</u>	<u>ame</u>	<u>ga</u>	<u>fut-teiru</u>	<u>e</u>	<u>kamoshirenai</u>
(adverb)	(SUBJ)	(P)	(verb) (progressive)	(noun)	(aux)
lastly	rain	(SUBP)	is raining	picture	may be

(Lastly, it may be a picture in which it is raining.)

At sentence level, it is a sentence containing a relative clause: the clause, "ame ga futte-iru" (it is raining), modifies the noun "e" (picture). Therefore, this sentence was considered as a syntactic structure from phase 6. At the same time, this sentence involves "adv-front" which is a feature of phase 3, however, this sentence is not counted as belonging to phase 3. Thus, only the syntactic features of the most advanced stage are considered. At VP level, there is a complex VP: "fu-tteiru" consisting of the verb stem "fu-" (fall) and the inflection part "-tteiru" indicating the progressive. This feature was counted as belonging to phase 2.

From Table 4-1 above, the stage of each learner is assigned as follows:

<u>Stage 3⁶</u>	Megan
	Kate
<u>Stage 5</u>	Irisa
	Simon
	Sangeeta
<u>Stage 6</u>	Natasha
	Helen

⁶ Both Megan and Kate belong to the earlier part of Stage 3.

		Full-noun			Pronoun			Ellipsis			others
		[1]	[2]	[3]	[1]	[2]	[3]	[1]	[2]	[3]	
N S	Kiki	17	15	6	0	0	1	0	1	22	
	Mariko	15	5	2	0	0	0	0	0	5	
	Satomi	12	2	2	0	0	0	0	0	18	
	Naoko	19	4	2	0	0	0	0	0	29	
F T	Kiki (to Kate)	3	2	2	0	0	0	0	0	1	
	Satomi (to Megan)	1	0	6	0	0	1	0	0	6	
	Mariko (to Irisa)	2	9	4	0	0	0	0	0	8	
	Satomi (Simon)	3	0	7	0	0	0	0	0	19	
	Satomi (to Sangeeta)	2	2	1	0	0	0	0	0	4	
	Satomi (to Helen)	2	2	1	0	0	0	0	0	6	
	Satomi (to Natasha)	15	3	5	0	0	0	0	0	11	
N	(stage 3) Kate	6	0	6	0	0	0	0	1	7	
	Megan	10	3	6	0	0	0	1	1	12	
N	(stage 5) Irisa	13	1	2	0	0	0	1	2	5	
	Simon	14	9	3	1	0	1	0	0	13	
	Sangeeta	4	1	4	0	0	0	4	2	24	1
S	(stage 6) Natasha	25	11	8	0	0	0	0	0	23	
	Helen	13	4	2	0	0	0	0	1	8	1

TABLE 4-2 The use of the referential form by NS, FT and NNS

[1] introducing the reference [2] reintroducing the reference [3] continuing the same reference

The referential forms of the argument of the main verb in each clause were analysed to illustrate the referential choice according to the different types of speakers. Table 4-2 shows the use of referential forms (ie. full noun, pronoun or ellipsis) by NS, NS toward NNS (FT) and NNS. The frequency of use of each referential form was tabulated in three different contexts: (1) introducing the reference; (2) reintroducing the reference; and (3) continuing the same reference. "Introducing the reference" indicates when the character or the entity is first introduced in the story. "Reintroducing the reference" is where the character or the entity is mentioned again after the speaker says something about other characters or entities. "Continuing the same reference" is where the same reference is continuously mentioned without being disturbed by any other characters or entities. In other words, the subject of a clause is the same as that in the previous clause.

According to Table 4-2, the full noun was used by all three types of speakers regardless of different contexts. NS used the full noun most when introducing the reference and secondly reintroducing the reference. The frequency is less when continuing the same reference. In the case of FT and NNS, however, no consistency with the frequency of use of the full noun was observed.

The frequency of pronoun usage is extremely small for all types of speakers. This result coincides with those of Clancy's (1980) study: the frequency of pronoun usage for coreference in Japanese is almost zero.

The frequency pattern for the use of ellipsis varies according to different types of speakers. In the case of NS and FT, the use of ellipsis is restricted to "continuing the same reference", except in one case where NS (Kiki) uses ellipsis to "reintroduce the reference". This tendency was not observed among NNS. For NNS the use of ellipsis is not restricted to when continuing the same reference: all the NNS used ellipsis most when continuing the same reference, however they also used ellipsis when introducing and reintroducing the reference.

In summary, it is clear from Table 4-2 that there are two types of referential form in Japanese, either full noun or ellipsis: the use of pronouns is rare in Japanese. NNS seems to understand this Japanese-language-specific constraint.

4-3 Overview of NNS's performance

From Table 4-2 a rule for referential choice in Japanese (ie. NS-NS interaction) can be postulated. When introducing or reintroducing the reference, the referential form should be a full noun. This seems to be a constraint for the Japanese language and therefore, NS did not change their performance when they spoke to NNS. Although the use of ellipsis is dominant in NS's performance when continuing the reference, use of a full noun was also observed. In this case, NS's speech was modified when they spoke to NNS; using full noun more frequently than in NS-NS interaction. There seem to be other factors, such as potential ambiguity or distance, involved in referential choice when continuing the reference. Referential choice with these affecting factors is discussed later.

To investigate the language learner's acquisition of referential form Table 4-3 below was drawn up to summarise Table 4-2.

	[1] and [2]		[3]	
	full noun	ellipsis	full noun	ellipsis
NS	89 (99)	1 (1)	12 (14)	74 (86)
FT	46 (100)	0	26 (32)	55 (68)
NNS				
Stage 3	19 (86)	3 (14)	12 (39)	19 (61)
Stage 5	42 (82)	9 (18)	9 (17)	43 (83)
Stage 6	53 (98)	1 (2)	10 (24)	31 (76)

Table 4-3 () percentage
summary of the referential choice by NS, FT and NNS

- [1] introducing the reference
- [2] reintroducing the reference
- [3] continuing the reference

Table 4-3 reveals the extent to which the constraints of each stage affect the referential choice. In all situations, the percentage of use of ellipsis by NNS is highest at Stage 5. This may indicate that once ellipsis is learnt (Stage 3) excessive use of ellipsis is used (Stage 5) until further knowledge of its appropriate usage and constraints are gained. One piece of evidence for this is that NNS in Stage 6 seem to understand the constraint for

referential choice, that is, ellipsis should be used when introducing/reintroducing the reference. Only one counter example was observed in stage 6 NNS's performance while NNS in Stage 3 and Stage 5 often used ellipsis in many cases for introducing/reintroducing the reference.

Following 4-2, 4-3 and 4-4 are the results of detailed analysis of referential choice in terms of potential ambiguity, distance and episode boundaries. They will reveal each type of speaker's underlying mechanism of referential management.

4-4 Potential ambiguity and referential choice

It seems there are differences between NS, FT and NNS regarding the use of ellipsis. To find out the differences, it is important to look at the choice of referential form, full noun or ellipsis, when continuing the same reference: this will reveal the key factor for that choice for each type of speaker. Table 4-4 and 4-7 represent the potential ambiguity in the immediately preceding discourse when the speaker used a full noun (Table 4-4) and ellipsis (Table 4-7) for continuing the same reference. In both tables, the frequency of use of full noun/ellipsis by each type of speaker is tabulated according to the potential ambiguity; 1, 2 or 3⁷. The mean value of potential ambiguity by NS, FT and NNS are also provided.

4-4-1 Full noun

Hypothesis 1-a: There is a difference in the use of full noun between NS, FT and NNS when : 1) the potential ambiguity = 1; and 2) the potential ambiguity ≥ 2 .

⁷There were no cases where ambiguity was greater than 3.

	Speaker	Potential Ambiguity			Mean
		1	2	3	
NS	Kiki	0	5	1	2.2
	Mariko	0	2	0	
	Satomi	0	1	1	
	Naoko	0	2	0	
FT	Kiki (to Kate)	0	1	1	1.4
	Mariko (to Irisa)	0	3	1	
	Satomi (to Simon)	7	0	0	
	Satomi (to Megan)	6	0	0	
	Satomi (to Sangeeta)	0	1	0	
	Satomi (to Helen)	0	1	0	
	Satomi (to Natasha)	5	0	0	
NNS	<u>(Stage 3)</u>				1.1
	Kate	6	0	0	
	Megan	6	0	0	
	<u>(Stage 5)</u>				
	Irisa	2	0	0	
	Simon	2	1	0	
	Sangeeta	4	0	0	
	<u>(Stage 6)</u>				
	Natasha	11	4	0	
Helen	2	0	0		

Table 4-4 Potential ambiguity in the immediately preceding discourse when the speaker uses a full noun for continuing the same reference

In terms of potential ambiguity Table 4-4 shows that performances differed with the use of full nouns by speakers to maintain the reference. No NS used a full noun when the potential ambiguity = 1: they used a full noun only when the potential ambiguity ≥ 2 . NNS, by contrast, used a full noun quite differently from NS. All NNS used full nouns frequently when the potential ambiguity = 1. FT performance showed two different patterns: either NS-like performance where the use of a full noun is restricted when the potential ambiguity is "1" (ie. speeches by Kiki (to Kate), Mariko (to Irisa), Satomi (to Sangeeta) and Satomi (to

Helen)); or NNS-like where the speaker used full nouns frequently when the potential ambiguity = 1 (ie. speeches by Satomi (to Simon), Satomi (to Megan) and Satomi (to Natasha)). In other words, in this experiment, some FT was close to NS's speech and some was close to NNS's speech in terms of the use of the full nouns.

A detailed analysis was carried out to discover how the full noun was used even when there was no competitive referent in the immediately preceding discourse (ie. the potential ambiguity = 1) in FT and NNS's speech.

The following three examples from the picture difference task are extracts from recorded interactions between Satomi (NS) - Megan's (Stage 3), Satomi (NS) - Simon's (Stage 5) and Satomi (NS) - Natasha's (Stage 6). The comparison of them will reveal how language learners differ in their referential choice according to the stage of language acquisition. It also reveals linguistic adjustments by NS according to the language learner's stage of development.

Satomi (NS) - Megan (Stage 3)

I: Interviewer (Satomi) L: Learner (Megan)

L: aa:: uh:: *neko* wa kuroidesu ka?
cat (topic P) be black (question)

I: iie *neko* wa shiroidesu.
no cat (topic P) be white

L: hai
yes

I: hai
yes

L: mn ah:: ah: *neko* wa ookiidesu ka?
cat (topic P) be big (question)

I: iie *neko* wa chiisaidesu.
no cat (topic P) be small

L: hai=

yes

I: = hai

yes

L: eeto mn *inu* wa kuroidesu ka?

well dog (topic P) be black (question)

I: iie *inu* wa kurokunaidesu.

no dog (topic P) be not black

L: hai ((laugh))

yes

I: don'na *inu* desu ka?

what kind of dog (copula) (question)

L: jaaman shepaado desu.

German shepherd (copula)

L: Is the *cat* black?

I: No, the *cat* is white.

L: Yes.

I: Yes.

L: Is the *cat* big?

I: No, the *cat* is small.

L: Yes=

I: = Yes.

L: Well, is the *dog* black?

I: No, the *dog* is not black.

L: Yes. ((laugh))

I: What kind of *dog* is it?

L: It is a German shepherd.

Satomi (NS) - Simon (Stage 5)

I: Interviewer (Satomi) L: Learner (Simon)

L: anoo kawaguchi sensei no e wa ano bird
well Kawaguchi teacher (genitive P) picture (topic P) well bird

ga arimasu ka?
(SUBJ P) there is (question)

I: hai tori ga imasu. hai
yes bird (SUBJ P) there is yes

L: to-tori desu ka?
bird (copula) (question)

I: hai
yes

L: hai anoo h. ki ga -- ki ga arimasu ka?
yes well tree (SUBJ P) tree (SUBJ P) there is (question)

I: hai ki ga nihon arimasu.
yes tree (SUBJ P) two there are

L: hai anoo (3)
yes well

I: tori wa gohiki imasu.
bird (topic P) five there are

L: tori desu ka? hai ano *otoko no hito no
bird (copula) (question) yes well male (genitive P) person (genitive P)

fuku desu ka? ((laugh))
clothes (copula) (question)

I: ø anoo te ni hitotsu to ude ni hitotsu?
well hand (locative P) one and arm (locative P) one

L: hai

yes

I: sorekara ø kochira ni hitotsu?

and then here (locative P) one

L: hai

yes

I: ano ø jimen ni ippiki imasu.

well ground (locative P) one there is

L: Well, as for Miss Kawaguchi('s picture), well, are there (any) *birds*?

I: Yes, there are (some) *birds*. yes.

L: Is it called *tori*?

I: yes.

L: Yes, well, is there (any) tree?

I: Yes, there are two *trees*.

L: Yes, well (3)

I: There are five *birds*.

L: Are you talking about *birds*? *Yes, well, is it a man's clothing?
(he probably wanted to say "is ø on the man's clothing?")
((laugh))

I: one ø is on the hand and one is on the arm.

L: Yes.

I: And then one ø is here.

L: Yes.

I: Well, one ø is on the ground.

Satomi (NS) - Natasha (Stage 6)

I: Interviewer (Satomi) L: Learner (Natasha)

L: mmm *tori* wa nan'biki imasu ka?

bird (topic P) how many there are (question)

I: eeto tori wa gohiki imasu.

well bird (topic P) five there are

L: ah ah ø sora ni ton'deiru no hito no ue

sky (locative P) flying (genitive P) people (genitive P) above

no (2) ø zenbu de gohiki desu ka?

(nominalizer) all together (P) five (copula) (question)

I: eeto: watashi no wa ø hito no ue ni

well I (nominalizer) (topic P) people (genitive P) above (genitive P)

notteiru no ga yon'hiki de soshite ano zimen

getting on (nominalizer) (SUJB P) four (copula) -and well ground

ni iru no ga ippiki desu.

(locative P) there is (nominalizer) (SUBJ P) one (copula)

L: a soo desu ka. *watashi to onaji keredo

so (copula) (question) I with same but

mm en no hidari gawa soreni ton'deiru

circle (genitive) left side and flying

tori mo imasu.

bird also there is

I: soo desu ka. watashi no wa ø imasen.

so (copula) (question) I (nominalizer) (topic P) there is not

ja hitotsu soo desu ne.

then one so (copula) (EP)

L: soo

yes

L: mmn how many birds are there?

I: Well, there are five birds.

L: ah ah ø is flying over the person. (2) Are there ø five all together?

- I: Well, As for mine, there are four \emptyset on people and then well there is one on the ground.
- L: Is that so? It is the same as mine but mn on the left side of the circle, there is also a flying bird in the sky.
- I: Is it so? As for mine, there is no \emptyset . Then there is one (ie. there is one picture difference)
- L: Yes

In Satomi (NS) - Megan's (Stage 3) interaction, the referent is continuously coded as a full noun by both interlocutors. In the first several sentences of Satomi (NS) - Simon's (Stage 5) interaction, the references, "tori" (bird) and "ki" (tree) were coded as full nouns. When Simon raised a question, Satomi answered the question repeating the full noun used in the question. Apparently, Simon did not know the Japanese word for "bird" at first. Satomi seemed to clarify the word "tori" (bird) by repeating the word. The repetition of words is a typical FT attempt to facilitate communication (Meisel, 1980). Satomi's effort of reinforcing the word "tori" (bird) seemed to work on Simon, and he started to use the word. After several sentences where Satomi made sure that Simon had learnt the word "tori" (bird), Satomi started to use ellipsis when referring to "tori" (bird). With Satomi (NS) - Natasha's (Stage 6) conversation, the referent "tori" (bird) was introduced by Natasha in a question, and then Satomi repeated the full noun in her reply. Following Satomi's reply, Natasha ellipted the referent. It is interesting that Satomi started to use ellipsis to maintain the reference after Natasha's utterance.

Thus, the learners in Stage 3 and Stage 5 repeatedly used full nouns even when the referent was obvious. The learner in Stage 6, on the other hand, preferred to use ellipsis to continue the same referent. The NS's performance in terms of the referential choice, correlated to NNS's performance. It is clear that Satomi (NS) adjusted her use of referential forms according to the learner. She firstly used full nouns for any learners, and then, modified her speech according to the listener: she tended to use full nouns more repeatedly to maintain the reference for learners in earlier stages of development. She used more ellipsis when she talked to NNS who used more ellipsis. In other words, she adjusted her referential choice by coding the reference in an explicit manner to help the referential search by the listener. When she spoke to the learners in a later stages of development, less modification of her

referential choice was observed. Probably she assumed that the ellipted reference could be recovered by these learners without her help.

Different referential choice according to the speaker is observed not only qualitatively but also quantitatively. Let's look at Table 4-4. The mean potential ambiguity with the use of a full noun for NS, FT and NNS is 2.2, 1.4 and 1.1 respectively. This indicates that NS chose full noun as a referential form when the potential ambiguity was high. After NS, FT was closely followed by NNS when using the full noun to avoid ambiguity. This result implies that NS adjusts his/her speech to the Simplified register of FT in order to speak at a level similar to the NNS. FT, however, does not completely change towards the norm of NNS but retains their referential choice somewhere between that of NS and NNS.

A statistical test was carried out to discover whether there were any significant differences in referential choice by NS, FT and, NNS and if there were any, where the difference was. The differing frequency of full noun usage by each type of speaker is tested using Chi-square. Table 4-5 below shows the observed frequencies. The use of Chi-square as a statistical test is appropriate because: the type of data is frequency; the type of hypothesis is difference; and there are three independent data sets (NS, FT and NNS).

type of speaker	ambiguity = 1	ambiguity \geq 2
NS	0	12
FT	18	8
NNS	33	5

Table 4-5 Observed frequency table

DF:	2
Total Chi-Square:	31.2 P = .0001
G Statistics:	-
Contingency Coefficient:	0.5
Cramer's V:	0.6

Table 4-6 Summary statistics

The result of the statistical test is significant (Chi-square = 31.2, df = 2, p = .0001). Thus, the hypothesis was supported and there is a difference in the use of full nouns in terms of potential ambiguity among the three groups. To discover exactly where the difference is, differences in the performance of all possible combinations of the three types of speakers: 1) NS and FT; 2) NS and NNS; and 3) FT and NNS, were tested using Fisher's Exact Test. Fisher's Exact Test was used instead of Chi-Square because E (expected value) < 5 in a 2x2 contingency table. The following represents the results of the statistical test.

NS vs FT	P = .465 ⁻⁴	(significant with Fisher's Exact Test)
NS vs NNS	p = .510 ⁻⁷	(significant with Fisher's Exact Test)
FT vs NNS	p = .1604	Chi-square = .0855 (not significant with Chi-Square Test)

The difference in the performance between NS and FT is significant, as is NS and NNS, however, FT and NNS does not present a significant difference. This indicates that NS choose the full noun differently from both FT and NNS. Further, FT's choice of the full noun is the same as that of NNS. In summary, the use of full noun in NS-NS interaction is different from that of NNS according to the potential ambiguity and, further NS changes to NNS's norm when NS speak to NNS (ie. FT).

4-4-2 Ellipsis

Hypothesis 1-b: There is a difference in the use of ellipsis between NS, FT and NNS when: 1) the potential ambiguity = 1; and 2) the potential ambiguity ≥ 2.

Types of speakers	Speaker	Potential Ambiguity			Mean
		1	2	3	
NS	Kiki	22	0	0	1
	Mariko	5	0	0	
	Satomi	18	0	0	
	Naoko	29	0	0	
FT	Kiki (to Kate)	1	0	0	1
	Mariko (to Irisa)	8	0	0	
	Satomi (to Simon)	19	0	0	
	Satomi (to Megan)	6	0	0	
	Satomi (to Sangeeta)	4	0	0	
	Satomi (to Helen)	6	0	0	
	Satomi (to Natasha)	11	0	0	
NNS	<u>(Stage 3)</u>				1.06
	Kate	7	0	0	
	Megan	11	1	0	
	<u>(Stage 5)</u>				
	Irisa	4	1	0	
	Simon	13	1	0	
	Sangeeta	23	1	0	
	<u>(Stage 6)</u>				
	Natasha	23	0	0	
Helen	6	2	0		

Table 4-7 Potential ambiguity in the immediately preceding discourse when the speaker use ellipsis for continuing the same reference

Table 4-7 shows the use of ellipsis according to potential ambiguity: this clarifies the constraint on the use of ellipsis for NS, FT and NNS. NS and FT use ellipsis only when the potential ambiguity = 1: no case was observed with the use of ellipsis when the potential ambiguity ≥ 2 for NS and FT. NNS, by contrast, not only used ellipsis when the potential ambiguity = 1, but also when ambiguity ≥ 2 . The mean of the potential ambiguity for NS and FT is 1 and for NNS, is 1.06. Accordingly, the use of ellipsis by NS and FT is exactly the same, indicating that the speech adjustment is not performed for FT, which is different from the FT's speech adjustment with the use of full nouns. In other words, there is a

constraint on the use of ellipsis regardless of the audience: for the Native speakers of Japanese, the potential ambiguity should be "1".

A detailed analysis was carried out to find out whether NNS's use of ellipsis when the potential ambiguity = 2 actually had a possibility for confusion of reference in the discourse. Next are examples from Sangeeta (Stage 5) and Helen's (Stage 6) speech.

Sangeeta (Stage 5)

(Describing a police woman's job)

Soo desu nee (1) ano:: keisatsu no hito wa (1.8)
let me see well police (genitive P) person (topic P)

ano hito (.8) to hanashitai kara ø hanashiteiru.
well person with talk-volitional because of talk-(progressive)

(Let me see. Well, because a police officer wants to talk to a person, ø is talking.)

In the first clause, there are two referents, "keisatsu no hito" (police officer) and "hito" (person). Then, the subject of the second clause (ie. the main clause of the sentence) is omitted. However, this omission does not lead to confusion of the reference but rather leads to an increased cohesion: the sentence topic "keisatsu no hito" (police officer) governs both the main and subordinate clauses of the sentence. Therefore, the use of ellipsis on this occasion seems to be appropriate.

Helen (Stage 6)

(Describing children playing ball. This utterance occurred after she explained that the ball smashed the window and that a man came out of the house.)

de saigoni eeto aru otoko -- no nan'ka
then lastly well one male (genitive P) (filling)

otona ga eeto tabun sono (.3) kodomo no
adult (SUBJ P) well maybe that child (genitive P)

ie ni itte/ de nan'ka ø shikarare--te irumitai -- desu.
 house (locative P) go-and (filling) scold-(passive)-(progressive)-look like
 (Then, lastly, well one adult man, maybe, went to that children and/ it
 looks like ø is being scolded.)

In the above case, the subject of the second clause is omitted where there are two competing referents "otoko no otona" (adult man) and "kodomo" (children) appear. The natural interpretation of the omitted subject of the second sentence is "otoko no otona" (adult man). However, this is wrong. It is the children, not the adult man, who are scolded. Therefore, the use of ellipsis in this case may lead to misinterpretation. It is worth noting that the use of ellipsis by Helen may be due to focus of attention as suggested by Tomlin (1991): the passive sentence is predominantly used across languages when the focus is on the patient. The Picture sequence task (playing ball) describes two children playing ball and subsequent events. Therefore, the focus is apparently on the children and not the adult man. Accordingly, it may be possible to interpret this example as her focus leading to constructing the passive sentence where the patients (children) are in the subject slot.

Chi-Square was used to test the difference in the frequency of use of ellipsis by the different groups. The tables below represent the observed frequency of ellipsis for each type of speaker and the summary of contingency analysis of the Chi-Square test.

type of speaker	ambiguity = 1	ambiguity > 2
NS	74	0
FT	55	0
NNS	87	6

Table 4-8 Observed frequency table

DF:	2
Total Chi-Square:	19.2 P = .0001
G Statistics:	-
Contingency Coefficient:	0.3
Cramer's V:	0.3

Table 4-9 Summary statistics

The result of the statistical test is significant (Chi-square = 19.2, df = 2, p = .0001). Therefore, there is a difference among NS, FT and NNS concerning the frequency of use of ellipsis in terms of its potential ambiguity.

The difference between NS and FT, NS and NNS, and FT and NNS were tested using Fisher's Exact Test. This test was used instead of Chi-Square because of the small number of E values (ie. E<5).

NS - FT	p = 1 (not significant)
NS - NNS	p = .0277 (significant)
FT - NNS	p = .001681 (significant)

The probability values for NS-FT was 1, and therefore, it was not significant indicating there is no difference between NS and FT. Tests for NS-NNS and FT-NNS are both significant. Thus there are differences between NS and NNS, and FT and NNS. These results, accordingly, show NS's performance in the choice of ellipsis is different from that of NNS's in terms of potential ambiguity. FT's performance is the same as that of NS's indicating NS do not adjust their speech style towards NNS in their choice of ellipsis.

4-4-3 Potential ambiguity and referential choice in SLA

After the differences between NS, FT and NNS were investigated, a detailed analysis of NNS was carried out to examine the acquisition of referential choice in terms of potential ambiguity. The table below represents the use of full nouns and ellipsis according to potential ambiguity in the immediately preceding discourse. Table 4-10 represents an amalgamation and summary of Table 4-4 and Table 4-7. The percentage of referential form usage is provided in the brackets only when the ambiguity = 1 owing to the small frequency of the ambiguity ≥ 2 .

Speaker		Potential Ambiguity = 1		Potential Ambiguity ≥ 2	
		(Full noun)	(Ellipsis)	(Full noun)	(Ellipsis)
N	S	0	74 (100)	12	0
F	T	18 (25)	55 (75)	8	0
N	(Stage 3)				
	Kate	6 (46)	7 (54)	-	-
	Megan	6 (35)	11 (65)	0	1
N	(Stage 5)				
	Irisa	2 (33)	4 (67)	0	1
	Simon	2 (13)	13 (87)	1	1
	Sangeeta	4 (15)	23 (87)	0	1
S	(Stage 6)				
	Natasha	11 (32)	23 (68)	4	0
	Helen	2 (25)	6 (75)	0	2

() %

Table 4-10 The referential form in terms of potential ambiguity in the immediately preceding discourse

The results for NS are provided in the top row of the table. A comparison of performance by NNS with that of NS at each of the stages revealed a developmental differences in referential choices in terms of potential ambiguity.

NS used ellipsis when potential ambiguity = 1. This indicates that there were no competitive references in the discourse. When competitive references appear within the same interaction the full noun was used. The choice of ellipsis and full noun by NS is complementary with reference to potential ambiguity.

NNS's referential management in terms of potential ambiguity is very different from that of NS's. Their choice of referential forms, full noun or ellipsis, is not complementarily distributed. All learners, regardless of their developmental stage, used both full nouns and ellipsis when ambiguity = 1. Although individual differences are observed among both Stage 5 and Stage 6, the percentage of selection of ellipsis over full nouns by the learners at Stage 5 and Stage 6 is higher than that by learners at

Stage 3. This implies that the excessive use of full nouns to clarify the reference is frequent in earlier stages of acquisition and then, later decreases.

NNS's referential management in relation to developmental stage, when ambiguity ≥ 2 is hard to compare due to the small frequency of occurrence. Natasha (Stage 6) is the only one who did not use ellipsis when the ambiguity ≥ 2 . All other learners except Kate⁸ used ellipsis even when the ambiguity = 2, which seems to be a deviation specific to NNS. Thus, the excessive use of ellipsis when the ambiguity ≥ 2 seems to be a learner's feature and the Native-like use of ellipsis (ie. only the full noun is used) when the ambiguity ≥ 2 has not been acquired even at Stage 6.

As I stated above, all NNS used ellipsis once or twice even when the potential ambiguity = 2 except Natasha (Stage 6). Sometimes this use of ellipsis caused obvious confusion of the referent. Below is a example of this from Kiki (NS) - Kate's (Stage 3) interaction.

(They are performing Picture difference task.)

I: Interviewer (Kiki) L: Learner (Kate)

1)I: ookii neko to chiisai neko ga imasu. but
big cat and small cat (SUBJ P) there are

2)L: hai watashi no --I can't () um mm neko wa
yes I (genitive P) cat (topic P)

shiroidesu ka?
be white (question)

3)I: IIE. which neko?
no

4)L: um ookii neko wa shiroidesu ka?
big cat (topic P) be white (question)

⁸There were no cases where ambiguity was greater than 2 with Kate's speech.

5)I: iie ((laugh))

no

- 1) I: A big cat and a small cat are there. But
- 2) L: Yes mine no I can't () um mm Is the cat white?
- 3) I: No. Which cat?
- 4) L: um Is the big cat white?
- 5) I: No ((laugh))

In this conversation two referents, a big cat and a small cat, were introduced in the first sentence. In the next sentence the learner asked whether the cat is white. The interviewer failed in the referential search: she had to ask the learner which cat was meant. The interviewer could not identify the reference because of the competitive references in the immediately preceding discourse.

4-4-4 Summary of potential ambiguity

	Ambiguity = 1	Ambiguity \geq 2
NS	ellipsis	full noun
FT	ellipsis (75%) / full noun (25%)	full noun
NNS	ellipsis (71%) / full noun (29%)	ellipsis (72%) / full noun (28%)

Table 4-11 The choice of ellipsis and full noun maintaining the reference

The choice of ellipsis or full nouns for maintaining reference is summarised in Table 4-11. The use of ellipsis and full nouns by NS is complementary. NS use ellipsis only when the potential ambiguity = 1 and the full nouns when the ambiguity \geq 2. FT, by contrast, use both ellipsis (75%) and full nouns (25%) when the potential ambiguity = 1 and, like NS they use only the full nouns when the potential ambiguity \geq 2. NNS use both ellipsis and full nouns regardless of the degree of potential ambiguity. Furthermore, the percentages for the use of ellipsis and full nouns are almost the same when the potential ambiguity = 1 and when the ambiguity \geq 2. This implies that their criteria for selection of these two referential forms do not differ according to the potential ambiguity. This tendency is stronger for learners at earlier stages and later decreases.

The referential form maintaining the same referent is different from group to group but the same within each group:

NS's norm: The choice of ellipsis or full nouns to continue the same reference is not optional: ellipsis is used only when no other competitive references exist in the immediately preceding discourse, otherwise a full noun is used.

FT's norm: The choice of ellipsis or full nouns to continue the same reference is optional when no competitive references exist in the immediately preceding discourse. This option varies according to the developmental stages of the hearer (ie. the full noun is preferred when NS speak to the learners at earlier stages). It is not optional, however, when there are competitive references: in this case the full nouns are used.

NNS's norm: The choice of ellipsis or full nouns to continue the same reference is optional regardless of the presence of a competitive reference in the immediately preceding discourse. This tendency is prominent in the early stages of Japanese acquisition, and then, gradually, decreases: learners learn not to use the full nouns when no other competitive references exist in the immediately preceding discourse.

It is important to discuss the reasons for referential modification in FT when the potential ambiguity = 1 but not when it is more than 1. It is plausible to think that it is a result of an opposite effect of the "principle of information economy". The use of ellipsis, which is the omission of a redundant element, is one of the simplification strategies employed to avoid redundant elements. It is economical to omit the redundant elements only when the referent of an omitted element is recoverable by the hearer. The NS, however, supply redundant elements at the cost of "information economy" in interactions involving those who are not completely competent in Japanese. The modification of referent omission, therefore, may be the result of differing expectations about the hearer. In NS-NS interactions, it is assumed that the referential search by the hearer is possible, however, when NS talk to NNS (ie. FT), NS assumes that such a search may be difficult and that they should help the NNS by providing the reference explicitly. Modification when ambiguity ≥ 2 was not performed by NS because this does not help NNS in a referential search, rather, it creates a situation where confusion of the reference may occur.

NNS's referential management in terms of potential ambiguity results from different psychological processes to those found in NS's speech adjustment. NNS's use of the full nouns when the ambiguity = 1 is excessive because they want to make sure that the referent is understood. This does not result from an assumption about the hearer's competence for referential retrieval. NNS used ellipsis excessively when the potential ambiguity ≥ 2 . This was observed more frequently in the earlier stages of language acquisition. The possible cause for this is, as Meisel(1980) has suggested, a strategy of simplification in which the use of ellipsis is overgeneralised. It may be an easy short cut for language learners to simply omit the element when the omission of the nominal (especially the subject in Japanese) is the norm.

4-5 Distance

Hypothesis 2-a: There is a difference in the distance between a full noun and its antecedent among NS, FT and NNS⁹.

Hypothesis 2-b: There is a difference in the distance between ellipsis and its antecedent among NS, FT and NNS.

Distance, as a possible affecting factor for referential choice, was analysed in two ways: one with all three tasks and the other one with only the picture sequence task. These two methods of analysis were adopted to discover whether distance is the main factor influencing referential choice or an associated secondary factor. Using all three tasks, other affecting factors, namely potential ambiguity and episode/paragraph boundaries were involved. In the picture sequence task, distance is the only affecting factor and other factors are controlled where there are no episode/paragraph boundaries and the potential ambiguity = 1.

4-5-1 Results for distance using three tasks

The following is an extract from Satomi(NS) - Simon's(Stage 5) interaction on the Picture difference task (a park). This illustrates the technique used for measuring the distance.

⁹ To refer to an antecedent, not only ellipsis but also the full-noun was used by all three types of speakers.

Simon (Stage 5) - Satomi(NS)

I: Interviewer (Satomi) L: Learner (Simon)

(1) I: jaa hana wa eeto don'na hana ga arimasu ka?
then flower (topicP) well what kind of flower (SUBJ P) there is (question)

(2) L: *anoo chiisakute akai -- akai no hana desu-akai hana desu.
well small-and red red (genitiveP) flower (copula) red flower (copula)

I: mn

yeah

(3) L: ano ki no ano shita ni aru ((laugh)) hana
well tree (genitiveP) well under (locative P) there is flower

ga arimasu.

(SUBJ P) there is

(4) I: ø ki no shita desu ka?
tree (genitive P) under (copula) (question)

L: hai

yes

(5) I: ø ki kara chotto tooi tokoro ni arimasu.
tree from a bit far place (locative P) there is

(6) L: uh chikaku no ki
near by (genitive) tree

(7) I: soko ni hana ga naidesu.
there (locative P) flower (SUBJ P) there is not

L: uh soo desu ka?

so (copula) (question)

I: hai

yes

L: mn

yeah

(8) I: \emptyset arimasu ka?

there is (question)

L: mn

yeah

(1) I: Then, talking about flowers, what kind of flowers are there?

(2) L: Well, small and red flowers are there, red flowers. (1)

I: yeah.

(3) L: well, there are flowers under the tree. (2)

(4) I: Is \emptyset under the tree? (3)

L: yes.

(5) I: There are \emptyset a bit far from the tree. (4)

(6) L: oh, the tree near by (5)

(7) I: There aren't any flowers there. (6)

L: oh, is it so?

I: yes

L: yeah

(8) I: Are there (any) \emptyset ? (7)

L: yeah

The referential distance from their antecedent for full noun and ellipsis is provided in parentheses in the right side of the translated section. The referential distance signifies the number of clauses intervening between a given referent and its antecedent. Conversational fillers such as "mn" (yeah) or "hai" (yes), NP alone without a verb and confirmation of information ("soo desu ka" meaning "is it so?") are excluded for measuring the distance. When the referent of the full noun/ellipsis is found in the same clause, the referential distance is "0". When the referent is in the immediately preceding clause, the referential distance is "1" and so forth. In the above conversation, the topic "hana" (flower) was introduced with sentence (1), and Simon used "hana" (ie. full noun) in sentence (2) and (3). Their referential distances are "1" and "2" respectively. There were no cases where Simon used ellipsis referring "hana" (flower). Satomi used full noun in sentence (7) and its referential distance is "6". She used ellipsis to refer to "hana" (flower) in sentences

(4), (5) and (8). The respective referential distance for them is "3", "4" and "7". Therefore, in this conversation Simon and Satomi's referential choice in terms of distance were:

	<u>Simon</u>	<u>Satomi</u>
Full noun	1, 2 (1.5)	6 (6)
Ellipsis	- (-)	3, 4, 7 (4.7)

() mean distance

Simon used a full noun twice when the distance was 1 and 2 clauses. Therefore, the mean distance between full nouns in the above example was 1.5. He did not use ellipsis. Satomi used full noun when the distance was 6 clauses. She chose ellipsis when the distance was 3, 4 and 7 clauses. Therefore, the mean distance when ellipsis was used was 4.7 ($(3+4+7)/3$).

The table below provides the mean referential distances for full nouns and ellipsis for all speakers.

	Speaker	Full noun		Ellipsis	
		mean	distance	mean	distance
N S	Kiki	1.8	(6)	2.5	(22)
	Mariko	2.0	(2)	1.2	(5)
	Satomi	1.5	(2)	2.8	(18)
	Naoko	1.5	(2)	2.4	(29)
			[1.73]		[2.45]
F T	Kiki (to Kate)	1.0	(2)	1.0	(1)
	Mariko (to Irisa)	1.5	(4)	1.0	(8)
	Satomi (to Simon)	1.5	(7)	1.8	(19)
	Satomi (to Megan)	1.2	(6)	2.0	(6)
	Satomi (to Sangeeta)	3.0	(1)	5.8	(4)
	Satomi (to Helen)	1.0	(1)	2.9	(6)
	Satomi (Natasha)	1.0	(5)	1.3	(11)
			[1.58]		[2]
N N S	(Stage 3) Kate	1.0	(6)	2.0	(7)
	Megan	1.7	(6)	2.3	(12)
	(Stage 5) Irisa	2.0	(2)	2.6	(5)
	Simon	2.7	(3)	4.3	(14)
	Sangeeta	2.0	(4)	3.0	(24)
	(Stage 6) Natasha	1.5	(15)	1.7	(23)
	Helen	2.5	(2)	3.6	(8)
			[1.68]		[2.68]

() the frequency of use

[] mean distance for the group

Table 4-12 The number of clauses intervening between a given reference and its antecedent

Table 4-12 represents the overall results for distance on all tasks. The distance indicates the number of clauses intervening between a given referent and its antecedent to maintain the reference. To refer to an antecedent, not only ellipsis but also full nouns were used by all three types of speakers. The mean distances for individuals and for the total groups (ie. NS, FT and NNS) are provided in the table. The mean distance for ellipsis by all types of speakers is longer than that of the full noun: the distance of the full noun and ellipsis is 1.73 and 2.45 for NS; 1.58 and 2.00 for FT, and 1.68 and 2.68 for NNS respectively. This indicates that although ellipsis is preferably used to maintain the reference, a full noun can also be used.

The results shown in Table 4-12 contradicts the distance hypothesis: that an increase of time since last mention (ie. distance) requires a longer retrieval time for reference. Consequently, use of the full noun is preferable with an increase in distance. One possible answer for this is that the time (distance) in this experiment did not reach beyond the capacity of human working memory to recall an antecedent. Thus allowing speakers free choice of the referential form. The choice of ellipsis to continue the reference appears preferable as long as the antecedent does not decay in the short-term memory with time.

The mean distances when the full noun was used by NS, FT and NNS were 1.73, 1.58 and 1.68 respectively. In discourse production, NS, followed to a lesser extent by NNS then FT, used a full noun to refer to an antecedent when the distance was greatest. The mean distance when ellipsis was used by NS, FT and NNS was 2.45, 2.00 and 2.68 respectively. The greatest distance for the use of ellipsis was recorded by NNS followed by NS. FT used ellipsis when the distance was shortest among the three groups.

The difference in referential distance when the coreferential form is full noun/ellipsis was tested using the Kruskal-Wallis test. This statistic is considered to be appropriate for such an analysis according to the following criteria: type of data is non-parametric converted to ranked data; the relation of sample is independent.

(statistical test for the full noun)

Kruskal-Wallis X1: speaker X2: distance

Group	# Cases	Σ Rank:	Mean Rank:
NS	4	42	10.5
FT	7	46.5	6.6
NNS	7	82.5	11.8

Table 4-13

DF:	2	
# Groups	3	
# Cases	18	
H	3.4	p=.1801
H corrected for ties	3.6	p=.1692
# Tied groups	3	

Table 4-14 Summary analysis

The above tables shows that H value is not significant and the hypothesis is not supported. Accordingly, there is no difference among the three types of speakers concerning the use of full nouns in terms of distance.

Statistical test for ellipsis

Kruskal-Wallis X1: speaker X2: distance

Group	# Cases	Σ Rank:	Mean Rank:
NS	4	37	9.2
FT	7	52.5	7.5
NNS	7	81.5	11.6

Table 4-15

DF:	2	
# Groups	3	
# Cases	18	
H	2.1	p = .3466
H corrected for ties	2.1	p = .3459
# Tied groups	2	

Table 4-16 Summary analysis

The difference in the distance between ellipsis and its antecedent among NS, FT and NNS was also tested using the Kruskal-Wallis test. As can be seen in the above tables, the H value was not found to be significant.

Therefore, there is no difference in the choice of either full nouns or ellipsis among NS, FT and NNS.

One weakness with the distance approach involves the question of whether the number of clauses truly correlates with the concept of time between referents for each speaker. The production time of a clause is affected by a number of variables such as the type of speaker, the type of conversation, the type of task and so on. For this reason, the comparison of the distance recorded by each speaker is questionable.

4-5-2 Results for distance with picture sequence task

The difference in distance for the choice of full nouns or pronoun by NS, FT and NNS was statistically tested. The results showed that the hypothesis, that there is a difference in the distance between a full noun/ellipsis and its antecedent according to the different types of speakers, was not supported. This indicates that the use of full noun/ellipsis is the same regardless of speakers in terms of the distance (ie. the number of clauses intervening between a given referent and its antecedent).

The use of full noun/ellipsis shown in Table 4-13, however, shows the overall results for referential choice in Japanese discourse with three tasks. The choice of referential form was assumed to be affected by other factors, namely potential ambiguity and paragraph/episode boundaries. That is, though distance is not the predominant factor for the choice of referential forms when other affective variables are not controlled, it may have some effect on referential management by each speaker of Japanese. In order to control all factors, the following method of analysis was adopted.

In this method only the results from a picture sequence task were analysed to discover how theme is conveyed in discourse: this task requires the speaker to decide the order of six pictures and describe the story in that order. One theme, a family picnic, is depicted on six picture cards with a potential ambiguity of one. The following example from a student's speech illustrates this approach.

(Example: Megan)

- (1). kazoku_i wa kimasu.
(A family_i is coming.)
- (2). ø_i pikunikku no tabemono o kaimasu.
(ø_i is buying food for picnic.)
- (3) *ø_i uchi de kaerimasu.
(ø_i is going back home.)
- (4) ø_i basuketto ni pikunikku no tabemono o iremasu.
(ø_i is putting picnic food in the basket.)
- (5) *ø_i kuruma de basuketto o hairimasu.
(ø_i is putting the basket in the car.)
- (6) ø_i kuruma de kooen ni doraibu o shimasu.
(ø_i is driving to the park.)
- (7) *goza ni kazoku_i wa tabemasu.
(A family_i is eating on the mat.)
- (8) ø_i remoneedo o nomimasu.
(ø_i is drinking lemonade.)
- (9) demo amej ga futteimasu.
(Lit. but rain_j is falling. = but it is raining.)
- (10) ø_i uchi e kaerimasu.
(ø_i is going back home.)

In the above example, there is a total of 10 clauses from the story by Megan. The theme of this story, "kazoku_i" (a family), was established in the first sentence (1). In sentences (2) through to (6), repeated mention of the same thematic reference are ellipted. The subject "kazoku_i" is coded with a full noun in sentence (7) and, then, it is again ellipted in the following sentence (8). Switch-reference occurred in sentence (9), where the subject "amej" (rain) is coded with the full noun. The ellipted subject in (10) is the coreferential of "kazoku_i". Therefore, the subject (which is also the topic of the episode), "kazoku_i" (a family) is coded with a full noun in sentences (1) and (7), whereas with the less explicit form, ellipsis, in sentences (2), (3), (4), (5), (8) and (10).

The following table shows the results of analysis of all the NNS. The total number of clauses describing the episode, and the number of clauses where the topic is coded with full nouns and ellipsis are also provided. Subjects which are not the topic of the episode, for instance "amej" (rain) in sentence (9), is not considered in this analysis.

		Speaker	Total no. of clauses	[1]	[2]
N		Naoko	17	2, 3, 5, 8, 9, 11, 12, 14, 16, 17	1, 13
S		Kiki	12	2, 4, 5, 6, 7, 8, 11	1, 9*
N	Stage 3	Kate	14	2, 3, 5, 6, 7, 10	1, 4
		Megan	10	2, 3, 4, 5, 6,, 8, 10	1, 7
N	Stage 5	Irisa	13	2, 3, 4, 6, 10, 11	1
		Simon	12	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	1
		Sangeeta	10	2, 3, 4, 5, 6, 7, 9, 10	1
S	Stage 6	Natasha	18	2, 3, 5, 8, 9, 11, 14, 15	1, 4*
		Helen	10	2, 5, 10	1, 3*, 11*

[1] Clause number where the referential form is ellipsis

[2] Clause number where the referential form is a full noun

* The coreferential NP is a less explicit form than its antecedent (ie. non-specific NP)

**Table 4-17 Analysis of the referential form of the theme
(Picture sequence task: a family going on a picnic)**

Although all speakers established the topic with sentence (1), the theme is conveyed in a different manner according to each speaker: NNS (stage 3) used ellipsis for repeated mentions of the same thematic references after the introduction of the theme, however, the full noun was used again later in the discourse; NNS (stage 5) did not use the full noun at all after the theme was introduced and all subject positions were coded with ellipsis; NNS (stage 6) used the full noun several times but differed from the performance of NNS (stage 3) as they tended to use less explicit forms of the full noun, namely non-specific NP. Natasha, for example, used "kazoku_i" (a family) in sentence (1) when she introduced the theme of the story, and "Min'nai_i" (all people) in (6).

This tendency was also observed in the speech patterns of NS. Kiki introduced the topic "kazoku_i" in the first sentence and it is paraphrased by "min'nai_i" (all people) in (9). It is interesting to note that the second use of a full noun by both NS occurs first in sentences (9) and then (13). The distances until NNS used the full noun were not this long.

From this result, we can postulate the acquisition of ellipsis in terms of distances as follows. Firstly, NNS learn that ellipsis is used when they continue the topic. However, they need to use full nouns after several sentences because of the limited capacity of their working-memory (stage 3). Secondly, they learn to use ellipsis consistently to continue the topic. Therefore, once they establish the topic, they do not use a full noun as long as the topic is continued, regardless of the distance from its antecedent (stage 5). Thirdly, they abandon the strategy of omitting all the coreferential NP and learn to reintroduce the subject as a full noun using a non-specific NP, which is the less explicit form of the full noun (stage 6). The performance at stage 6 is similar to NS, however, the second use of full noun by NNS (stage 6) is earlier than that by NS.

Thus, as I demonstrated, the use of ellipsis is systematic according to the developmental stage of the NNS. Further, the acquisition of referential choice in terms of distance is stepwise toward the NS's criteria.

4-6 Episode/paragraph boundaries

Hypothesis: There is a difference in the choice of full nouns and ellipsis within the episode/paragraph boundaries among NS, FT and NNS.

To analyse the effect of episode/paragraph boundaries on referential choice, the picture recognition task was used. In this task, five pictures comprise one topic. In the picture recognition task of "police woman", for instance, each picture illustrates a different duty of the police woman. They include, her patrolling a town, helping a cat which can not climb down a tree, arresting a burglar, chasing bank robbers and doing some office work. The referential form encoding the character in each episode was analysed.

Types of speakers	After the boundaries		Within the boundaries	
	(Full noun)	(Ellipsis)	(Full noun)	(Ellipsis)
(NS)				
Kiki	9 (100)	0	1 (7)	14 (93)
Naoko	5 (100)	0	1 (17)	5 (83)
(FT)				
Satomi	8 (100)	0	0	4 (100)
Kiki	4 (100)	0	0	3 (100)
Mariko	8 (100)	0	2 (40)	3 (60)
(NNS)				
<u>Stage 3</u>				
Kate	5 (100)	0	-	-
Megan	5 (100)	0	-	-
<u>Stage 5</u>				
Irisa	5 (100)	0	-	-
Simon	3 (60)	2 (40)	1 (17)	5 (83)
Sangeeta	7 (78)	2 (22)	0	1 (100)
<u>Stage 6</u>				
Natasha	7 (78)	2 (22)	2 (22)	7 (78)
Helen	5 (100)	0	0	4 (100)

() percentage

Table 4-18 The use of full-noun / ellipsis after the boundaries and within the boundaries

Table 4-18 shows the incidence for the choices for referential forms in terms of the episode/paragraph boundaries. "Episode" and/or "paragraph" are not clearly defined in linguistics. Tomlin(1987, 1990, 1991), however, suggested that the boundaries are the manifestation of attention "focusing" and that the pronoun in English is used when a particular referent is "in a stage of high focus" (ie. within boundaries) and the full noun when in "low focus" (ie. after the boundaries). Therefore, in this study, to make sure of the attention focus in the experiment, each picture was presented one after another to the informant.

Chi-Square was used to test the difference in the frequency of use of referential forms: the full noun and ellipsis. The tables below represent

the observed frequency for each type of speaker and the summary of contingency analysis of the Chi-Square test.

Full noun

	after the boundaries	within the boundaries
NS	14	2
FT	20	2
NNS	37	3

4-19 Observed frequency table for the full noun

DF:	2	
Total Chi-Square:	.4	p = .8393
G Statistic:	.3	
Contingency Coefficient	.1	
Gramer's V:	.1	

4-20 Summary statistics for the full noun

Ellipsis

	After the boundaries	Within the boundaries
NS	0	19
FT	0	10
NNS	6	17

4-21 Observed frequency table for ellipsis

DF:	2	
Total Chi-Square:	8.6	p = .0139
G Statistic:	.	
Contingency Coefficient:	.4	
Cramer's V:	.4	

4-22 Summary statistics for ellipsis

The result of the statistical test for the full noun is not significant (Chi-Square = .4, df = 2, p=.8393), and for ellipsis is significant (Chi-Square = 8.6, df = 2, p = .0139). Therefore, there is no difference between NS, FT and NNS in their frequency of use of full noun, whereas there is a difference between three groups in their frequency of use of ellipsis in terms of episode/paragraph boundaries.

Whether there is a speech adjustment when NS speak to NNS (ie. FT) was tested. The differences between NS and FT, and NS and NNS in terms of use of ellipsis after/within the episode/paragraph boundaries were tested using Fisher's Exact Test. This test was used instead of Chi-Square because of the small number of E values (ie. $E < 5$).

NS -FT $p = 1$ (not significant)
NS - NNS $p = .019$ (significant)

The probability value for NS - FT was 1 and there is no difference between NS and FT. This signified that NS do not change their use of ellipsis in terms of the episode/paragraph boundaries in FT. The probability value for NS - NNS, on the other hand, was 0.019 indicating significant. Therefore, NNS's choice of ellipsis in terms of the episode/paragraph boundaries are different from that in NS's speech. In short, FT's choice of ellipsis in terms of the episode/paragraph boundaries is the same as that of NS's and NS do not adjust their speech style towards NNS in their choice of ellipsis. This tendency was also observed with the potential ambiguity: NS adjusted their choice of full noun but not ellipsis when they talked to NNS (ie. FT) according to the potential ambiguity of context.

NS's performance

As can be seen from Table 4-18, NS always introduce the reference with the full noun after the boundaries 100% of the time. Whereas, within the boundaries, although they predominantly chose ellipsis, there were a couple of counter examples where full nouns were used. A detailed analysis of these cases was carried out. Both Kiki and Naoko were found to have used a full noun once in this situation and both distance and potential ambiguity were checked in these cases because these factors may have affected the results as has been suggested by Tomlin (1991). The results for distance and potential ambiguity with these two cases are as follows:

Kiki (distance, ambiguity) = (1, 1)
Naoko (distance, ambiguity) = (5, 3)

In Naoko's case, (distance, ambiguity) = (5, 3), therefore, the two factors, either distance or ambiguity, may have affected the choice of a full noun. In Kiki's case, however, (distance, ambiguity) = (1, 1), these factors did not seem to affect the referential choice. Following is the analysis of both cases.

(Kiki's case):

The following is a description of an episode in the picture recognition task "a police woman". Kiki is talking about the police woman's job. This utterance comes right after the episode/paragraph boundary.

kore mo omawarisan no shigoto desu.
 this also police officer (genitive P) job is

Omawarisan no shigoto wa tokidoki ichinichi ni
 police officer (genitive P) job (topic P) sometimes one day (P)

nankai ka wa machi o patoroorushimasu.
 several times (topic P) town (OBJ P) patrol

(This is also a police officer's job. Sometimes the police officer's job is patrolling around town several times a day.)

In this case, the nominal NP "omawarisan no shigoto" (police officer's job) was introduced in a predicate position, and then, was shifted to subject position. This result is very similar to Levy's (1982) idea summarised by MacNeil (1987: 60) that "new thematic references are strong and appear in the predicate slot of sentences and later are shifted to the subject slot in a weak form". In Kiki's case, the thematic references was shifted to the subject position not in a weaker form but the same form (ie. full noun).

(Naoko's case):

Naoko was also talking about the police woman's job. The following utterance was produced right after an episode boundary. "/" indicates clause boundaries.

Kono e wa omawarisan chotto meiwakuda
 this picture (topic P) police officer a bit be annoyed

to omoimasu kedo/ tabun neko ga ki no
 (quotation) (I) think but maybe cat (SUBJ P) tree (genitive P)
 ue ni nobotte ori-rare-naku natteiru no
 top (locative P) climb and climb down-potential-negative become (nominaliser)
 o ø juunin ni tsuuhoo-sarete/ ø tasuke ni
 (OBJ P) residents (indirectOBJ P) inform-passive help for
 kiteiru tokoro da to omoundesu ga/
 came situation (copula) (quotation) (I) think but
 ø koko made yattara / omawarisan wa chotto
 here up to do (conditional) police officer (topic P) a bit
 taihen kana to omoimasu ne.
 hard (question P) (quotation) (I) think (EP)

(Lit.) I think this picture is of a police woman_i who is a bit annoyed but/ maybe I think ø_i was informed by residents /that a cat climbed up a tree and it could not climb down/, so ø_i came to help but/ I think, if ø_i does something like this/, a police woman_i should be hard.

(ie. I think this picture shows the police woman is a little annoyed but maybe she was informed by the residents that a cat had climbed a tree and could not climb down. I think (she) has just arrived to help but if (she) has done this much I think being police woman is probably a bit hard.)

In the above example, the thematic reference "omawarisan" (a police officer) is introduced using a full noun. After the introduction, ellipsis was employed to maintain the reference until the full noun was used again where (distance, ambiguity) = (5, 3) in the last clause of the paragraph. Had ellipsis been used instead of the full noun in this final position it would have been ambiguous as there were three competitive referents, "neko" (a cat), "juunin" (residents) and "omawarisan" (police officer) in the immediately preceding discourse. The subject of the verb "taihen kana" (be hard) cannot be "neko" (a cat) semantically, but it still leaves a question as to whether the subject is either "juunin" (residents) or "omawarisan" (police officer).

With this analysis of NS's performance in terms of the referential choice within the episode/paragraph boundaries, it seems there are two situations where the full noun is used to maintain the reference. One is when the potential ambiguity is 2 or more and use of the full noun is necessary to avoid potential confusion of the referent. The other situation is where the thematic referent is shifted to subject position after it is introduced in a predicate position.

NNS's performance

The performance of NNS in terms of episode/paragraph boundaries was analysed according to their developmental stages. Unfortunately, Kate and Megan (Stage 3) and Irisa (Stage 5) produced only one clause with each picture (ie. each episode), and all references were introduced with full nouns. Due to this, I was unable to analyse how the reference was continued within the episode with these informants. One thing which is clear with these speakers is that they used full nouns after the episode boundaries 100 % of the time.

After episode boundaries, Sangeeta (Stage 5) and Natasha (Stage 6) did not show any difference in referential choice. However, Simon (Stage 5) and Helen (Stage 6) showed a prominent difference. Simon used the full noun three times and ellipsis twice after the boundaries. Helen, on the other hand, only used the full noun after the boundaries, which is the norm with NS.

Referential choice within episode/paragraph boundaries by NNS was similar to that of NS. The use of ellipsis within the boundaries was prominent with all NNS however some did use full nouns on several occasions. As mentioned previously, NS followed two rules when they chose full noun over ellipsis to continue the referent within the boundaries: when the ambiguity is 2 or more; and when the thematic referent is shifted to the subject position from the predicate position. The use of a full noun within episode boundaries by NNS was analysed in terms of ambiguity and position shift to discover whether they also followed these two rules.

Simon's case

The following example is one of Simon using a full noun within episode boundary.

anoo sono ato anoo (2) mm sonoato ø untensuru-untensuru
well after that well after this drive drive
toki?/ anoo ø hoka no doroboo o mimashita./
when well other (genitive P) robber (OBJ P) saw
karera wa anoo ginkoo gootoo o
they (topic P) well bank burglar (OBJ P)
shimashita./ sorede tanakasan wa kanajo no dooryoo
did so then Tanaka (topic P) she (genitive P) colleague
to ano chase o shimashita./ totemo abunakattadesu ne.
with well chase (OBJ P) did very was dangerous (EP)

(After that, when ø_i drive, ø_i saw other robbers_j. They_j burgled a bank. So then, Tanaka_i did chasing with her colleague. It was very dangerous.)

In the above example Simon used ellipsis after the boundary, which is probably a NNS's variation on the use of ellipsis. As shown in Table 4-18, he used ellipsis on two occasions after the boundaries. This suggests that he may tend to use ellipsis excessively even where it is inappropriate. Simon used a full noun, "Tanaka-san" (Miss Tanaka) indicating the police woman, after twice maintaining the reference with ellipsis. On this occasion, the potential ambiguity = 2 ie, "Tanaka-san" (Miss Tanaka = a police woman) and "doroboo" (robbers). If Simon had used ellipsis, in this instance, the subject of the verb "oikakemashita" (chased) would not be clear. The subject of the previous sentence is "karera" (they) indicating "doroboo" (robbers), and therefore, it is likely to be interpreted that the ellipted item is the same as the one in the previous sentence. Semantically it is quite possible to think that the robbers with guns chased a police woman.

It is interesting to note that the verb "oikakemashita" (chased) requires two arguments: agent and patient (ie. who chased whom). If both of the arguments are omitted, it will lead to a complete loss of meaning. But, as with Simon's example, if one of the arguments is supplied, the other argument can easily be identified by the hearer because there are only two competitive references in the immediately preceding discourse. Therefore, the choice of a full noun in this case is appropriate and Simon understands the rule for referential choice, that is, that the full noun should be used when the potential ambiguity ≥ 2 .

Natasha's case

Natasha also seems to understand that it is necessary to use a full noun after episode/paragraph boundaries. Two paragraphs from the picture recognition task are given below. In the first instance, Natasha used a full noun where the position shift from the predicate slot to the subject slot was involved, while in the second example she used the full noun when the potential ambiguity = 2.

ah::: OK. kono hito wa omawarisan (.4)
 this person (topic P) police officer

on'na no omawarisan mitai desu./
 woman (genitive P) police officer looks like (copula)

omawarisan wa um:: shakai no anzen ni
 police woman (topic P) society (genitive P) safety (indirectOBJ P)

mm: (.5) kiotsukemasu.
 look after

(This person looks like a police officer, a woman police officer; Police officers; look after society's security.)

This example exemplifies the Levy's (1982) idea which states that new thematic references are introduced in a stronger forms in the predicate slot they are then shifted to the subject slot in a weaker form. Natasha introduced the thematic reference with "omawarisan, on'na no omawarisan" (a police officer, a woman police officer) which is a full

noun with a description in the predicate slot. Then, the reference is shifted to the subject slot in a weaker form (ie. an unspecified full noun), "omawarisan" (police officer).

Following is an example of attention shift within a episode boundary.

kono e de wa omawarisan_i ga uh:: uh:: dorobooj
 this picture in (topic P) police officer (SUBJ P) robber

o (.3) oikakemasu./ dorobooj wa gin'koo e itte/
 (OBJ P) chase robber (topic) bank (locative P) go-and

ø_j okane o totte u::m (1) ø_j nigete ikimasu.
 money (OBJ P) take - and escape-and go

(In this picture, a police officer_i is chasing a robber_j ./ The robber_j went to a bank and ø_j robbed money and ø_j is escaping and going.

After the boundary (ie. new picture was presented), Natasha introduced "omawarisan" (police woman) and "doroboo" (robber) where "omawarisan" is the subject and "doroboo" is the object of the sentence. In the second sentence, Natasha's focus changed to "doroboo" (robber). She used the full noun referring to "doroboo" because of the focus shift and constructed a sentence where the focused entity is the subject of the sentence.

The following is a summary of NNS's performances in terms of the episode/paragraph boundaries. The use of a full noun within the episode/paragraph boundaries by NNS was the same as NS; NNS at Stage 5 and Stage 6 seemed to understand when the reference should be a full noun within these boundaries. However, after the boundary, the performance of some NNS's was different from that of NS. Only Helen in Stage 6 performed the same as a NS. The other informants, Simon (Stage 5), Sangeeta (Stage 5) and Natasha (Stage 6) used ellipsis excessively even after the episode/paragraph boundaries. This may indicate that the acquisition of ellipsis after episode boundaries follows the same path as for potential ambiguity: firstly, learners start to use ellipsis, and then, they overgeneralised the use of ellipsis leading to excessive use of ellipsis, and finally, they learn to use ellipsis appropriately.

The use of ellipsis after episode/paragraph boundaries by NNS does not indicate that a focus/attention shift did not occur for them. Ellipsis occurs because one of the language learner's strategies is to overgeneralise the use of ellipsis and pass the burden of the referential search to the hearer.

4-7 Summary of referential choice in JSL

In summary, the excessive use of both full nouns and ellipsis was observed among all learners regardless of developmental stages, but excessive use of full nouns was observed most among the learners in stage 3; usage decreased in later stages. Excessive use of ellipsis was observed most among the learners in Stage 5. Excessive use of ellipsis was observed in the simple sentence among the learner in Stage 3, in the simple sentence and the complex sentence in Stage 5, and mainly in the complex sentence in Stage 6.

The following table shows the presence or absence of each of the features discussed in this study. "+"/"-" indicates that the feature was observed/was not observed in learners' speech production. If the feature is "+", it signifies the learner's referential choice follows NS's norm. If the feature is "-", it indicates that the NS's norm has not been acquired and that excessive use of full noun or ellipsis was performed. "/" in the table indicates this context did not occur with their speech production.

the factor affecting referential choice		Stage 3		Stage 5			Stage 6	
		Meg	Kat	Iri	Sim	San	Hel	Nat
(focus shift)	(1)	+	+	+	+	+	+	+
	(2)	+	+	+	+	+	+	+
	(3)	+	+	-	-	-	+	+
	(4)	+	+	+	-	-	-	+
	(5)	/	/	/	+	+	+	+
(ambiguity)	(6)	-	-	-	+	/	+	?
(more/less explicit NP)	(7)	-	-	-	-	-	+	+
(ambiguity)	(8)	/	-	-	-	-	-	+
(ambiguity)	(9)	-	-	-	-	-	-	-

(1) The full noun is used after the episode/paragraph boundaries.

(It does not always have to be the case)

(2) The full noun is used to introduce the thematic reference.

(3) Thematic reference is reintroduced with full noun to continue the reference.

(4) The full noun is always used (ie. ellipsis is not used) after the episode/paragraph boundaries.

(5) Ellipsis is used to continue the reference within the episode/paragraph boundaries.

(6) The full noun is used to continue the reference when the ambiguity ≥ 2 .

(It does not have to be always the case)

(7) Thematic reference is reintroduced in a less explicit form of the full noun to continue the reference.

(8) Ellipsis is not used when the potential ambiguity ≥ 2 .

(9) The full noun is not used when the potential ambiguity = 1.

Table 4-23 The presence /absence of features appearing in NNS speech production

The features (1) to (5) are related to focus or attention shift. With these features, whether the learner alternated the full noun/ellipsis according to their attention shift was observed. The difference between "(1) the full noun is used after the episode/ paragraph boundaries" and "(4) the full noun is always used (ie. ellipsis is not used) after the episode/paragraph

boundaries" is whether the use of full noun after the episode/paragraph boundaries are absolute or not: the use of full noun is not absolute with (1) and absolute with (4). In other words, if the feature was observed (ie. indicated "+") with (1), it indicates that the full noun was used after episode/paragraph boundaries in most cases but the use of ellipsis might be also observed in some cases. If the feature of (4) is "+", it indicates that the use of full noun after the episode/paragraph boundaries were absolute.

Features (6), (8) and (9) are to do with referential ambiguity: whether the full noun and ellipsis were alternate according to the potential ambiguity in the context. The difference between (6) and (8) is whether the use of the full noun was absolute or not when the potential ambiguity ≥ 2 . If this feature is "+" for (6), it indicates that learners alternated full noun/ellipsis according to potential ambiguity, but this alternation may not be always the case. If the feature (8) is "+", by contrast, the alternation of full noun and ellipsis is absolute and the learner always uses full noun when the ambiguity ≥ 2 .

The feature "(7) thematic reference is reintroduced in less explicit form of full noun to continue the reference" is related to further distinction of full noun: ie, explicit form and less explicit form of the full noun.

As shown in the table, the development of referential management (ie. the acquisition of NS's norm) seems to be stepwise. The feature most affecting the referential choice for the learner is attention shift, and then, potential ambiguity. All learners used excessive full noun and ellipsis, but each stage has its distinctive features.

In Stage 3, the features (1) to (4) are "+". It indicates that the attention shift is the main cause for their referential choice. They introduced thematic topic with full noun and they always used full noun after the episode/paragraph boundary. The feature (5) was "/" indicating this context did not occur in these learners speech (they produced only one sentence for each picture and they did not continue the topic). It may be due to the fact that they have difficulty continuing the topic independently of referential choice because of their limited syntax and discourse development. For these learners, potential ambiguity did not seem to affect their referential choice (feature related to potential

ambiguity, (6), (8) and (9), are all "-"). This signifies that learners in Stage 3 have not acquired NS's norm of referential management in terms of potential ambiguity, and they used both full noun and ellipsis excessively: ie. they used full noun even when the potential ambiguity = 1 (excessive use of full noun); and they use ellipsis even when potential ambiguity ≥ 2 (excessive use of ellipsis). Furthermore, the learners at this stage could not distinguish between different forms of NP, namely less and more explicit forms of the full noun.

When we look at referential choice as made by the learners at Stage 5 we find a rather distinctive pattern. As shown in the table above, the features, (3) and (4), which were once acquired at Stage 3 disappeared at Stage 5 temporally and then, came back again at Stage 6. The absence of the feature (3) indicates persistent use of ellipsis: they persistently use ellipsis to continue the reference once they introduce a topic with the full noun and never reintroduce the full noun as long as the topic continues. The absence of (4) indicates excessive use of ellipsis: the learner at this stage sometimes used ellipsis even after the episode/paragraph boundary, which may lead to confusion of the reference by the hearer. Thus, it can be concluded that Stage 5 is the stage where the learner expands their use of ellipsis. It is plausible to postulate that the learning of ellipsis begins with concept (Nb: ellipsis is, as a reference, is a new concept for English speakers) followed by syntax, and the use of ellipsis is hypercorrected or oversimplified at one stage, and finally discourse constraints are learned.

At Stage 5, the potential ambiguity affects the referential choice. The learner at this stage came to use the full noun when the potential ambiguity ≥ 2 , but this was not always the case and they sometimes used ellipsis in this occasion. That is, the learner also showed excessive use of ellipsis in terms of potential ambiguity. Furthermore, the further distinction of full noun was not a part of their features yet.

At Stage 6, the learners' referential management became closer to NS's. The excessive or persistent use of ellipsis decreased at this stage. Especially the excessive use of ellipsis after the episode/paragraph boundaries disappeared. In addition, further distinction of the full noun, ie. less and more explicit full noun, are acquired at this stage. The feature (9), however, still has not been acquired and learners used full noun even when the potential ambiguity = 1. This does not lead to confusion but the

explicit presentation of the reference is uneconomical. Therefore, it may be true that excessive use of full noun (ie. make references clear by placing redundant elements at the cost of information economy) is the feature which remains until the very last stage of Japanese language acquisition.

In summary, attention shift is the feature most affecting the referential choice for the learner of Japanese and they acquire the NS's norm in terms of the episode/paragraph boundaries earlier than the potential ambiguity. Potential ambiguity starts to affect the referential choice after Stage 5. Excessive use of the full noun and ellipsis was observed at all stages and the development of referential management towards NS's norm is step by step. The acquisition of the correct use of full noun and ellipsis, however, go through different paths. Regarding the full noun learners show excessive use at earlier stages of syntactic acquisition more frequently, and this tendency gradually decreases at later stages. The excessive use, however, still remains until later developmental stages. The acquisition of ellipsis, by contrast, starts with excessive use. This tendency is further expanded in accordance with the syntactic development, and then, decreases at later stages.

In this study, the use of ellipsis was compared within NNS (Stage 3, Stage 5 and Stage 6) to discover the development of referential management in accordance with their syntactic development. The result shows that excessive use of ellipsis was a feature of all learners, however, it was observed most frequently by the learners at Stage 5.

This may be explained in the light of syntactic acquisition: extension of excessive use of ellipsis may be a side effect of syntactic development. At earlier stages, a lower degree of processing capacity is required and as the syntactic acquisition progresses, a higher degree of processing capacity is required. The acquisition of sentence structure, which involves a higher degree of complexity in terms of information processing, may hinder the correct use of ellipsis. This, in turn, may result in breaking down the system of referential management which the learner acquired in earlier stages. This does not signify that the learner's ability to deal with referential choice regresses, but in this stage the learner is unable to perform correct referential choice in the new context (ie. newly acquired sentence structure which requires higher degree of processing capacity). In other words, the learner at Stage 5 is able to use ellipsis correctly within

the sentence structure which belongs to Stages 1 through to 4, however, they are not yet able to use ellipsis correctly with the sentences of Stage 5.

The difference between Stage 3 and Stage 5 in terms of syntactic features is that the movement of a linguistic unit is possible only within a sentence at Stage 3 and across sentences at Stage 5. When a learner moves to Stage 5, a constraint strategy, SCS (subordinate clause strategy: see Clahsen's strategies in 2-6-2) is abandoned. Now the grammatical sub-strings are recognised, and learners are able to process elements across strings. Consequently subordination is available to learners. At this stage, learners need to learn how to apply the use of ellipsis in sentences involving subordination and relativisation. This learning may lead to extension of excessive use of ellipsis.

Following are speech productions by learners at different stages. This illustrates the different qualities of excessive use of ellipsis.

Stage 3

(Megan is talking about animals looking at a picture.)

(immediately after the boundary)

* \emptyset chiizu wa tabemasu.

cheese eat

((\emptyset) is eating cheese.)

Stage 5

(Simon is talking about police woman's job)

(immediately after the boundary)

anoo sono ato anoo (2) mm sonoato \emptyset untensuru-untensuru toki?/

well after that well after this drive drive when

anoo \emptyset hoka no doroboo o mimashita./ karera wa anoo ginkoo

well other (genitive P) robber (OBJ P) saw they (topic P) well bank

gootoo o shimashita./ sorede tanakasan wa kanajo

burglary (obj P) did so then Tanaka (topic P) she

no dooryoo to ano \emptyset chase o shimashita./ totemo

(genitive P) colleague with well chase (OBJ P) did very

abunakattadesu ne.
 was dangerous (EP)

(After that, when \emptyset_i drive, \emptyset_i saw other robbers_j. They_j burgled a bank. So then, Tanaka_i chased \emptyset_j with her colleague. It was very dangerous.)

Stage 6

(Helen is describing children playing ball. This utterance occurred after she explained that the ball smashed the window and that a man came out of the house.)

de saigoni eeto aru otoko -- no nan'ka
 then lastly well one male (genitive P) (filling)

otona ga eeto tabun sono (.3) kodomo no
 adult (SUBJ P) well maybe that child (genitive P)

ie ni itte/ de nan'ka \emptyset shikarare--te irumitai -- desu.
 house (locative P) go-and (filling) scold-(passive)-(progressive)-look like
 (Then, lastly, well one adult man_i, maybe, went to that children_j and/ it
 looks like \emptyset_j is being scolded.)

As the above examples show excessive use of ellipsis was performed in different syntactic structures according to the learner's stage of language acquisition.

Learners at Stage 3 used ellipsis excessively in a simple sentence. The selection of referential form, either full noun or ellipsis, needed to be determined by its context (ie. potential ambiguity, distance and after/within paragraph boundaries). Syntactic complexity did not affect referential choice at this stage.

The learners at Stage 5 used excessive ellipsis both in the simple sentence and the complex sentence. In Simon's example above, he used ellipsis both in the main sentence and the adverbial clause immediately after the episode/paragraph boundary. This sort of complex sentence may bring potential ambiguity into the context: there are more than one subject

slots. Information processing is required across sentences to decide which slot should be filled with the full noun and which slot should be with ellipsis: in general if the subject of the main clause and the subordinate clause is the same, one of them is left out. The selection of particles is also involved for referential choice in the complex sentence because the topic particle "wa" tends to govern the whole sentence (ie. both main and subordinate clause) but the subject particle tends to govern only the clause it appears with. Therefore, topicalization of the subject does matter for referential choice.

For learners at Stage 6, excessive ellipsis was used only where complex sentences and/or passive construction were involved. In Helen's case, she used excessive ellipsis in the complex sentence where passive construction was involved. Its syntax may have introduced additional factors which required a higher level of information processing for referential choice. In passive sentences, the patient needs to appear in a subject slot which is different from active voice construction. On top of this, Helen inflected the verb "shikaru" (scold) into "shikar-arete-iru-mitaidesu" (looks like being scolded) by adding three morphemes (passive, progressive and a "guessing" morpheme). Therefore, the referential form should have been determined not only by its context but also its syntax as information processing across sentences and passivization were involved. Thus, the selection of referential form seemed to be highly complicated. Ungrammaticality might be due to the complex sentence construction and/or the passive sentence construction rather than excessive use of ellipsis.

Thus, even though all the learners showed excessive use of ellipsis, their qualities were different. When the learner moves to Stage 5 where subordination is involved, the speaker is taxed with the decision of referential choice across sentences which involves higher syntactic complexity. If the student produces only simple sentences, the choice for referential form depends only on its context, however, referential choice in complex sentences involves syntactic factors in addition to its context. Therefore, it is plausible to postulate that the expansion of excessive ellipsis may be closely related to the expansion of syntactic development. At Stage 3, learners use ellipsis in simple sentences. At Stage 5, learners learn the correct way of using ellipsis in simple sentences, but the introduction of complex sentences may break down the system of

referential management. After the SCS is released the excessive use of ellipsis gradually disappears. However, further development of syntax, such as passivization, may affect referential choice for learners at higher stages.

This phenomenon is not peculiar to this study but observed in other studies (eg. Selinker 1972) in SLA. Lightbrown (1985) pointed out that the decline or the loss of once mastered features sometimes occurs in SLA. She explained this as a result of restructuring the whole system when the learner acquires the new form: overgeneralisation of newly acquired structure or simply overload of complexity for restructuring the whole system.

CHAPTER 5

CONCLUSION

5-1 Summary of research questions

Referential choice is closely related to the limitation of human working memory (Tomlin 1987, 1990, 1991). The use of ellipsis is possible only when its antecedent is recoverable by the hearer. In other words, the antecedent has to be in the hearer's working memory in order to recover it. Something in working memory indicates that it is in a "state of activation". There are three major constraints to keeping items in a "state of activation" in the working memory. These constraints are: (1) the number of items in short-term memory; (2) the time; and (3) the focus. These three memory constraints are linguistically manifested. The potential ambiguity in the immediately preceding discourse is the manifestation of the number of items in short term memory. The distance between a reference and its antecedent is the memory span in terms of time. The episode/paragraph boundaries signify focus/attention shift. Therefore, three variables which are the manifestation of limitations of human memory, (1) the potential ambiguity in the immediately preceding discourse, (2) the distance between a reference and its antecedent, and (3) the episode/paragraph boundaries, were adopted to measure referential choice.

At a cognitive level, the speaker utilises two opposite principles with the selection of referential forms. One is the "clarity principle" (Williams 1988). Full nouns are used to clarify the reference when the speaker seeks this principle. The other is the "principle of information economy" (Pienemann 1987). Ellipsis is used to avoid redundant elements when the speaker seeks to use this principle.

The interaction of three memory constraints and two cognitive principles play a key role in referential choice. The analysis of referential management in terms of memory constraints and cognitive principles allows us able to discover each speaker's underlying mechanism for referential choice.

Based on the above theoretical background, this study aimed to identify the referential choice, either full noun or ellipsis by different types of speakers (ie. NS, FT and NNS) in Japanese discourse. Within NNS, how the referential choice progresses in accordance with the syntactic developmental stage was also investigated. It also aimed to discover how cognition affects the choice of referential form and what constraints these are for referential choice. The goal of this study was to identify underlying mechanisms for selecting referential form in JSL. This will provide possible answers for questions such as, "what is simplification in SLA?" and "how does simplification by NS and NNS differ?".

5-2 Summary of the major findings of the study

5-2-1 Referential choice in FT in Japanese

The results showed that all three variables, the potential ambiguity, the distance and the episode/paragraph boundaries, affected referential choice in NS-NS interaction in Japanese discourse. Native speakers of Japanese, however, modified their referential choices when they spoke to language learners. This results from the NS's assumption concerning the listener's ability to recover the reference of omitted elements: NS assumed that NNS were not fully competent in Japanese and therefore, speech modification was required to help the interaction to flow.

In FT, NS tended to oversupply the full nouns where ellipsis would have been used in NS-NS interaction: they used more coreferencing because NS assumed that NNS have difficulty retrieving ellipted items from the memory search. NS tended to supply full nouns even when the potential ambiguity = 1 to make the referent clear to NNS. The repetition of words is one of FT's attempts to facilitate communication.

Thus, NS's simplification in terms of referential choice was performed by over supplying the full noun. The excessive use of ellipsis, by contrast,

was not observed. This indicates that NS modified their speech production when they spoke to NNS by supplying redundant elements to make the referent clearer. Thus NS oriented more to the "clarity principle" rather than the "information economy principle" in FT.

5-2-2 Referential choice in JSL

The results of my analysis concerning referential form according to three variables showed that NNS's referential choice was different from NS's. Within NNS, a correlation between referential choice and their stages of syntactic acquisition was discovered.

In NS's speech production, the full nouns and ellipsis are complementarily distributed when the potential ambiguity = 1 (only ellipsis was used) and when the potential ambiguity ≥ 2 (only full nouns were used). For NNS, by contrast, distribution was not complementally. They used full nouns even when the potential ambiguity = 1, and they used ellipsis even when the potential ambiguity ≥ 2 . Among NNS, learners in Stage 5 used ellipsis most in all occasions.

The analysis of the theme's referential form in terms of the distance between a reference and its antecedent, identified that both NS and NNS used the full noun when they introduced a thematic reference and ellipsis when continuing the same reference. NS reintroduce the theme with the full noun or a less explicit form of the noun to continue the referent when the distance become longer. NNS at Stage 3 also reintroduced full nouns to continue the reference. NNS at Stage 5, in contrast, consistently used ellipsis to continue the reference regardless of the distance. The referential choice of NNS at Stage 6 was similar to that of NS: they also reintroduced the referent using either the full noun or a less explicit form of the noun.

The episode/paragraph boundaries were the major factor deciding referential choice for NS and all NNS regardless of the stage of acquisition. After the episode/paragraph boundaries, NS used only full nouns. This tendency was also observed in speech production by NNS at Stage 3 and Stage 6. NNS at Stage 5, however, used ellipsis for several occasions even immediately after the episode/paragraph boundaries.

Within the episode/paragraph boundaries, NS and NNS at Stage 5 and Stage 6 performed the same: they used ellipsis except in all but the following two situations: (1) the potential ambiguity ≥ 2 ; and (2) the referential slot shift occurs from predicate slot to subject slot. For NNS at Stage 3, there was no speech production in this context (ie. they produced only one sentence for each episode).

From the above results of NNS's referential choice, the underlying mechanism for referential management is discerned as follows:

When a speaker constructs a sentence in a dynamic interaction, he/she has to process an abstract idea on to the surface structure where the arguments of the verbal have to be correctly supplied. Next, he/she is required to decide the referential form of the nominal. In this case, the speaker's assumptions about the retrievability of the reference by the addressee affects the referential choice. Not only this, the speaker's attention shift also has an effect on referential management. Interaction of memory constraints (both for the speaker and the hearer) and the cognitive principle ("clarity principle" and "principle of information economy") finalise the selection of referential form; and

In SLA discourse, NNS seems to seek two opposite principles which are the "hyper clarity production principle and the information economy production principle". With the "hyper clarity production principle", they use full nouns excessively even though the antecedent is easily retrieved without it. They oversupply full nouns by presenting the referent explicitly so as to ensure their speech is understood correctly. With the "hyper information economy production principle", however, speakers pass the referential search to the addressee even when some potential ambiguity is involved. NNS utilise this information economy principle because the omission of redundant elements provides a short cut for second language speech production. Consequently, they overgeneralise the use of ellipsis even where the referential search is constrained in memory.

The oversupply of full nouns is prominent in earlier stages of acquisition decreasing gradually as language competence increases. The over use of ellipsis is also a feature of NNS speech production. A similar patterns is

found with ellipsis, however, due to overgeneralisation there is an increase in usage before this decreases to a NS level.

These different methods of acquisition can be explained in terms of rule formation. When the learner acquires referential choice in Japanese discourse, he/she must learn three things: 1) concept; 2) form (syntax); and 3) discourse rule. The learner in Stage 3 has already acquired 1) the concept of the full noun and 2) canonical order sentences including NP. At NP level, they have acquired "N -> N no/to/ya N" and "NP -> N₁ no N₂". Accordingly, the gradual acquisition of the discourse rule for selection of the full noun will lead to gradual decrease of excessive full noun usage. Ellipsis, on the other hand, involves a new rule, ie. concept formation because it is a new phenomenon for English speakers. On top of this, they have to learn the syntax of ellipsis: anaphoric ellipsis cannot always be used in place of nominals, especially when compound and complex sentences are involved. Learners also need to learn discourse rules: ie, in what situations is the use of ellipsis constrained? In summary it can be said that the acquisition of concept occurs first followed by the acquisition of syntax which leads to the excessive use of ellipsis. After a certain stage, however, the acquisition of discourse rules start and this leads to a decrease in the overuse of ellipsis. Therefore, the excessive use of ellipsis is a developmental phenomenon rather than an error.

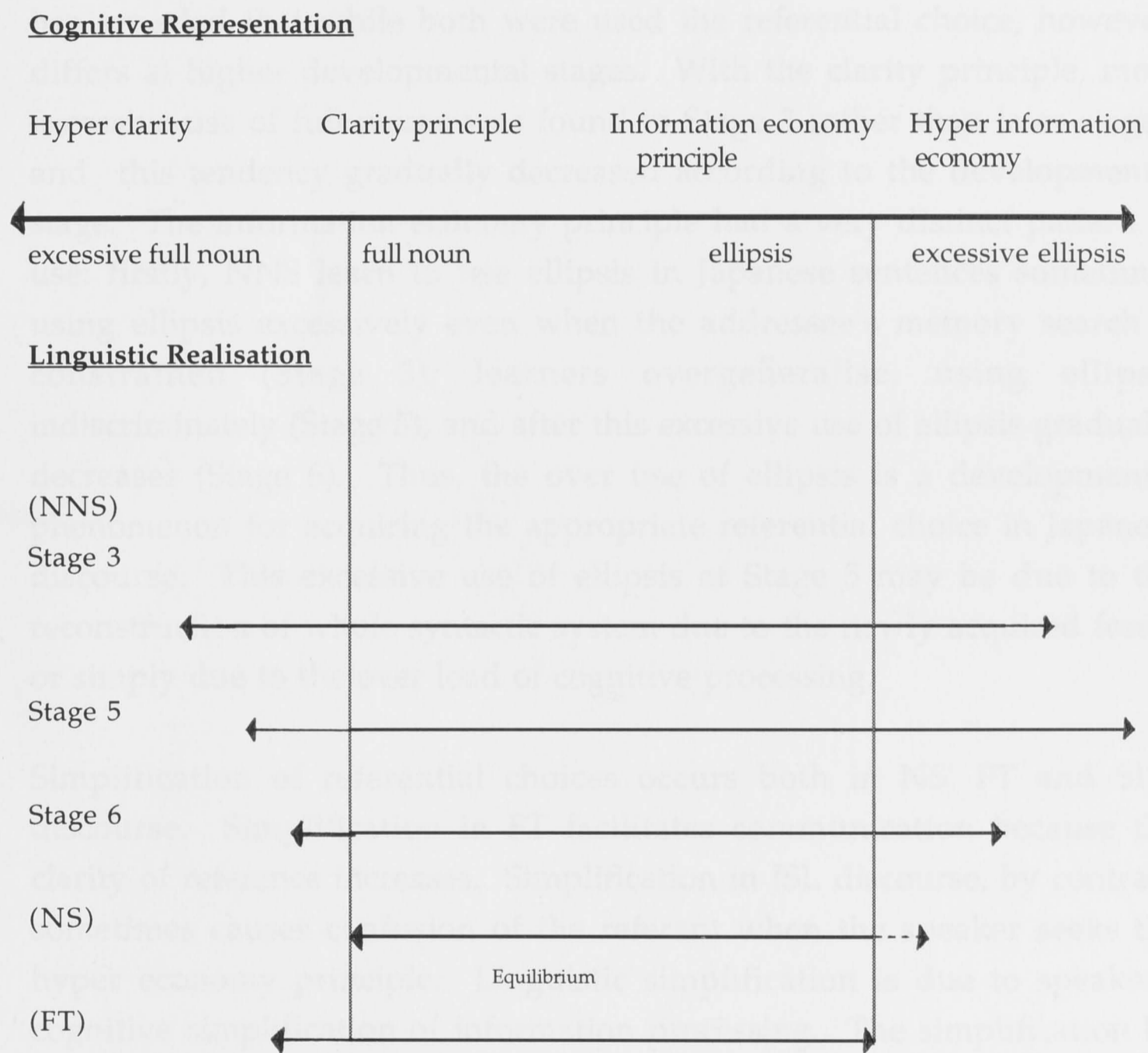
5-3 Discussion

The principle employed by speakers for referential choice seems to differ according to different types of speeches (ie. NS-NS interaction, FT and NNS). For NNS, these principles are employed to a different degree according to the developmental stage of learners.

The following Table 5-1 shows each of the speaker's underlying mechanism for referential choice as discerned from the results of this research. The choice of either full noun or ellipsis is the linguistic realisation of each speaker's cognitive representation. In other words, how much a speaker seeks two opposite cognitive principles decides the choice of full noun or ellipsis. These principles appear in opposite directions to the continuum shown in the table. Therefore, if the speaker uses more full nouns, more clarity principle is achieved. If the speaker

uses more ellipsis, on the other hand, the information economy principle is achieved. That is, when the speaker uses the clarity principle, the reference is encoded with more full nouns, and when he/she uses the information economy principle the reference is encoded with more ellipsis. If NS's referential choice is the equilibrium for seeking two principles, each speaker's referential management is as follows:

Table 5-1 Referential Management in Different Speech



All speakers, regardless of their status, use the two principles of clarity and information economy. In NS-NS interaction, the speakers appropriately use these two principles, balancing their usage according to the discourse. It is possible for them to use ellipsis excessively (shown by the broken line on the chart). Where this happened, postposition was a useful device to repair the conversation.

In FT, the choice of referential form tends to shift towards the hyper clarity principle. This results from the speakers' attempts to lighten the NNS's interactional burden, in terms of referential searches, by adding full nouns which are not normally present in NS-NS interaction.

In NNS's speech, both principles are expanded for referential choice. As shown in the chart, all NNS used full nouns excessively which resulted in "hyper" clarity. However, at the same time, they also used excessive ellipsis resulting in a 'hyper' information economy principle. This study has revealed that while both were used the referential choice, however, differs at higher developmental stages. With the clarity principle, more excessive use of full nouns was found in Stage 3 rather than later stages, and this tendency gradually decreased according to the developmental stage. The information economy principle had a very distinct pattern of use: firstly, NNS learn to use ellipsis in Japanese sentences sometimes using ellipsis excessively even when the addressee's memory search is constrained (Stage 3); learners overgeneralise, using ellipsis indiscriminately (Stage 5); and after this excessive use of ellipsis gradually decreases (Stage 6). Thus, the over use of ellipsis is a developmental phenomenon for acquiring the appropriate referential choice in Japanese discourse. This excessive use of ellipsis at Stage 5 may be due to the reconstruction of whole syntactic system due to the newly acquired forms or simply due to the over load of cognitive processing.

Simplification of referential choices occurs both in NS' FT and SLA discourse. Simplification in FT facilitates communication because the clarity of reference increases. Simplification in JSL discourse, by contrast, sometimes causes confusion of the referent when the speaker seeks the hyper economy principle. Linguistic simplification is due to speakers' cognitive simplification of information processing. The simplification by NS in FT and by learners differs because their orientation to the interaction is different: in FT, NS simplify their speech trying to avoid conversational problems; NNS simplify seeking optimal interaction with the limited knowledge of a given language. Though NNS's simplification involves some deviations, these features can be a developmental phenomenon in SLA with deviations decreasing gradually.

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