Patterns of Use of Referring Expressions in English and Japanese Dialogues

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This is to certify that this dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration.

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Abstract

The main aim of the thesis is to investigate how discourse entities are linked with topic chaining and discourse coherence by showing that the choice and the distribution of referring expressions is correlated with the center transition patterns in the centering framework. The thesis provides an integrated interpretation in understanding the behaviour of referring expressions in discourse by considering the relation between referential choice and the local and global coherence of discourse.

The thesis has three stages: (1) to provide a semantic and pragmatic perspective in a contrastive study of referring expressions in English and Japanese spontaneous dialogues, (2) to analyse the way anaphoric and deictic expressions can contribute to discourse organisation in structuring and focusing the specific discourse segment, and (3) to investigate the choice and the distribution of referring expressions in the Map Task Corpus and to clarify the way the participants collaborate to judge the most salient entity in the current discourse against their common ground.

Significantly, despite the grammatical differences in the form of reference between the two languages, the ways of discourse development in both data sets show distinctive similarities in the process by which the topic entities are introduced, established, and shifted away to the subsequent topic entities. Comparing and contrasting the choice and the distribution of referring expressions of the four different transition patterns of centers, the crucial factors of their correspondent relations between English and Japanese referring expressions are shown in the findings that the topic chains of noun phrases are constructed and are treated like proper names in discourse. This can suggest that full noun phrases play a major role

when the topic entity is established in the course of discourse. Since the existing centering model cannot handle the topic chain of noun phrases in the anaphoric relations in terms of the local focus of discourse, centering must be integrated with a model of global focus to account for both pronouns and full noun phrases that can be used for continuations across segment boundaries.

Based on Walker's cache model, I argue that the forms of anaphors are not always shorter, and the focus of attention is maintained by the chain of noun phrases rather than by (zero) pronouns both within a discourse segment and over discourse segment boundaries. These processes are predicted and likely to underlie other uses of language as well. The result can modify the existing perspectives that the focus of attention is normally represented by attenuated forms of reference, and full noun phrases always show focus-shift. In addition, necessary extension to the global coherence of discourse can link these anaphoric relations with the deictic expressions over discourse segment boundaries. Finally, I argue that the choice and the distribution of referring expressions in the Map Task Corpus depends on the way the participants collaborate to judge the most salient entity in the current discourse against their common ground.

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CONTENTS

Abbreviations Used in Glosses

ACC	accusative
COP	copula
DAT	dative
DEM(P)	demonstrative (proximal)
DEM(M)	demonstrative (medial)
DEM(D)	demonstrative (distal)
DO	direct object
FP	final particle
GEN	genitive
POL	politeness
IMP	imperative
INTERJ	interjection
LOC	locative
NEG	negative
NOM	nominative
OBJ	object
PAST	past
PAT	particle
POSS	possessive
PP	prepositional phrase
Q	question
REL	relative
SUBJ	subject
TOP	topic

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Chapter 1

Introduction

1 Introduction

1.1 Aims

The main aim of the thesis is to investigate how discourse entities are linked with topic chaining and discourse coherence by showing that the choice and the distribution of referring expressions is correlated with center transition patterns in the centering framework (Grosz, Joshi, and Weinstein 1995; Walker, Joshi, and Prince 1998). The thesis explores the patterns of use of referring expressions in dialogues from a cross-linguistic point of view, focusing on the way speakers introduce a specific entity, establish it as topic, and then shift to another topic as the discourse proceeds.

In this thesis, I argue that the existing theory of anaphora resolution in semantics and pragmatics cannot fully account for the relation between referential choice and discourse structure. For example, semantic and neo-Gricean pragmatic approaches to anaphora resolution developed by scholars such as Levinson (2000) and Huang (2000, 2006) are confined to the analysis of semantic factors that are crucial to intrasentential anaphora. Recent studies by computational linguists (e.g. Webber 1990 and Webber *et al.* 2003) have discovered a number of facts showing that pragmatic factors play an important role in discourse anaphora, but the structural analysis of anaphora by computational linguists has not integrated competing hypotheses concerning the relation between referential choice and discourse structure from a cross-linguistic perspective. Although anaphora clearly involves syntactic,

semantic, and pragmatic factors, anaphora represents one of the most complex linguistic phenomena in all languages in which the alternation of NP (including N) and pronoun (including null pronouns or zero pronouns) are the main concern: the explicit forms of initially introduced entities (i.e. full nouns) have been claimed to be attenuated into inexplicit forms of reference (i.e. pronouns). Considering the empirical evidence from the grammatical, semantic and pragmatic differences between Japanese and English referential choices in discourse, this claim is not always valid. Therefore, a plausible explanation of discourse anaphora should provide a general framework and an integrated interpretation to account for the patterns of use of referring expressions in discourse.

Specifically, I claim that full NPs play a major role in spoken discourse when the topic entity of a given discourse is in the process of being established in the course of a speech event. Based on the integrated discourse understanding model (Walker 1998), I propose that the forms of anaphors are not always shorter than full nouns used when they are initially introduced into a discourse, and the focus of attention is maintained by the chain of NPs rather than by (zero) pronouns both within discourse segments and over discourse segment boundaries. This result modifies existing perspectives that the focus of attention is normally represented by attenuated forms of reference, and full noun phrases always show focus-shift. Furthermore, I argue that the extended interpretation of Walker's cache model (1998) is able to clarify the relation between referential choice and the local and global coherence of discourse.

This thesis has three parts: (1) to provide a semantic and pragmatic perspective of referring expressions in a cross-linguistic study of English and Japanese spontaneous dialogues, (2) to analyse the way anaphoric and deictic expressions can contribute to discourse organisation in structuring and focusing a specific discourse

segment, and (3) to investigate the choice and the distribution of referring expressions in the Map Task Corpus and to clarify the way the participants collaborate to judge the most salient entity in the current discourse against their common ground.

The methodology of the thesis is descriptive rather than theoretical. My central claim is that referential choice is based on the empirical assumption that referential choice is strongly associated with the discourse structure locally and globally. That is, the choice between explicit and attenuated lexical forms (e.g., pronouns vs. NPs) can be explained in terms of discourse processing in that explicit expressions tend to be used in situations where the referent is accessible for the addressee over the discourse segment boundary (i.e. global discourse structures). This thesis focuses on spoken language. Speaking is the most basic form of language use and requires on-line understanding and exchanging information between the participants in a more dynamic way than writing does. Speaking has two manners of talking about things: narratives and dialogues. However, the discourse of dialogues is more structured than narrative discourse, because dialogue is highly interactive, and dialogue processing is more dynamic and complex in terms of the conversational strategy of assuming common ground. Both spoken narratives and dialogues share linguistic and paralinguistic features of spoken language. It is true that the syntax of spoken language is typically much less integrated than written language, for example, in the use of incomplete sentences, little subordination, repairs and repetitions, and a number of discourse markers and fillers, etc. Yet, functionally, these features do make sense in the situation of face-to-face, two-person dialogues. The approaches to the problem of social meaning from the discourse analyst's point of view give rise to the investigation of the discourse structure of spoken narratives

(e.g. Labov 1972) and conversation (e.g. Sacks, Schegloff, and Jefferson 1974), then clarify the sequence of the patterns and structures in spoken discourse. Conducting analysis of conversational interaction, especially, the investigation of turn-taking starts with identifying adjacency pairs and insertion sequence (or side sequence), conversation analysts discover the fact that the collaborative nature of a face-to-face interaction between the speaker and his or her interlocutor makes the structure more hierarchical: dialogue structures are connected with each other both locally and globally. The structural complexity of discourse processing of dialogues can directly affect the salience and anaphoric device of discourse entities. To clarify this view, I apply a computational framework to spontaneously occurring dialogues in two different languages. The analysis is generally quantitative based on the framework, and the result will be provided with a qualitative interpretation supported by linguistic evidence. At a more general theoretical level, this thesis is intended as a contribution to an improved understanding of the relationship between the discourse analysis and computational linguistics.

1.2 Referring expressions in discourse

Referring expressions have been studied by scholars with a variety of backgrounds and perspectives. Descriptive grammarians, generative syntacticians, scholars of semantics and pragmatics, discourse and conversational analysts, stylisticians and text linguists have all contributed to the currently available data and descriptive insights. More specifically, the study of the relationship between referring expressions and discourse structure has played an important role in the research fields of pragmatics, discourse analysis, psychology, and computational linguistics. For example, the distinction between indefinites and definites is intensively

discussed in a wide range of academic fields, such as philosophy, linguistics, and psychology, and even text grammar (Donnellan, K.S. 1978, Hawkins 1978, Haviland and Clark 1974, van Dijk 1977). There has been a constant debate how the distinction between definite noun phrases and pronouns are affected by the roles of syntactic, semantic, and pragmatic factors. Finding a mechanism to account for the interactions between those factors are one of the most significant and challenging research questions, but there are a number of obstacles to sorting out the problems, such as terminology, different perspectives and methodology.

Despite these problems presented above, it is rewarding to tackle the issue with a discourse-based integrated approach to the role of pragmatics on referring expressions from a cross-linguistic point of view. This is because referring expressions are strongly connected with discourse coherence and different types of referring expressions and different syntactic forms make different inference demands on a hearer or reader (Grosz, Joshi, and Weinstein 1995). Let us briefly observe the use of reference in Japanese discourse. Cross-linguistically, Japanese belongs to the so called discourse oriented type of language. In the following example, there is no explicit nor implicit topic in the course of the narrative:

(1.1) (a) Kumasan ga   fukuro wo   mitukemashita

        Bear   SUBJ   bag   OBJ   found POL

        'A bear found a bag.'

    (b) 'Oya, nani kana.   Ittpai   Ø haitte   iru'

        INT what   FP   plenty PP being   is

        'Eh? What is it? There is plenty in it.'

    (c) Kumasan ga tomodachi no risu san ni kikini ikimashita

        bear   SUBJ friend of   squirrel to ask to went POL

        'The bear went to ask his friend, a squirrel.'

    (d) Kumasan ga   fukuro wo akemashita

        bear   SUBJ bag   OBJ opened   POL

        'The bear opened the bag.'

    (e) Nanimo Ø arimasen

        nothing   is   POL

        'There is nothing in it.'

    (f) 'Shimatta.   Ø   Ana ga aiteita.'

        INT   TOP hole SUBJ opened

        'Oh no, it has a hole.'

    (g) Atatakai kaze ga fuki hajime mashita

        Warm breeze SUBJ blow started POL

        'Warm breeze started to blow.'

    (h) Nagai nagai hanano ittponmichi ga dekimashita

        Long long   flower of way   SUBJ made POL

        'Long, long single road of flowers was made'

*Kokugo*1 *ue*, Mitsumura Tosho

(*National Language* for the first half of the 1st year students of the elementary school,

Mitsumura Publishers)

This is a short written narrative story quoted from the textbook used in the national

language class for the first grade of the elementary students (7-8 year olds) in Japan.

Here there is no description equivalent to the topic nor Japanese topic marker *wa* in

any sentence. Instead, the noun phrase *Kumasan* is repeated three times in the subject

position of the sentences with the subject marker *ga*. Since the main character is not

established as a topic signified by the topic marker, the overt topic entity cannot be

retrieved from the surface structure. However, the topic of discourse is obvious: *Kumasan*. Then, the topic shifts to *fukuro* 'bag' represented by zero pronouns in (e) and (f). Shortly, the topic swiftly shifts to *Atatakai kaze* 'Warm breeze', subsequently to *Nagai nagai hana no michi* 'Long, long single road of flowers'. Here the so called discourse topic is maintained by bare nouns *kumasan* without any replacement by attenuated forms. The subsequent zero pronouns suggest that the discourse topic temporarily disappears and a sub-topic is focused on in a limited context. Note that this zero chain is used to link the sub-topic, not to link the discourse topic. Interestingly, this reference assignment does not seem to cause the hearer or reader any inference load in discourse processing. The text structure is completely natural and intelligible for the native speaker of Japanese.

However, on the other hand, most linguists whose native language is English may feel dubious about such an anaphoric device: the use of repeated noun phrases to track the discourse topic and a chain of zero pronouns to identify the sub-topic. It is because this reference assignment violates the established view of anaphoric choice, since English has two options, pronouns and ellipsis (though the latter is syntactically and semantically constrained and limited in a specific context). Pronouns are the unmarked choice of reference for accessing to the most salient entities in the previous utterance (Givón 1980, Ariel 1990, Yule 1981), which is schematised in a scale as follows:

$$NP \quad > \quad Pronoun \quad > \quad \emptyset$$

This scale claims that more salient entities are typically referred to using the strategies on the right of the hierarchy. That is, the anaphoric device of the most

salient discourse entity is that the explicit forms of initially introduced entities become attenuated into inexplicit forms of reference, called pronominalisation. This scale is indisputably true in that 'NPs and proper names access to the discourse referents with low or zero-focus, whereas pronouns (unstressed) match discourse referents with high or medium focus in the current context space' (Cornish 1986: 221), but not universal, at least in relation to Japanese. Definite descriptions and proper names usually belong to the class of referring expressions that are used to establish a discourse entity in supposed mutual knowledge between the speaker and the addressee, while pronouns are provided to signal an established topic entity that is shared in the present discourse situation. In languages like English, NPs are used to introduce first mentions, and are subsequently replaced with pronouns to refer to established referents, but this process is not always acceptable in Japanese.

A number of contrastive linguistic and cross-linguistic researchers have also validated that the topic entity is preferentially realised by a pronoun in English and equivalent forms (i.e., zero pronouns) in other languages (Ariel 1990, Gundel, Hedberg, and Zachaski 1993, Clancy 1980, Hinds 1983). In contrast, the anaphoric relation in example (1.1) is not explained by the grammatically constrained rules such as pronominalisation. As seen above, the repetition of the NP as discourse topic and zero chain of sub-topic cannot be explained by this hierarchy. Therefore, the existing theory of anaphora resolution, specifically based on the scale of referential choice of English (e.g. Prince's taxonomy scale, Ariel's accessibility theory) does not fully expound these chains of noun phrases as topic continuity in Japanese. Yet, there are some studies that point out the fact that Japanese speakers used more full NPs than English speakers (Clancy 1980) or the suggestion that actually the noun/pronoun distinction is not at all neutralised, as English and Japanese pronouns

are not really counterparts of each other in terms of their linguistic device of reference assignment in discourse (Hinds 1983).

To make this issue more specific, compare example (1.1) with the following passage from an English book for young readers:

On a windy hill alone with nothing to be friends with lived *Something Else*. *He* knew that was what *he* was because everyone said so. If *he* tried to sit with them or walk with them or join in their games, they always said: "Sorry. You're not like us. You're something else. You don't belong.' *Something Else* did his best to be like the others. *He* smiled and said "Hi!" like they did. *He* painted pictures. *He* played their games when they let him. *He* brought his lunch in a paper bag like theirs.

(Kathryn Cave and Chris Riddell, *Something Else* Picture Puffins (1995),

The beginning of the story with no page number)

Unlike the pronoun *he* in English, on the other hand, Japanese subjects are not always topic, and as seen in a nominative *kumasan*, their given status is not realised as a grammatical topic. Instead, nominative *ga* in the subject position plays another role as a discourse marker, which is called 'descriptive *ga* (neutral description of actions or temporary states)' by Shibatani (1990: 262). That is, it is assumed that a series of NPs with the subject marker *ga* represents the development of discourse topic not with the topic marker *wa* but by the use of lexical repetition. Let us return to the Japanese example (1.1) in which a chain of NPs themselves constitute cohesive topic markers, creating the event scene for establishment of topic entity *kumasan*. In this piece of narrative no topic sentence with *wa*-marking is used, as Shibatani (1990: 279) comments on 'the grammatical topic as a powerful cohesive device, which relates an event to the preceding scene in such a way that the new event is presented as a further development of the preceding scene'. However, it can

be demonstrated that the cohesive device of lexical repetition is used and contributes to the discourse coherence, despite the fact that each scene is presented as fairly discrete. As this observation suggests, the sequence of (a), (c), and (d) depicts a series of three discrete events, but the nominal cohesive device powerfully functions to constitute a coherent discourse structure.

How does the discourse structure affect the different referential choices between different languages? The answer remains uncertain, but it is evident that the difference in referential systems can affect the different patterns of use of referring expressions. That is, the established system of grammatical and semantic representation of reference is represented by the scale: 'NP > Pro> Ø'. In languages like English, NPs are used to introduce first mentions, and are subsequently replaced with pronouns for established referents. Zero pronouns are unexpressed elements that are recoverable from a given context or mutual knowledge. However, the use of English zero pronouns is strictly constrained by grammatical rules. In English, especially, all the arguments that the verb subcategorises for are required to be expressed in a sentence:

(1.2)
a. John bought a book
b. *Bought a book.
c. *John bought.
d. *Bought.   (Tsujimura 2007: 254)

On the other hand, Japanese allows such missing constituents. Consider the translation. ('John' is translated into 'Taro'):

(1.3)

a. Taro ga   hon o   katta.
   Taro SUBJ book OBJ buy PAST
   'Taro bought a book.'
b. Ø hon o katta.
c. Taro ga Ø katta.
d. Ø   Ø katta.

In some languages including Japanese, it is evident that the scale 'NP > Pro> Ø' is not applicable. That is, there are overt pronouns in the Japanese referential system such as the first person pronouns 'watashi' (I) / 'watashi tachi' (we), the second person pronouns 'anata' *sg*./ 'anata tachi' *pl*. (you), and the third person pronouns *kare*(male) / *kanojo*(female), but the actual use of these personal pronouns is pragmatically restricted in a given discourse. NPs that are introduced into discourse as first mention are normally replaced with zero pronouns on subsequent mentions. Japanese allows arguments to be freely omitted if they are salient from discourse context. However, in practice, zero pronouns are not 'freely' omitted, and NPs play a major role in discourse. Zero chains are limited only to the description in a specific discourse stage. Therefore, another established referential system exists (Obana 1999):

$$NP \quad > \quad Ø$$

In this thesis, I demonstrate that NPs in Japanese are dominant in the sense that they do not always show focus-shift, but maintain a topic-chain in a given discourse. A brief overview of English and Japanese zero and referring expression is given in 2.2.

   In English, on the other hand, pronouns provide the primary means for

establishing cohesive links in a given discourse. The pronoun that is represented in the subject position indicates that the discourse entity is salient, and the pronoun that is represented in a rather lower position of the sentence (e.g. in the object position or in prepositional phrases) indicates that the discourse entity is less salient. Here grammatical function plays an important role in estimating the scale of the salience of the discourse entity. Yet this function does not work well in Japanese, which may need more discourse-based ranking system to calculate the salience of the discourse entity. Note that, in examples (e) and (f), despite its current status of topicality, zero pronouns cannot indicate a discourse topic. This fact suggests that zero anaphors do not always denote a focus of attention in discourse. In Japanese, it is assumed by modern linguists that 'topic' rather than 'subject' dominates the saliency in the sentence construction. In example (g) and (h), the newly presented subjects do not become discourse topics, but foreground the two discrete events as marked themes.

Therefore, the final goal of this thesis is to provide a unified account on the patterns of use of referring expressions in both language data in an integrated linguistic framework. By 'a unified account', I intend to clarify the referential assignment in discourse and explain the local coherence and salience for anaphora resolution in different languages by combining a centering model as a linguistic tool with its extended model of discourse understanding, which is introduced in Chapter 5 (Walker and Prince 1995, Walker, Joshi, and Prince 1998).

1.3. Referring expressions, dialogues, and centering theory

This section focuses on the significance of studying referring expressions in dialogic discourse, and briefly introduces centering theory to analyse the data. As I stated, the final goal of the thesis is to provide a unified account on the patterns of use of

referring expression in spoken discourse in an interactive context.

In this thesis, the main discussion of the referential phenomena is based on dialogues, more specifically, a parallel corpus of English and Japanese Map Task dialogues (henceforth MTC [Map Task Corpus]). I choose dialogue as a corpus study, because it is the most fundamental linguistic expression of human communication. It may be taken for granted that investigating the patterns of use in referring expressions occurring in dialogues is apparently straightforward. However, cross-linguistic study on referential choice in discourse is mainly targeted to written discourse. It is a major challenge for linguists to explore the relations between referential choice and the discourse structure in dialogues, because, unlike written modes of discourse or even spoken narratives, dialogue as an interactional mode of discourse needs careful treatment for linguistic analysis: defining utterance boundaries and previous utterances, considering the relation between dialogue participants and discourse entities, deciding an annotation scheme and setting up a base line for data description, etc. (These are discussed in Chapter 5 in depth.)

Of course, much research is based on naturally occurring spontaneous dialogues. Most collected spoken data is probably not task-based rather than the one gained through task-oriented experiments, and the considerably controlled nature of dialogue can make it problematic to generalise the results to extend to cross-linguistic studies (I discuss this point in detail in 5.4). My contribution to this field is that empirical evidence from my parallel dialogue corpus of English and Japanese requires the modification and extension of the adopted framework, and serves to help provide a more general account of the patterns of referring expressions in a cross-linguistic context. Moreover, the fact that the focus of a number of studies is placed only on the linguistic representation within a limited amount of utterances

leaves open the issue of how the discourse entities interact with the discourse development and discourse coherence.

Obtaining dialogue data for cross-linguistic research may appear to be an easy task, but it turns out not to be. Collecting reliable dialogue data in manageable conditions is a laborious process. Nevertheless, there is no question that the data can provide a sufficient amount of empirical evidence to support the claim of the thesis. For a persuasive cross-linguistic study, it is essentially important to equalise the conditions such as data size, subjects, and the task design.

Analysing the dialogue data is another challenge. Every time you consult real dialogues, various questions are recurrently raised, including how to determine the utterance unit and discourse segments, how to interpret ambiguous anaphora, how to treat hedges, false starts, minor sentences (incomplete sentences lacking grammatical constituents like subject or object), discourse markers, back-channels, repetitions, and even pauses and silences. Since most of the phenomena cannot be categorised by the grammatical construction as a canonical sentence, they have been considerably ignored in previous formal research and major grammar books. Only very recently have they been taken into account as discourse related phenomena (cf. Quirk *et al*. 1985; Biber *et al*. 1999). My current task is to determine to what extent the type of referring expression interacts with these discourse factors by examining which factors affect the choice of referring expressions. Chapter 4 provides the information of the parallel data of English and Japanese Map Task dialogues.

The linguistic evidence is obtained through a corpus-based analysis. To analyse the distribution of referring expressions, centering theory is applied. Centering is formulated as a theory that relates focus of attention, choice of referring expression, and perceived coherence of utterances, within a discourse segment (Grosz, Joshi, and

Weinstein 1995). I choose centering as a fundamental tool for the corpus study in this thesis. The purpose of using it is not to test the linguistic evidence in the computational framework, nor to use the theory for practical application, such as machine learning. On the contrary, I wish to use centering as a general linguistic theory to support the claim that full NPs play a major role in spoken discourse when the topic entity of a given discourse is in the process of being established in the course of a speech event. I then intend to extend its constraints by integrating the motivation of the referential choice into more universally acceptable interpretation. The original claim of centering is maintained and a similar approach is expressed by Poesio *et al*. (2004) as follows:

A fundamental characteristic of centering is that it is better viewed as a *linguistic* theory than a computational one. By this we mean that its primary aim is to make cross-linguistically valid claims about which discourses are easier to process, abstracting away from specific algorithms for anaphora resolution or anaphora generation (although many such algorithms are based on the theory) (310).

[italics and parenthesis is Poesio's own]

I will extensively discuss the applicability of centering theory as a tool for resolving anaphoric relations in discourse in Chapter 5. In Chapter 6, I also practically apply the centering rules and constraints to the utterances in the Map Task dialogues. I mainly investigate how the local focus of centering and the type of referring expressions correlate in English and Japanese dialogues.

Furthermore, the central concern of this thesis is extended to the interaction between the referring expression and the global coherence of discourse. Although a number of centering researches specify the theory for an utterance within a discourse segment, the issues of how centering interacts with global discourse structure

remains open. In previous decades, there have been a number of research efforts to deal with this issue which are discussed in depth in the introduction of Walker, Joshi, and Prince (1998). It is worthwhile noting that the idea of centering gives a great insight into anaphora resolution in naturally occurring discourse for not only computational linguists, but for linguists in the field of pragmatics, discourse analysis, and first and second language learning. The idea of centering should be more open to the discourse based approach to anaphora resolution by extending the theoretical framework. Significant studies, including Passonneau's application to a corpus of spoken narratives (1996, 1998), the *Pear Stories* (Chafe 1980) and Walker's important findings in naturally occurring dialogues and the cache model (1998) should be paid more attention by linguists. Therefore, the current task of the thesis is to carefully evaluate the claims that the researchers quoted above made in their empirical studies and provide a unified account on the patterns of use of referring expression in discourse from a cross-linguistic point of view.

1.4 Organization of the thesis

According to the three stages of discussion, the overall thesis is divided into three parts.

Part I (Chapters 2 and 3) of the thesis aims to critically review current approaches to referring expressions and the role of deictic expressions with respect to discourse organisation.

Chapter 2 introduces the theoretical approaches to the referring expressions in discourse and examines the distribution of referring expressions and typological

differences of the forms of reference between English and Japanese. The referential choice is directly related to the cohesion of discourse. Considering the theoretical and methodological problems that face analyses of dialogue, I present a general hypothesis which suggests ways in which the choice of the referential forms in English and Japanese can be redefined by a unified account in a discourse based framework.

Chapter 3 focuses on the deictic expressions in discourse. I will explore the patterns of use of deictic expressions from three aspects: spatial deixis, anaphoric demonstratives, and discourse deixis. Based on the empirical evidence, I predict that deictic expressions can interact with discourse coherence and that discourse organization can be construed by structuring and focusing the specific discourse segment.

Part II (Chapter 4 and 5) is devoted to the data collection and shows the evidence from the data analysis based on the view of discourse understanding model called centering theory. The results of the analysis are also discussed.

Chapter 4 gives the description of the data that is used as the empirical evidence. The data I collected are the task-oriented parallel corpus of naturally occurring English and Japanese dialogues. The aims, the task design, subjects, and accessibility of data, and the matching of corpus data for English and Japanese are presented.

Chapter 5 applies the centering framework to the parallel corpus of English and Japanese Map Task Dialogues. The problems and preliminary guidelines for applying

the theory to the dialogue data are presented. The main aim of the analysis is to assess to what extent the theory can correctly reflect the relation between the distribution of discourse entities and the discourse coherence in an interactive context.

Part III (Chapters 6, 7 and 8) provides the corpus study of patterns of use of referring expressions in the local coherence and global coherence of discourse. The original centering theory is applied to the dialogue data and Walker's cache model is tested. The findings from the cross-linguistic studies lead us to the belief that the framework of the global coherence of the discourse is essential and the discourse coherence can be constructed by the act of referring as a collaborative process of discourse participants.

Chapter 6 aims to evaluate the findings of the quantitative analysis in depth. The implication of the results of Chapter 5 motivates the more detailed corpus-based analysis of the specific referring expressions in specific transitional states of topic entity. The results of this analysis eventually lead us to the confirmation that the model for explaining the global coherence of discourse is essential in understanding the motivation functioning behind the distribution of the discourse entities.

Chapter 7 then introduces the cache model as an intergrated discourse model which includes centering, which can deal with a more global view of topic management. Based on the two sets of English and Japanese dialogues, the major part of the referring expressions that contribute to the discourse coherence are noun phrases rather than pronouns in English and zero pronouns in Japanese. Here the established

view that the reduced forms of reference are preferred when the topic is processed with less load for the hearer and reader in discourse is questioned. Instead, I argue that the noun phrases can be the centre of current discourse not only within the discourse segment but also over the discourse segment boundaries. In addition, I explain that the chain of noun phrases may interact with the salience of the topic entity along with the size of the memory.

Chapter 8 explores the types and lexical features of NPs that are employed in dialogic discourse, especially in the stages that occur as first mentions as initial presentation and as subsequent mentions as an established topic. I will investigate the types and lexical features of NPs that are employed in dialogic discourse, especially in the stages that occur as first mentions as initial presentation and as subsequent mentions as an established topic. I will then extend the investigation to the reference type employed with respect to the specific sentence construction 'conditional clauses' as a case study on how the discourse entities can link with the current and subsequent utterances in the English data. I argue that *if*-clauses functioning as directives should be seen as the speaker's strategic initiation to introduce a new discourse entity in the subsequent move. Lastly, it is clarified that the pragmatic implications of NPs in initial and subsequent mentions largely depend on the collaborative process of the participants in dialogues.

Finally, in Chapter 9, I conclude with a summary of the thesis and future directions.

Chapter 2

Approaches to Referring Expressions

2.1 Introduction

The purpose of this chapter is to critically review approaches to referring expressions in spoken discourse and outline a discussion of general theoretical issues governing the choice and behaviour of referring expressions. First, I set out the background and the general issues in the study of referring expressions and clarify the notion of givenness in section 2. Next, the discussion is extended to the notion of topic entities, thematic structure and discourse segments in section 3. Then, I review the descriptive system of reference in English and Japanese and the distinction between *that/this/it* in section 4, and discuss the attempts of anaphora resolution from the view of pragmatics in section 5. Then I discuss approaches to reference assignment and discourse in section 6.   In section 7, considering the theoretical and methodological problems that face analyses of dialogue, I present a general hypothesis which suggests ways in which the choice of the referential forms in English and Japanese can be redefined by a unified account in a discourse based framework. In section 8, I attempt to draw the typical examples of referring expressions in English dialogues into the special focus on the referential choice. Section 9 is the conclusion.

2.2 Referring expressions and the notion of givenness

In this section, I will show that the choice of referring expressions is strongly connected with the notion of givenness. Although I introduced the general overview

of reference assignment in English and Japanese in Chapter 1, I will briefly overview the types of referring expressions of both languages. Referring expressions are defined as a type of linguistic expressions that can be used to refer in a definable context for a particular purpose. In other words, a speaker can use 'any expression in an utterance to refer to something or someone, i.e. a particular referent in mind in uttering any word' (Hurford, Heasley and Smith 2007). Referring expressions are either indefinite or definite. Indefinite expressions such as nominals with indefinite articles *a nurse* or generic nouns such as *someone/something* are typically used to introduce entities into the discourse. Indefinite noun phrases that appear as the complement of the verb 'to be' such as *a nurse* in *My mother was a nurse*, are not used as referring expressions. The indefinite expression in non-specific reading such as *a ruler* in *John is looking for a ruler*, which could be used to mean any ruler, is not used referentially.

Definite expressions include proper names and definite noun phrases. Proper names are used to 'refer to an individual in a particular role' (Brown and Yule 1983: 211). They may be used only in specific contexts and are taken to have a unique referent, regardless of context, e.g. *Plato* is probably a good example. We can also use proper names with more extended referential function as in the utterance: *Plato is on the bottom shelf of the book case*. Definite nouns phrases are the type of referring expressions that are most generally discussed as definite, and clearly 'discourse specific in their referential function'; their uses are 'in subsequent reference to an entity which has already been mentioned in an earlier part of the discourse or to salient objects in the physical context' (Ibid, 211). The examples from extracts elsewhere in this thesis are *the cave, the bridge, the derelict building,* and *the third giraffe*. The related uses of definite noun phrases are in reference to entities that are

linked by inference (e.g. *a car- the driver*) is described as 'inferrables' by Prince (1981b). In Japanese referential system, on the other hand, nouns are realised as bare nouns without any article, and the distinction between definite and indefinite is controlled by the choice of case markers and word order. Japanese nominal descriptions, including bare nouns and proper names, practically belong to the class of referring expressions.

Moreover, in English, anaphoric demonstratives *this/that*, either as noun phrases (e.g. *this man*, *that girl*) or as pronouns, and discourse deixis represented by the demonstrative pronouns *this/that,* are also included in a type of referring expressions. In addition to the distinction of two elements *this/that*, the discussion of an alternative system incorporating these demonstrative pronouns with pronoun *it* is highlighted in 2.4. In Japanese, on the other hand, three-step distant categories are used as anaphoric demonstratives: *kono* NP and *kore* as *this*-Proximal, *sono*-NP and *sore* as *that* Medial and *ano*-NP and *are* as *that*-Distal. Discourse deixis is represented by demonstrative pronouns *sore/are* 'that (Medial)/ this'.

In English, pronouns are a type of referring expressions used by speakers to refer to given entities, or a reference to the topic entities. Pronouns are also a reference to the current entities (i.e. topics that have been retained), rather than displaced ones (i.e. topics to which attention has been shifted). There is no overt pronoun in the Japanese referential system except the third person pronouns *kare* (male)/ *kanojo* (female) as a pragmatically special use. As was initially assumed in Chapter 1, Japanese zero pronouns have a similar role to that of English pronouns. Nevertheless, as illustrated in the example (1.1) in Chapter 1, the behaviour of zero pronouns in Japanese does not seem to be parallel to that of English pronouns nor ellipsis in English.

Probably in any languages, once the first mention is established, forms of referring expression are attenuated either explicitly or implicitly. In English, explicit forms of referring expression are NPs (typically with articles, either indefinite or definite) and pronouns, and implicit forms of referring expression are ellipses. In comparison, Japanese has two forms of reference. Nouns without any article are explicit forms, and they are referred to as full nouns or bare nouns. Implicit forms occurring as unexpressed constituents that the verb subcategorises are referred to as null anaphora or zero pronouns. Pronominal forms such as *kare* 'he'/ *kanojo* 'she' are contextually restricted in Japanese and they are pragmatically marked (See Chapter 3.6).

The choice of these referring expressions and the interpretation of referential coherence in discourse have been the central issues to be dealt with by linguists in syntax, semantics, and pragmatics. This topic has been intensively studied especially in the area of discourse analysis and text linguistics for around nearly fifty years in order to clarify how the types and the behaviour of referring expressions contribute to the discourse development in different stages of discourse. The current popularity of experimental psychology and computational linguistics has brought about a renewed interest in the study of reference and of the discourse factors influencing referential choices such as local or global coherence of discourse, information structure, and discourse processing, etc. The various types of referential phenomena, which most native speakers will not even be aware of, have been presented and questioned, for example, the discourse function of reference such as the alternation of null and overt pronouns, alternation of NPs and pronouns, or the interaction between these reference assignments and discourse development. Further attempts have been made to account for linguistic phenomena by interdisciplinary approaches

or the universal frameworks based on a cross-linguistic point of view. By means of the empirical data and their statistical analysis, especially, the scholarly discussion on the methodological algorithm, theoretical frameworks, and integrated processing models of discourse has become the main concern, particularly in speech and natural language processing at the present time.

However, my current question is more basic than these interests, though it is of course related. My interest lies in investigating the discourse functions of reference in two distinct types of languages, English and Japanese. In naturally occurring discourse, the speaker must make an on-line decision whether to refer to a particular discourse entity with a full noun phrase, a pronoun or even an elliptical form. What kind of primary motivations are implied when the speaker chooses explicit forms of reference in one context and some less explicit forms of reference in another? The main aim of this chapter is to provide a cognitively unified view on the use of referring expressions occurring in contrasting languages, English and Japanese, and explore cognitive and discourse-related factors influencing the choice between pronominal and nominal reference.

More specifically, the distinction between pronominal and nominal forms of reference directly affects the discourse understanding of the participants. In the interactional language situation, the speaker requires to establish a current topic in discourse, so the use of explicit forms of reference such as full NPs are necessary for the participants in a given context in which the speaker may not be familiar with the addressee's knowledge about the referent and discourse understanding. Once the given entity is established in discourse, pronominal forms or zero anaphora are naturally acceptable. Yet, the substantial balance of referential choice between pronominal and non-pronominal forms can be language dependent: compared to

English, as suggested in Chapter 1, the distinction of pronominal /non-pronominal forms of Japanese is not grammatically determined. As I explained in Chapter 1 and also in the beginning of this section, the striking contrast of the referential systems in English and Japanese posits a major challenge.

For example, Clancy (1980) examined 20 English and 20 Japanese narratives based on the pear movie in joint research with Chafe (1980) for revealing the nature of the relationship between discourse structure and referential choice. Based on his results, the striking difference between the two languages is that Japanese speakers used noun phrases more than 10 percent more often than English speakers, which suggests that 'apparently Japanese speakers, who have available for use in such narratives only the "extremes" (Clancy's emphasis) of full noun phrases or total ellipsis, rely more heavily on nominal forms for coreference than English speakers do' (132). I presume that, considering Clancy's finding on the behaviour of Japanese noun phrases, the use of noun phrases in dialogues is more preferable than in narratives because of the collaborative nature of discourse. As is touched upon in Chapter 1, the relation between the choice of reference and discourse structure in dialogues is more complicated than in narratives because of the contribution of participants to the discourse processing such as turn-taking, side sequence, and back-channels. Moreover, this hypothesis can be extended to the behaviour of noun phrases in dialogues in English. Unlike English, Japanese is rich in NPs in place of pronouns in narratives. In dialogue, especially, the use of NPs is necessary in both language situations to avoid ambiguity, because the participants tend to share the entities to secure their mutual understanding by the chain of explicit forms of reference.

At the outset, I review the studies devoted to the referring expressions and the

information status in discourse. From the speaker's point of view, the referential choice in a naturally occurring environment is addressee-oriented in that the speaker accesses the consciousness of the addressee interactively by asking questions, confirming, and requesting. The speaker's choice between nominal and more attenuated forms of reference is based on the distinction between given and new information. According to Chafe (1976), 'given information is that knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance' (30). New information, in contrast, is information which the speaker assumes he is presently 'activating' or 're-activating' in the addressee's consciousness.

Based on the given-new distinction, Prince (1981b) has devised a plausible model for a taxonomy of the information status of reference. She proposes three sets of discourse entities: new, inferrable, and evoked; new entities are of two types 'brand new' and 'unused', as are evoked entities, 'situational' and 'textual'. Her hypothesis called the Familiarity Scale (FS) gives rise to further discussion on the information status of referents. Considering her framework, Brown and Yule (1983:183) suggest that a textually evoked entity should be more specific, and they divide 'textual' into 'textual-current' and 'textual-displaced' entities. Their aim is to clarify the relationship between what they call 'new', 'inferrable', 'textual-current', and 'textual-displaced' entities of naturally occurring discourse by applying the combination of Prince's system with their current/displaced distinction to the data. Yule (1981) shares a similar view in Chafe's claim (1987) that givenness has a very transitory status by observing the transitory interaction between current and displaced entities. Moreover, Brown and Yule (1983) appear to disagree with Chafe's view that given entities are lexically attenuated by illustrating that 'displaced

textual entities are referred to by a definite referring expression, often accompanied by an identifying property'(185): (i) draw a black triangle … underneath *the triangle* (ii) to the left of *the red line* (iii) *the black one* (iv) at the base of *the red one*

Based on Prince's (1981b) familiarity scale, a series of studies by Gundel, Hedberg, and Zacharski (1988, 1989, 1990, 1993) successfully define the cognitive status of referring expressions in the hypothesis called the Givenness Hierarchy(GH). In Gundel, Hedberg, and Zacharski (1993), cognitive status is defined as 'assumptions that a cooperative speaker can reasonably make regarding the addressee's knowledge and attention state in the particular context in which the expression is used' (275). According to a scale of cognitive state, typical type of referring expressions are realised. They claim that different determiners and pronominal forms conventionally signal a different cognitive status, 'thereby enabling the addressee to restrict the set of possible referents' (274), which is given below:

	in		uniquely		type
focus >	activated >	familiar >	identifiable >	referential >	identifiable
	⎰ *that* ⎱				
{*it*}	{ *this* }	{*that* N}	{*the* N}	{indefinite *this* N}	{*a* N}
	⎱ *this* N ⎰				
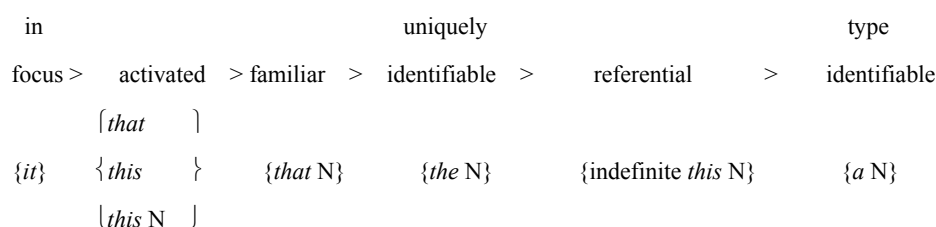
Figure 2.1. Givenness Hierarchy for English (Gundel, Hedberg, and Zacharski 1993)

As shown above, the notion of givenness is represented as a scale of gradience, and individual cognitive status is hierarchically related to each other from most familiar 'in focus' to the least familiar 'type identifiable'.[1] Although, as Gundel, Hedberg,

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[1] The term 'focus' has been used in two distinct ways in the literature. Their use of the term 'focus' is distinguished from 'the notion of focus as the position of linguistic prominence in the

and Zacharski (1993) suggest, the statuses in both models are ranked according to the degree of givenness (from most familiar to least familiar), the model they propose is fundamentally different from Prince's in two ways: the notion of individual status and the relation between statuses. The essential difference between the two models in the relation between statuses is that in the GH it is 'one of entailment, while statuses in the FS are mutually exclusive'(280). That is, the GH is a scale of gradience, and the cognitive statuses are linked together with the forms of reference, whereas statuses in the FS are independent each other.

In addition, as Gundel, Hedberg, and Zacharski (1993) point out, Prince does not intend to link status with particular forms. Gundel, Hedberg, and Zacharski (1993) claim that the relationship of entailment among the statuses allows for a straightforward explanation of the interaction of the GH with Grice's Maxim of Quantity in predicting the actual distribution of forms in discourse. The question is then what kind of pragmatic treatment would be properly determined if application of a conversational implicature should accurately predict the occurrence of demonstratives in Grice's sense (Grice 1975). As for the infrequency of demonstrative forms, Gundel, Hedberg, and Zacharski (1993) conclude that 'the application of Q1 (give as much information as necessary) for definite pronouns and Q2 (don't give more information than necessary) for full definite NPs thus conspires to result in a relatively low frequency of demonstratives, both pronoun and determiner, in natural language discourse' (Gundel, Hedberg, and Zacharski 1993: 303). Prince (1981b) also touches on this point but only implies it in the recognition

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part of the sentence that expresses the comment'. They note that 'in focus' is used to refer to 'the psychological notion of focus of attention' in the sense of Grosz and Sidner (1986). They also note on the term 'topic' as 'what the speaker intends a sentence to be primarily about'. Therefore, it may be possible to interpret topic and focus as not being opposite notions, but ones that are interactionally related (Gundel, Hedberg, and Zacharski 1993: 279)

that her scale permits an implicature to be subsumed under Grice's Maxim of Quantity. By linking cognitive status with particular forms and hypothesizing the relationship of entailment among the statuses, it is possible to state that pragmatic implication for the choice and distribution of referring expressions is clarified as a means of providing a plausible interpretation for natural languages.

Furthermore, exophoric references, such as indefinite *this* NPs and 'reminder' *that* NPs, play crucial roles with respect to the other endophoric references in spoken discourse (Prince 1981a, Gundel, Hedberg, and Zachaski 1993). In reality, these demonstratives are relevant to the other cohesive discourse endophora in bridging a situational and a textual context: indefinite *this* requires a degree of givenness at least Referential as in 'There is *this huge boulder* sitting in the drive way' (Prince 1981b); 'reminder' *that* requires a degree of givenness at least Familiar as in 'I couldn't sleep last night. *That dog* (next door) kept me awake.' (Gundel, Hedberg, and Zacharski 1993: 278). Since the cognitive statuses on the GH represent 'referential givenness status that an entity mentioned in a sentence may have in the mind of the addressee' (Gundel and Fretheim 2006), it is crucial that the GH covers both anaphoric and non-anaphoric demonstrative pronouns requiring a degree of givenness at least Familiar (cf. Cornish 1996). In particular, the concept of a 'focus shift' (Gundel, Hedberg, and Zacharski 1993), which 'often implicates by Q1 that the referent is not currently in focus' (297), offers the key to an understanding of the use of demonstratives, with the degree being Activated and Familiar as a minimal condition of use in their cognitive scale. Thus, in addition to associating referring expressions, their cognitive approach to reference is obviously comprehensive and flexible enough to deal with the wide range of distribution of referring expressions in five languages which they study cross-linguistically. This point will be discussed further

in Chapter 3 (3.6).

2.3 Topic entity, thematic structure and discourse segment

The relation between referential choice and thematic structure gives an important insight into the interaction between the behaviour of the topic entity and the thematic development in discourse. The entity that is established as a focus of attention in the current utterance is called the topic entity. Topic entities are likely to be realised in some form of semantic organisation that has the character of a message, which is known as the thematic structure (Halliday 1994: 37). The thematic structure (including discourse factors) may be required to provide a linguistic clue of discourse segment, i.e. a pragmatic boundary between the utterances. I will delay the discussion of discourse segment later in this thesis, but the topic entity is a given entity and a significant discourse factor in the thematic construction. As we have seen in section 2, the given-new distinction is described as the degree of givenness in which the relationship between the statuses in the GH is one of entailment. On the other hand, the theme is one element in the clause, which combines with the remainder (i.e. rheme) so that two parts together constitute a message. There are a number of studies done on the theme-rheme distinction and its functional approach to the clause construction in the socio-semiotic context. Halliday's definition is well-established: 'the theme is the element which serves as the point of departure of the message, while the rheme is the remainder of the message, the part in which the theme is developed' (37). Halliday (1994:53) introduces the concept of a multiple theme to cover the different functions of the thematic element, that is, textual, interpersonal, and experiential. These three components are typically ordered and integrated into the topical theme: the theme extending from the beginning of the

clause is textual, and then interpersonal, up to the first element that has a function in transitivity, i.e. the topical theme. The most extended thematic structure is given in the following example (ibid: 55): 'well but then Ann surely wouldn't the best idea be to join the group.' According to the thematic distinction, theme is divided into three elements. That is, 'well but then' is textual, 'Ann surely wouldn't' is interpersonal, 'the best idea' is experiential, and 'be to join the group' is rheme.

It is also significant to note that, as Halliday (1994) suggests, the choice of the theme is 'what carries forward the development of the text as a whole' (336). Thematic development can be crucial for textual organisation. It may be that the textual development is necessarily associated with the thematic development, and the way in which they are developed specifically depends on the text and its context (cf. Berry 1989). Fries (1983: 144) explains that 'the single method of development is correlated with the consistent choice of thematic element, and the method of development is to distinguish "the topic of the passage" from "point of the passage"'(quotations are Fries's). This distinction is relevant to the distinction made by Brown and Yule (1983: 138) between 'the topic entity/main character notion and the general pretheoretical notion of "topic" as "what is being talked about"'.   That is, what they call the 'topic entity' is treated as the constituent which is thematised as 'what the sentence is about', and 'the notion of thematisation is clarified as discoursal rather than simply a sentential process'(133). More specifically, they state that a thematised referent occurring as syntactic subject such as the notion of 'main character/object/idea', is termed as the writer/speaker's topic entity (137). To suit our purpose, it is worthwhile to observe how the method of establishing the topic entity is related to the method of thematic development. Obviously, it is the topic entity, not the topic or the point of the passage that contributes to the development of the

thematic structure.

Therefore, a closer look at the behaviour of the specific topic entity serves to illustrate how it is introduced, established, and can be discarded along with the process of textual development. Related to this view, Brown and Yule (1983:140) suggest that the aims of thematisation devices are 'not only the way they provide 'starting points' for paragraphs in a text, but also their contribution to dividing up a whole text into smaller chunks'. This 'chunking' effect is considered to be one of the most basic of those achieved by thematisation in discourse. In spoken discourse, in particular, although the thematised elements appear to occur rather spontaneously, we must pay careful attention to the elements that are divided into a group of local chunks as well as major chunks. Moreover, one chunk, which consists of at least one topic entity, may interact with other chunk(s) in the subsequent passages by incorporating all the topic entities according to the textual organisation. Let us consider an example of spoken discourse:

(2.1)
P: did you have any snow + during the holidays
R: there was some actually on + at Hogmanay because we had some friends + *a Greek friend of ours* was visiting us and when *he* left the house + just after Hogmanay + you know *he* had been away about fifteen minutes then *he* rang the doorbell again + *he* said − it's snowing it's snowing + *he* was really excited you know +

(Brown and Yule 1983: 136)

Here the initially introduced topical theme, or 'the starting point' can be 'snow'. In the course of the narrative, *he,* the referent of *a Greek friend of ours* turns into the theme of the discourse then the topic continues. This narrative clearly shows that the

discourse is developed by the speaker's topic entity, which is constituted by the referent of *a Greek friend of ours*.

Since I looked at the notion of givenness in section 2.2, it would be useful to look more closely at the given-new distinction in relation to the theme-rheme distinction. Halliday's (1994) definition of given-new information is discussed as givenness in the sense of recoverability by Prince (1981b): 'a given is the information that is recoverable to the listener from the previous text/context, in the situation or in the air while a new is the information that is not recoverable to the listener, textually or situationally' (226). Stressing a close semantic relationship between information structure and thematic structure, Halliday attempts to establish the interpersonal correlation between the two by stating that 'the theme-rheme is speaker-oriented, while the given-new is listener-oriented'. In other words, theme-rheme is similar to Prince's distinction of discourse-old/discourse-new in terms of 'topichood', while given-new is similar to Prince's distinction of hearer-old/hearer-new in term of 'givenness'. Halliday's notion of the given-new distinction is closely related to the issue of where a marked prominence is placed in the information unit: the element that has this prominence, what he calls 'information focus'(296), is known as a new, while the element that does not is called a given. This conceptual distinction will be effectively characterised to account for discourse development, but, in practice, the cognitive status of discourse entity can be determined by the interaction between 'topichood' and 'givenness'.

On the other hand, Fries (1983:144) is rather dubious about this correlation, insisting that 'thematic choice is independent of the choice of what is given or new information.' He cautiously states that thematic organisation is closely related to the occurrence of the topic entity rather than to 'the strong tendency for given

information to occur at the beginning of the sentence' (ibid.:144). This may partly reflect the fact that thematic organisation depends on the specific type of text or genre, and partly the fact that the theme-rheme distinction is structurally clear cut, while it is not easy to describe the distribution of givenness by drawing a line between the given and the new as an information unit (Allerton 1978).

2.4 Descriptive grammarian's view of *this, that, it*

In this section, I focus on the use of specific function of references in English: the demonstratives *this* and *that*, versus the pronoun *it*. It is proposed that an alternative system incorporating these three elements, i.e. *this/that/it* rather than two *this/that* can be an important base for capturing the linguistic and communicative factors of demonstratives in spontaneous oral discourse. This section is directly connected with Chapter 3 (section 3.4 anaphoric demonstratives) in the sense that demonstratives are categorized under deictic expression. However, in descriptive manner of approach, both demonstratives and pronouns (including the definite article *the*) are inherently definite in English. As suggested by Halliday (1994), the opposition of three forms, not two incorporates *it* into the model as a natural member within the system. As seen in previous discussion, Japanese has neither overt pronoun nor article system, but has demonstratives. Both languages and probably any languages have the form of definite references, so the distinction between specific and non-specific in the descriptive system of referring expressions is crucial in order to understand how speakers select appropriate definite descriptions. Thus, this system proposed in English is relevant to the discussion for appropriate analysis of different definite descriptions as the opposition and overlap of three forms *this/that/it*.

Traditionally, demonstratives in English, *this /that* and *these/those*, have been

discussed as one type of referring expression on a scale of proximity: 'near the speaker' versus 'not near the speaker'. This distinction serves to extend the observation in descriptive approaches to reference in discourse: Halliday & Hasan (1976), Halliday (1994), Quirk *et al*. (1985). Halliday's distinction between *this* and *that* is clarified in terms of proximity, although he suggests that, compared to the demonstrative *this*, *that* tends to be more inclusive and unmarked. Of the definite article *the,* Halliday says 'a new demonstrative evolved which took over and extended the unmarked feature of *that*' (ibid: 314). It is worth stating that demonstratives are specific in semantic terms, and are distinguished from the definite article *the* and the pronoun *it* with respect to the specificity in referring to an entity. His view is summarised in simple terms below ('Head' refers to pronominal forms functioning as either anaphora or exophora; 'Deictic' refers to determiners functioning as either anaphora or exophora):

Function / Class		Head	Deictic
Specific	Near	this/these	this/these
	Remote	that/those	that/those
Non-specific		it	the

Figure 2.2 Halliday's Descriptive System of *this, that,* and *it* (1994)

In his descriptive system, Halliday(1994) defines demonstratives as distinguished from the pronoun *it* and the definite article *the* in terms of specificity in referring to an entity. This system is to be integrated into a communicative and interactive

framework. Several attempts have also been made to explore the opposition and the overlap between *this*, *that* and *it* : Linde (1979), Channon (1980), Strauss (1993), and McCarthy (1994). For example, *this, that, it* are represented as markers of HIGH, MID, and LOW FOCUS on the referential continuum (Strauss 1993: 416).

Thus far, it is assumed that Halliday's descriptive system enables us to explain the cross-referential nature of demonstratives on a scale of referring expressions, as shown in Figure 2.2, which is predetermined by the distinction between given/new information. Halliday and Hasan (1976) touch on the 'internal cross-referencing' of demonstrative reference as 'one of the major cohesive devices of the English language'(67). They exclude exophoric reference, arguing that it is 'not textually cohesive'(59), but I assume that the exophoric references, such as indefinite *this* NPs and 'reminder' *that* NPs, are interactively related with endophoric reference, and play a significant role in structuring discourse and introducing specific entities as a current topic in discourse. It is more likely that these demonstratives are in reality relevant to the other cohesive discourse endophora in bridging a situational and a textual context.

It may be the case, for instance, that demonstratives are designed to highlight some functions such as indication of proximity or distality, specificity, markedness, and pointing-like function. These functions can be integrated into the focusing function in spoken discourse, where the distribution of demonstratives can interact with the discourse factors. It is significant to note that the accessibility scale of referential system can provide a pragmatic account for the choice and distribution of demonstratives (cf. Prince 1981b, Arial 1991, Gundel, Hedberg, and Zacharski 1993). In addition, the meaning of exophoric references such as indefinite *this* NPs and 'reminder' *that* NPs, which are considered to be genre-specific in colloquial

English, cannot be analysed in truth-conditional terms. Since a focusing device is hearer-oriented in effect, it is possible to say that the speaker's motivation of employing any type of demonstratives in discourse contributes to the interpersonal function as a contextual effect of the immediately occurring utterance.

2.5 A pragmatic approach to referring expressions

In this section, I further extend the discussion of the choice and distribution of referring expressions discussed in 2.2 from a pragmatic perspective, focusing on the interaction between information status of the referential forms and other possible frameworks such as centering and accessibility. There are a number of studies that have been devoted to the choice and interpretation of referring expressions regarding information status that a discourse entity may have: Prince (1981b), Yule (1981), Brown and Yule (1983), Chafe (1987), Gundel, Hedberg, and Zacharski (1988, 1989, 1990, 1993). I have discussed the significant impact of Princes's Familiarity Scale on the later studies including the GH in section 2.2. However, the GH hypothesis and its interaction with Grice's Maxim of Quantity only give a limited account of the referential choice between demonstratives and pronouns. As Gundel (1996) herself admits, there is a limitation of the GH framework in taking account of Prince's (1981b) 'inferrables', and a more general theory of utterance interpretation is necessary. She shows how the theory of reference interpretation proposed in Gundel, Hedberg, and Zacharski (1993) can be combined with Sperber and Wilson's (1986, 1995) relevance theoretic account of utterance interpretation. This provides an insightful account of the properties of the particular class of referring expressions that Prince (1981b) calls 'inferrables'.

On the other hand, Prince's framework attracts researchers of centering theory and was practically integrated with the centering algorithm in Walker and Prince (1996) and Strube and Hahn (1999). In particular, Walker and Prince (1996), challenging the neglected domain of information status of referring expressions by a single-hierarchy account of givenness of accessibility,   propose instead a bilateral approach consisting of a Hearer-Status Algorithm working in tandem with the Centering Algorithm (292). I will focus on the centering model in Chapter 5 and investigate how this framework can be applied to account for the relation between the referring expressions and discourse structure.

It is usually assumed that the scale of givenness is strongly associated with the scale of accessibility. Let us move to focus on the accessibility. Defining the notion of accessibility may be another task to understand the reference assignment in a given context of discourse, but the notion varies among the scholars. Ariel (1988, 1990, 1991), arguing against Levinson's (1991) coreference/disjointness dichotomy (i.e. a binary concept of referential/non-referential), claims that the primary function of the various referring expressions, whether disjointly or coreferentially interpreted, is to mark different degrees of accessibility in memory[2]. In her accessibility model, demonstratives, in general, may be categorised as an intermediate marker; *that* should be categorised as a lower accessibility marker than *this* ; adjectival use of *this/that* with noun phrases, which signal lower accessibility than pronouns, refers to what is dubbed 'episodic memory' rather than to 'semantic memory' (Ariel 1990: 54).

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[2]   Further discussion can be found in Levinson (2000) and Huang (2000). Blackwell (2003) also analyses the use and interpretation of Spanish NP anaphora within a neo-Gricean pragmatics framework of conversational implicature.

Chafe's (1994,1996) concept of accessibility is a notion that is best understood in terms of at least three degrees of activation in consciousness: active, semiactive, and inactive idea, respectively. He claims that accessibility requires a more essential and immediate kind of association rather than the logical reasoning with which inference is accommodated in the establishment of identifiability of referents alone.

While Ariel relates the degree of accessibility of the intended referents of a referring expression and its context to the processing effort of the recoverability of memory, Wilson's (1992) relevance-theoretic view of accessibility sheds light on the relationship between contextual effect and processing effort: reference assignment does not depend on accessibility of referents alone, but is also influenced by the need to obtain an overall interpretation that satisfies some criterion of pragmatic acceptability, which she termed as 'optimal relevance'(186). More recently, Matsui (1999), compared with the centering-theoretic approach to bridging reference, proposes that in the relevance-theoretic approach 'the overall accessibility of candidate referents is determined both by accessibility based on linguistic/texual structure, and accessibility based on knowledge organisation' (229). Given that reference assignment is designed to carry an interpersonal function in face-to-face communication as well as to process the speaker's cognitive representation of the entity, it can be safely assumed that the choice of a specific reference and its motivation inevitably requires the context to be optimally relevant. Otherwise, the utterance might not achieve adequate effects, or it would put the hearer to some unjustifiable effort in deriving them, or both.

However, Prince's FS and Gundel, Hedberg and Zacharski's GH are particularly influential to later works. In this thesis, the interaction between these two hypotheses and the centering-based approach to reference resolution is highlighted. This is

because the discourse-based pragmatic approach to referring expressions is able to take account of the choice and distribution of referential forms in discourse.

2.6 Reference assignment and discourse

Finally, I briefly overview the opposition of approaches to reference assignment and discourse. This is actually beyond the scope of the thesis, so I simply point out what some researchers have excluded from their analyses and what I intend to pick up out of the residue reserved after their analysis.

In recent years there has been a great deal written on the relationship between reference assignment and discourse. There are two major approaches: one is the recency/distance approach mainly studied by Givón (1983), and the other is the episode/paragraph approach mainly studied by Chafe (1976, 1987, 1994). Later studies confirm that the episode/paragraph approach can explain general characteristics of syntax of reference based on spoken narratives (Tomlin: 1987) and written narratives (Fox: 1987). Based on her experimental study of children's narrative production, Karmiloff-Smith (1985) points out that the use of reference may be constrained by discourse structure. On the other hand, using her reference point model, van Hoek (1997) claims that the subject is the conceptual figure within the clause and that the relation between subjecthood and discourse topic status is explained by her 'bottom up approach', which is compared with Chafe's 'top down approach'(134).

However, none of the scholars seem to succeed in treating the NPs containing deictic elements. Most of their studies solely focus on the alternation of full noun phrases and pronouns in processing discourse and these scholars rather hesitate on how to deal with deictic expressions, such as *that* NPs. For example, Tomlin (1987)

intends to explain several exceptions and counter examples including the use of full nouns with demonstrative *that*, but fails to elucidate how reference is resolved regarding the choice between demonstratives and definite descriptions. Further questions concerning discourse boundaries still remain: How can one episode be distinguished from the subsequent episode in spoken discourse? How can an episode boundary be recognized in more interactive discourse like dialogues? Is the so-called speaker boundary in dialogue equally compatible with the episode boundary in narratives? These are the issues that need to be taken into account in Chapter 5.

2.7 A possible hypothesis

We have seen that there are many researchers who insist that the choice and the distribution of referring expression depend crucially on discourse constraints rather than sentential constraints. There are an increasing number of works that touch on the correlation between the choice of referring expressions and discourse structure, but a unified account of these phenomena still remains to be developed. Considering that the use of reference varies and its behaviour may contribute to structuring and focusing the specific segment of discourse, my current hypothesis is that the choice and distribution of referring expressions can be explained by a unified framework for reference resolution which establishes a correlation between the referential expressions and the discourse segment. More specifically, I will show that interactive discourse is more highly structured than non-interactive discourse in the way that the participants organise and segment the discourse according to a number of topics that are introduced, maintained, and shift from one to another in the on-going flow of discourse.

Furthermore, my interest is how and to what extent a cognitive perspective can clarify the distribution and the interaction of different categories of referring expressions in spoken discourse. The current standpoint I am taking is that the choice of referential forms in discourse is related to the cognitive status of discourse entities.

2.8 A case study of referring expressions in English dialogue data

In this last section, I present several extracts from English data to illustrate how the process of referring to the discourse entities is complicated by the interactive context of dialogues. The data I use here is part of an experimentally-collected small corpus of eight English dialogues based on maps that do not have written labels to identify the landmarks (called English labelless Map Task Corpus, or labelless MTC in short). This data contains a number of referring expressions that are used to refer to the different discourse entities on the map. Since the original MTC is based on the maps that have already been labelled, the type of referring expressions in dialogues is extremely limited due to the 'ready-made' written labels of the landmarks on the maps. Therefore, this small corpus is ideal in inspecting what type of referring expressions are more influential than others in interacting with the discourse structure in the collaborative situation.

The tasks are conducted in the same manner as the original ones. The only difference is in the maps: two participants had maps with various landmarks that are not labelled on the two maps. English and Japanese MTC use the same labelless maps and the same experimental design: the task involves two participants each of whom has a map to work with; familiar and unfamiliar pair of speakers; each participant plays a role as giver twice on the same map with different followers, and

then as follower twice with different givers and different maps. I will present the details of the corpus data in Chapter 4.

There are discourse entities in the speech situation. The speaker chooses one of the discourse entities and introduces it as first mention in either an indefinite or a definite form. The initial mention of entities is typically introduced by using indefinite NPs. Let us examine some extracts from the data. There are two participants involved in the task. I have labelled the instruction giver as 'A' and the instruction follower as 'B':

(2.2)   B164: But, just to the…*up diagonally to the left* from the telephone box, I've got a, it's *a level crossing, with a wee… like the lights there*.   I don't know, I think/

A165: Oh right, I don't have *that*.

(Lleq4c2)

Following the spatial adverbial *up diagonally to the left,* B164 introduces indefinite descriptions, '*a level crossing, with a wee … like the lights there*' with deictic *there* as the first mention. The description of instructing the new direction, *up diagonally to the left,* is replaced with *there* by the same speaker (i.e. instruction follower), and a new entity *a level crossing* is replaced with demonstrative *that* by his interlocutor (i.e. instruction giver). In a similar situation, in example (2.3), to introduce a new entity, the instruction giver uses a definite NP, *the cemetery*, as the first mention as follows:

(2.3)   A7: and then go to your right and below *the cemetery* OK?

B8: Mhm

A9: <and and go up from *the cemetery* and over/
B10: sorry sorry back to *the cemetery* ehm/
A11: you got *the cemetery*?
B12: no I have *the mine* but *the cemetery*/

(Lleq3c1)

Here both *the cemetery* (A7) and *the mine* (B12) are first mentions, and *the cemetery* is repeated without shifting to reduced references such as pronouns. This phenomenon is termed 'visual situation' by Hawkins (1978), but why is there a first mention with definite noun phrases occurring and why do participants keep referring to the entity with the same full NPs? Miller and Weinert (1998) explain this fact as: 'the speaker expects his or her interlocutor to be able to understand as presenting the landmark as recoverable on the assumption that they have the same landmarks on their maps, which actually has similar but not identical landmarks' (232). I will return to the discussion in depth in Chapter 8.

It may be assumed, in principle, that definite descriptions are normally used to maintain the topic entity of current discourse, while indefinite descriptions may vary in searching for more plausible expressions to describe the target entity, as illustrated in example (2.4):

(2.4)   B107: … have you got *a fence with some* eh I don't know it's *cows*/

A108: yeah/
A109: or *something behind it*?/
B110: it's *some some animal in behind it* yeah *that*'s way down the bottom of the page right>

(Lleq3c1)

Here the instruction follower (B107) introduces the new discourse entity with an indefinite noun *a fence with some …. cows* , and the instruction giver (A109) subsequently replaces its description with *something behind it*, then again the follower (B110) re-mentions it as *some animal in behind it*. Note that *a fence* is immediately pronominalised as *it*, i.e. currently 'in focus', but the adjacent noun phrase is still in negotiating process to establish it with a specific name: *cows* (B107), *something* (A109), *some animal* (B110). Subsequently, the demonstrative pronoun *that* 'packages' the preceding chunk of utterances in the subject position. This process is also illustrated in example (2.5):

(2.5)   A111: <as yes down the bottom of my page as well but I've got *like the fortress* and another XXX *that*'s immediately above the the fence there there's *this fortress* about three inches/

B112: mmm/

(Lleq3c1)

Here the demonstrative pronoun *that* immediately replaces the new discourse entity *like the fortress*. The speaker introduces the entity in the object position as *like the fortress*, and raises it in the subject position as *that*. Then the speaker reintroduces this entity as first mention as *this fortress* in the existential construction. Interestingly, the shift from *that* to *this fortress* signifies, especially to the addressee, that the topic entity has now shifted to a more accessible place in the speaker's mind. The utterance 'I've got *like the fortress* and another XXX *that*'s immediately above the fence there' is presented as background information for introducing an entity *this*

fortress. This indefinite *this* NP, as Prince (1981b: 235) insists, is in fact 'first-mention within the story, its very unexpectedness being a crucial narrative feature'. Using Gundel, Hedberg, and Zacharski (1993)'s terminology, the 'referential' *this NP* is presented in the *there*- construction. Using 'referential' noun phrases in the *there* construction does not only show that the speaker is aware of the specific context of task–oriented dialogues, but also implies that the speaker is more carefully involved with the addressee in the speech event where the new entity is explicitly introduced.   Prince (1992) further notes that the category of definite NPs correlates well with conveyers of Hearer-old information. Definiteness in terms of its form cannot properly explain this example semantically. The distinction between definite and indefinite can be approached in terms of familiarity, or rather in Bolinger's graded concept of 'knownness' (1977). Definiteness, in particular, is a grammaticalised category and has acquired other uses and functions (Lyons 1999, Yoshida 2000).

After a certain interval, when the specific entity is reintroduced to the discourse, the speaker may be directly accessing the addressee's long- or short-term memory that the speaker assumes is shared, as illustrated in example (2.6):

(2.6) A107: you see what I mean? So you're going… You're{a continu}… You're continuing the line along from *that last one that we're not sure what it is*,

B108: Yeah, right.

(Lleq3c1)

This usage, referred to as 'reminder *that*' by Gundel, Hedberg, and Zacharski (1993), reflects the interactive function of demonstratives. By using *that* to focus attention phonologically with contrastive stress, the speaker can intend to foreground the

speaker-addressee involvement.

English demonstrative *that* is used as a discourse deictic to refer to the previous discourse or propositional content. In example (2.7), the speakers eventually concludes a series of his task with a typical ending, 'Coda' (Labov: 1972), in A220 'Then *that*'s where it finishes.', B223 'So *that*'s it.', and B224 '*That* should be it.':

(2.7)   B217: Yeah. Just so it's to the left?
        A218: Yes. To the left of where you have it just now.
        B219: Okay.
        A220: Then *that*'s where it finishes.
        B221: Shall I just put a cross there?
        A222: Yeah.
        B223: So *that*'s it.
        A224: *That* should be it.

                                       (Lleq4c2)

It may be worth noting that *that* serves to summarise a series of utterances in the end where *that* signifies a set of topic entities that are familiar to the speaker and the addressee. I will examine discourse deixis in depth in Chapter 3.

2.9 Conclusion

To sum up this chapter, I have provided a number of related approaches to referring expressions and their general theoretical issues concerning the choice and behaviour of referring expressions. First, the notion of givenness and the given-new distinction contribute to the theoretical framework of information status (Prince's Familiarity Scale) and a more unified model of cognitive status (Gundel, Hedberg, and Zacharski's Givenness Hierarchy) of the referring expressions. The distinction between the given and new information is reformulated into the integrated scale of

givenness, which reflects the universal aspect of referential systems, so the framework can be extended to the cross-linguistic approach to the referential choice in discourse. These two frameworks are particularly influential to the later works in computational linguistics (cf. Walker and Prince 1996; Strube and Hahn 1999). Interestingly, they generate different approaches and methodology, such as the approach to accessibility ranking, the relevance-oriented pragmatic approach, and the centering-based computational approach. However, the discourse-based approach to referring expressions is the central and common concern among the researchers who focus their attention more on some discourse entities than others (e.g. Ariel 1990; Chafe 1994; Gundel, Hedberg, and Zacharski 1993; Prince 1992).

Moreover, Halliday's established descriptive system of referential and demonstrative forms clarifies the opposition and the overlap between *this, that, it*. The related works suggest that demonstratives can be integrated into the domain of cohesive discourse endophora in bridging a situational and a textual context.

As a tentative hypothesis, therefore, I argue that the choice of referential forms in spoken discourse is related to the cognitive status of discourse entities, and that the specific forms of reference are likely to recur interactively in a given discourse. This claim can be partially supported by the evidence from the naturally occurring dialogue data, and the cross-linguistic analysis of the empirical data to be presented in further chapters can clarify the relation between the choice of referring expressions and discourse structure.

Chapter 3

Approaches to Deictic Expressions

3.1 Introduction

This section provides a semantic and pragmatic perspective for a cross-linguistic approach to deictic expressions in English and Japanese discourse. I will explore the patterns of use of deictic expressions and attempt to investigate the possible interpretation of deictic expressions occurring in task-oriented dialogues of English and Japanese. As discussed in Chapter 2 (section 2.4), Halliday's descriptive system represents the semantic interrelation between deixis and anaphora in terms of specificity, which can account for the cross-referential nature of demonstratives on a scale of referring expressions. Chapter 3 further explores the fact that deictic expressions can create relevant cohesive ties with the other cohesive discourse anaphora. Cohesive ties are generally defined as linguistic links between elements in connected sentences of a text (Halliday and Hasan: 1976), and this cohesiveness can play an important role in bridging a situational and a textual context. Based on the empirical evidence, I argue that deictic expressions can interact with discourse coherence and that discourse organization can be construed by structuring and focusing discourse entities at the specific stages of a discourse.

I first outline the background assumptions concerning English and Japanese deictic expressions with evidence from each discourse in section 2, where three aspects of deictic expressions are considered: spatial deixis, anaphoric demonstratives, and discourse deixis in English and Japanese. In section 3, spatial deixis in English and Japanese is compared. In section 4, according to the definition

of anaphoric demonstratives, English and Japanese demonstratives are compared. Significantly, the anaphoric use of demonstratives in English and Japanese is shown to be similar in its function. In section 5 discourse deixis is briefly discussed. In section 6, I revisit the Givenness Hierarchy to examine how demonstratives in English and Japanese are compatible with the cognitive statuses of the Givenness Hierarchy. In addition, an important insight into the pragmatic interpretation of the compatible patterns of use of demonstratives will be provided. Section 7 presents the results of an exploratory analysis of the choice and distribution of the deictic expressions. Finally, I present general hypotheses that suggest ways in which the choice and distribution of demonstratives of English and their Japanese counterparts can reflect discourse organization in dialogue, which can be explained from an interactive discourse perspective, in section 8.

3.2 Overview

Deixis, in a broad sense, is fundamentally a context-dependent linguistic phenomenon, typically anchored in the perspective of the speaker. Fillmore (1982: 35) clearly defined deixis as 'the name given to uses of items and categories of lexicon and grammar that are controlled by certain details of the interactional situation in which the utterances are produced'. Deixis includes extended use of linguistic categories such as spatio-temporal locating adverbials, demonstratives, tense, and social deictic terms.

Semantically, a number of linguists refer to the fact that the function of reference in discourse is complicated by the interaction between deictic use pointing to entities and anaphoric use referring to entities: Lyons (1977), Fillmore (1982), Ehlich (1982), Levinson (1983). In practice, Lakoff (1974) indicates that the use of *that* needs more

careful treatment regarding the function of interpersonal involvement termed 'emphatic' in an utterance of *How is that throat?*, showing the speaker's sympathy towards the addressee's sore throat, which is discussed in 3.4. Another concern of the scholars may be how the distinction between deixis and indexicals can be helpful in understanding a more linguistic picture of deixis (Nunberg, 1993).

Furthermore, research based on the cross-linguistic/contrastive studies in deictic expressions in discourse can provide us with positive evidence from a variety of languages regarding the questions such as 'which uses of demonstratives may be universal?' and 'which are language specific?' (Himmelman 1996; Takubo-Kinsui 1990; Cornish 1996, 1999; Valluduvi and Engdahl 1996; and Diessel 1997, 1999). To provide answers to these questions is beyond the scope of the thesis, but it will be a rewarding issue to consider what kind of differences in English and Japanese deictic expressions can actually affect the most basic functions of human communication.

From a cross-linguistic point of view, what kinds of similarity and/or difference in referential forms are observed in English and Japanese spoken discourse? This is discussed in this chapter. For example, the use of discourse deixis in Japanese is not explicit like '*That's it*' in English, whereas 'interactional' use of demonstrative *are,* 'DISTAL that' in Japanese may be pragmatically compatible with the recognitional use of English *that*. Until recently little has been reported regarding the cross-linguistic similarities and differences in the use of reference in discourse. Himmelman (1996) focuses on the universal aspect of demonstratives and categorized their major usage types, based on the oral narrative data from five different languages. Other recent contrastive studies on deictic elements include Takubo-Kinsui (1990), Cornish (1996), and Diessel (1997).

For my present purpose three aspects of deictic expression are considered: spatial deixis, anaphoric demonstratives, and discourse deixis in English and Japanese. The reason I choose these to focus on is to demonstrate that the actual use of these three categories are interactively related in discourse processing of dialogue. Although the deictic systems of English and Japanese are different in linguistic form and function, there is a pragmatically significant parallelism on the interaction between deictic expressions and the discourse coherence.

3.3 Spatial deixis

Spatial deixis is used as orientation confirming the speaker's position in the current and following direction. Spatial deixis includes various expressions of location such as *up/down, front/back, left/right*, and *here/there*, in English*; ue/shita* (up/down)*, mae/ushiro* (front/back)*, hidari/migi* (left/right), and *koko/soko/asoko* (here/there/over there) in Japanese. Here I limit the discussion to the use of *here/there* in English and *koko/soko/asoko* and related locative expressions with these demonstrative prefixes *ko* (Proximal), *so* (Medial) and *a* (Distal) in Japanese. Let us consider the following utterance, which was introduced as example 2.2 in Chapter 2:

(3.1)
'But, just to the…*up diagonally to the left* from the telephone box, I've got a, it's a level crossing, with a wee… like the lights *there*.'

(MTC. Lleq4c2:B164)

Here, after the expression of the spatial adverbial, *up diagonally to the left,* deictic *there* is used to directly specify the place in which the object, *a level crossing, with a wee… like the lights*, is located.

It is also common that demonstrative pronouns are represented as a situational use, such as '*that*'s your desk' and '*this* one's mine', pointing at extra-linguistic entities. *That* can also directly refer to the entity that belongs to the follower's map as in: 'And then *that*'s the finish.'(MTC. Lleq4c8:A215); 'Then *that*'s where it finishes' (MTC.Lleq4c2:A220), which is included in the analysis.

3.4 Anaphoric demonstratives: deictic or anaphoric?

Anaphoric demonstratives are inherently deictic in referring to particular individuals under a particular context. As I discussed the cross-referential nature of demonstratives in terms of specificity in Chapter 2 (2.4), anaphoric demonstratives are categorized either as pronouns or as adjectives reflecting their deictic functions. English demonstratives *this/that,* either as pronouns or adnominals, are used to distinguish between the subsequent mention of the entity (anaphoric) and the first mention of the entity (non-anaphoric), which includes 'new *this*' (Prince: 1981a) and 'a reminder *that*' (Gundel, Hedberg, and Zacharski: 1993) or, in other words, 'recognitional use of *that*' (Himmelman: 1996). In English the semantic distinction between *this* and *that* is directly linked with the proximal and distal dimension, but their semantic meaning is likely to be asymmetrical in that *that* can extend its semantic property from purely referential or pointing to 'interactional', while *this* can limit its use as mainly speaker-oriented (Cheshire: 1996).

Significantly, deixis as a crucial discourse-grammatical marker exhibits pragmatic features as one of the most basic functions of human communication. This view may lead to the hypothesis that the pragmatic properties of demonstratives may be extended from the distinctive proximal-distal dimension to the speaker-addressee dimension, that is, 'interactional', especially in dialogic discourse rather than

narratives or monologic speech (See Cheshire 1996).

In actual utterances, for example, the use of *that* may foreground speaker-addressee involvement. Maybe the classic example of this is so-called 'emotional deixis' by Lakoff (1974), which is also termed as interactional use by Kitano (1999)(also see example 3.3): 'How's *that* throat?' (in the exchange of the doctor-patient relationship, where the doctor plays a role of asking the patient about his or her symptons), or '*That* left front tire is pretty worn'. These examples of emotional deixis can be language-specific and rather controversial due to different cultural contexts. As American usage, at least, *that* can express the speaker's sympathy towards the addressee's sore throat and may even bring about some feeling of solidarity between the participants in a particular situation.[3] In narratives, 'But didn't you do *that* dreadful thing to *that* boy?', the speaker is directly accessing the addressee's long-term memory that the speaker assumes is shared. Another related example is also found in English Map Task dialogue as follows:

(3.2)
 '… You're continuing the line along from *that last one that we're not sure what it is*'
(MTC. Lleq4c2..: A107).

This is referred to as 'reminder *that*', reflecting the interactive function of demonstratives. The expression *that last one that we're not sure what it is* shows that the specific entity that the speaker is searching for is already mentioned in the previous discourse, which is shared between the participants. That is, by using *that* in

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[3] Another implication of 'emotional *that*' is discussed in Miller and Weinert (1998). Given that Distal deictic *that* at least requires familiarity based on the direct experience of the speaker, its implication may evoke different binary feelings, that is, either solidarity or offensiveness, depending on the communicative context between the speaker and the addressee.

order to focus attention phonologically with contrastive stress, the speaker foregrounds the speaker-addressee involvement.[4]

In Japanese, on the other hand, three-step distant categories are used both deictically and anaphorically in the form of adnominals and pronouns.   The prefixed forms *ko-*, Proximal, *so-*, Medial, and *a-*, Distal are extensively used in these two forms: *kono* NP and *kore* as *this*-Proximal, *sono* NP and *sore* as *that*-Medial and *ano*-NP and *are* as *that*-Distal.   This distinction is traditionally explained by so-called 'distance-based' approach which is organised around both speaker and hearer, as in the Proximal 'close to the speaker', the Medial 'close to the addressee', and the Distal 'remote from both speaker and addressee' (Shibatani 1990). A large number of studies within a descriptive usage-based approach have been devoted to the discussion of how their deictic and anaphoric interpretation is derived. The debate, especially, on the semantic distinction of these three usages has been one of the main issues for functional linguists such as Kuno (1973) and Kamio(1990). More recently, studies triggered by the theory of mental spaces attempt to interpret the referential status within a cognitively integrated discourse model. (Kinsui and Takubo 1990, Takubo and Kinsui 1997, Sakahara 1996, 2000)   In recent decades, most selected papers from the influential contribution to the present research on Japanese deixis and its cross-linguistic studies have been collected in Kinsui and Takubo (1992) in which Takahashi (1956), Hattori (1968), Kuno (1973b), Sakata (1971), Kuroda (1979), Yoshimoto (1992) and Kinsui and Takubo (1990) are included.

Although Japanese apparently has three-dimensional demonstratives, the

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[4] This usage is distinct from the relative clause discussed in Diessel (1999).

semantic meaning of each category is not equally distinct. Among three demonstrative prefixes, Medial *so* needs special consideration. As insightful observation has shown, *so*-demonstratives are commonly used as anaphors, and there is valid diachronic evidence that *so*-demonstratives cannot be derived from an exophoric or deictic source (Kinsui: 1999). Japanese prefixes *ko* and *a* can be clearly characterized in terms of the distance-based approach, as in *ko* 'close' vs. *a* 'remote'[5], and they are both basically deictic even in referring to an entity connected to the discourse-based context. On the other hand, the core notion of prefix *so* appears far from the prototypical use of deictic demonstratives. One of the typical cases of deictic *so* is pointing to the concrete object in the domain that may belong to the addressee, but 'slightly removed from both the speaker and the addressee, or slightly removed from the speaker, but close to the addressee' (Tsujimura 2007: 350). In a casual speech situation, '*sore* kudasai' ('Give *it/that* to me, please.') in the exchange at the shop counter, *sore* would be appropriate only if the object had recently been mentioned or was in the immediate extralinguistic context.

Unlike the limited deictic use of Medial *sore*, Distal *are* is fundamentally situational and can extend its usage to the interpersonal setting. For example, distal *are* 'that' is often used to delay the production of an utterance following, which is called 'interactional' use by Kitano (1999) as in the example:

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[5] Kinsui (1999) interpret this distinction into the contrast between the 'episodic memory' and the 'discourse topic'.

(3.3)
[The speaker implies a specific content by uttering demonstrative pronoun *are* 'that', though he temporarily cannot utter the appropriate words.]
'*Are da yo.*'
('It's that.')

The speaker attempts to implicitly specify a certain entity or propositional content that the speaker assumes can be fully intelligible to the addressee by accessing his or her long-term memory. This use is parallel to Lakoff's 'emotional deixis', and clearly collaborative in that the speaker is trying to access a specific entity that cannot be explicitly provided in a given utterance, but in the common ground. *Are* is a type of 'dummy pronoun' that functions until the speaker can recall a correct word. The point is that *are* can be the entity that the speaker assumes the hearer can recover by accessing his or her main memory or shared knowledge. This use typically occurs between the participants whose relationship is comparatively close, or whose experience is most assuredly shared in the particular situation.

I have shown that these anaphoric demonstratives reflect emotional/ interpersonal function of deixis in an interactive context. Evidently, in dialogic discourse, the use of demonstratives is contextually dependent. For this reason, I restrict myself to the endophoric use of demonstratives (including both anaphoric and cataphoric), excluding exophoric use of demonstratives. In section 7, the choice of anaphoric demonstratives *this/that* in English and *ko/so/a* series in Japanese are investigated and I will argue that the specific use of demonstratives in both language can be directly connected with the continuity and discontinuity of topics in discourse. I will intensively discuss the anaphoric use of *that* in English and the *so* series demonstrative in Japanese in Chapter 7 as well.

3.5 Discourse deictic use

Discourse deixis is generally represented by the demonstrative pronouns *this/that* in English, and, mainly, pronouns *sore/kore* 'that (Medial)/this' in Japanese. To define discourse deixis linguistically, it textually refers to the preceding or subsequent segments of the discourse which usually consists of one or more clauses, rather than referring to the specific entities in previous utterance. The term, 'discourse deixis', is first introduced by Lakoff (1974). Discourse deixis is also called 'impure textual deixis' (Lyons 1977). Although it is common to find the term 'deictic pronouns' that are used as discourse deixis (ibid.), the term should be clearly defined. Webber (1990) defines that discourse pronouns 'can serve to denote any pronoun (zero-pronoun, demonstrative pronoun, or even personal pronoun) that serves this same function' (4). Webber (1988, 1990) extensively discusses the linguistic phenomena of discourse deixis and provides a framework for computational implementation. Discourse deixis is also cross-linguistically investigated by Eckert (1998) from a more integrated view of anaphora resolution of English and German and by Eckert and Strube (1999) within a computationally designed framework.

In English narratives, discourse deixis is crucially important in signalling a discourse boundary, as an ending marker of a chunk of the utterance, such as '*That*'s it' and '*This* is it'. As well as narratives, the formulaic ending, '*That*'s it', as a 'coda' occurs in dialogue. Here is a typical example in English:

(3.4)

B217: Yeah. Just so it's to the left?

A218: Yes. To the left of where you have it just now.

B219: Okay.

B220: Then that's where it finishes.

B221: Shall I just put a cross there?

A222: Yeah.

B223: So *that*'s it.

A224: *That* should be it.

<div align="right">(English MTC: Lleq4c2)</div>

Note here that the discourse particles *So* is used to signal the end of a discourse segment (Webber 1988, Vallduvi 1992). Practically, a discourse segment consists of a group of utterances with a single specific subject in it. The notion of 'discourse segment' is discussed in Webber (1990, 1998), and it is clearly defined in Chapter 5.

Similarly, in the following Japanese example, *sore* refers to the preceding description of the specific route and its shape of the route design:

(3.5)

G: tatemono   wo   ukaishita   ruuto   tte iuno   ha
   The building OBJ diverted   the route   REL   TOP
   han-enkei   ni natteru to   Ø   omoundesu   kedo
   semicircle shape   become   SUB   think   POL   though
   'The route that is diverted from the building become the semicircle shape,
   I think, though'

   sore   wo   korekara   Ø   susumu   ruuto   ha
   that   OBJ   from now   (you) SUBJ going to   route   TOP
   esuji   ni naru   youni   *sono hanen*   wo   tsukatte
   S letter   become   so that   that semicircle   OBJ   using
   '*that*, the route you are going to from now so that it become S letter*,
   using *that semicircle*'

*The speaker is explaining the shape of the route by the use of letter 'S'

(Japanese MTC.ab.)

Sore, as the fronted object , is in an isolated position from the remainder of the clauses, after the short description of *S letter*, is subsequently replaced with the demonstrative determiner *sono* 'that' and noun *hanen* 'semicircle'. Demonstrative determiner *sono* is chosen to refer to a specific route of the established shape itself, *semicircle*, in this case, but the pronoun *sore* may refer to the overall description of *semicircle* that is previously narrated. The discussion on the use of deictic *sore* 'that' and *sono* N 'that N' is included in Chapter 7.

3.6 The Givenness Hierarchy revisited

In this section I will return to discuss the Givenness Hierarchy as a possible hypothesis to account for the choice and distribution of referring expressions and their interaction with deictic expressions in English and Japanese. Based on Prince's (1981b) familiarity scale, a series of studies by Gundel, Hedberg, and Zacharski (henceforth GHZ) (1988, 1989, 1990, 1993) successfully define the cognitive status of referring expressions in the hypothesis called the Givenness Hierarchy (henceforth GH).[6] They claim that different determiners and pronominal forms conventionally signal a different cognitive status, thereby enabling the addressee to restrict the set of possible referents (274). I will reproduce the GH framework with English and Japanese referential forms for convenience (GHZ 1993):

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[6] Cognitive status means 'assumptions that a cooperative speaker can reasonably make regarding the addressee's knowledge and attention state in the particular context in which the expression is used'. (GHZ: 1993: 275)

in focus >	activated >	familiar >	uniquely > identifiable	referential >	type identifiable
English {*it*}	⌈*that* ⌉ ⟨ *this* ⟩ ⌊*this* N⌋	{*that* N}	{*the* N}	{indefinite *this* N}	{*a* N}
Japanese Ø	*kare* 'he' *kore* 'this' *sore* 'that' Medial *are* 'that' Distal *kono* N 'this N' *sono* N 'that N' Medial	*ano* N 'that' N' Distal	Ø N	Ø N	Ø N

Figure3.1. Givenness Hierarchy of English and Japanese
(Gundel, Hedberg, and Zacharski 1993)

As the table shows, it can be presumed that English weak pronouns *it* (unstressed) correspond to Japanese zero pronouns symbolized as 'Ø', which is an accepted view in a given context as discussed in Chapter 1: 'null anaphora plays a similar role to pronouns in that it normally refers to what is in the context' (Tsujimura 2007: 255). Since Japanese is a language that has no distinction between definite and indefinite articles, the only form that refers to the entities are bare nouns, which can cover three ranges of cognitive status in GH. As illustrated above, nouns with no article, symbolized as 'Ø N' (normally called bare nouns in Japanese) can cover English definite noun 'the N', 'indefinite *this* N', and 'indefinite *a* N' respectively on the scale. That is, bare nouns can be compatible with any of the three statuses, i.e. type identifiable, referential, or uniquely identifiable. Regarding demonstratives, it is interesting to note that this scale draws a parallel between English and Japanese in

cognitive status of both activated and uniquely familiar. Additionally, Japanese third person pronoun *kare* 'he' is assigned a special status as activated, but not in focus on the scale, which can suggest that, compared to English counterparts, Japanese pronouns are marked.

The first issue to be addressed is by what principles individual Japanese bare NPs are allocated into any of the three cognitive statuses. The reliable grammatical solution to distinguish them may depend on morphological information: the case marker indicating a subject is *ga* and the case marker indicating a topic is *wa*. Case markers are added immediately after the nouns as an optional inflection. It is assumed by some modern linguists that bare nouns are basically definite with the topic marker *wa* and indefinite with the subject marker *ga*.[7] However, this rule, in reality, does not successfully work in every case.

Let us consider the reasons why this is the case. Firstly, the following two sentences illustrate that the difference between *wa* and *ga* does not necessarily correlate with definiteness:

(3.6) a. Hi ga nobor-u.
    Sun NOM rises-PRES
    'The sun rises'
  b. Hi wa nobor-u.
     TOP
    'The sun rises.'   (Shibatani 1990: 262)

---

[7] Obana (2000) extensively discusses the role of Japanese case markers: 'Case marker *wa* is called a topic marker. The term is named for semantic reasons rather than grammatical reasons. It means "as far as something is concerned"'(36). Case marker *ga* is referred to as 'subject marker' or 'nominative case particle', but 'the grammatical role depends on the relation between the noun and its corresponding verb in a sentence'(35) (*ga* often leads a noun to an object or a genitive). NP with topic marker *wa* is also defined as 'contrastive links' by Vallduvi and Engdahl (1996), which was previously discussed as contrastive *wa* in Kuno (1973) and Shibatani (1990).

As the translation reflects, both sentences have similar propositional content. There is no syntactic difference between (3.6a) and (3.6b), but semantically they are different and occur in different contexts. Shibatani (1990) explains: sentence (3.6a) with the particle *ga* is typically used in the descriptions of events or states. This implies a certain amount of surprise or exclamation that accompanies the discovery or witnessing of an event or state, being better translated as something like '(Oh/look,) the sun rises!' or 'There rises the sun' (263). On the other hand, sentence (3.6b) is 'a more context-free expression, precisely because its fundamental function is that of conveying a generic statement' (ibid: 263), which can be translated as something like '(In the context where the sun is currently exposed to the audience) As you see, the sun is rising'. Therefore, despite the different case markers, both *hi ga* (3.6a) and *hi wa* (3.6b) are translated into English definite nouns *the sun*. It can be possible to say that a *ga*-marked noun is discourse-new and a *wa*-marked noun is discourse-old, but as Obana points out (2000), this is a typical example of the fact that 'case markers do not have a one-to-one relationship with grammatical roles (such as subject and object)' (35).

Secondly, in a topic-comment structure where the comment refers to the property of the topic, case markers *wa* and *ga* can co-occur in the same sentence construction. Here is a typical example:

(3.7) Zoo   wa   hana ga nagai.
      Elephant   TOP   nose NOM   long
      'Elephants are long-nosed.'

This sentence form (Noun1 + wa + Noun2 + ga + Predicate) has caused many controversies in syntactic and semantic analysis, but I do not get into the discussion

in the thesis. Probably, the established analysis is given by Obana (2000: 53): '*zoo wa* (elephant) is syntactically and semantically related to the rest of the sentence, serving as a subject of the comment-part, *hana ga nagai* (long-nosed) which serves as a predicate.' This can lead us to consider that the first noun (N1) signifies the topical theme of the rest of the sentence marked by topic marker *wa*, and the second noun (N2) signifies the part of the domain of the topical theme, which marked by subject marker ga. Therefore, it can be said that the topic *zoo* is definite, and the subject *hana* is indefinite, but this linguistic phenomenon seems to be better analysed in terms of information structure and its notion of givenness (*zoo wa* is given or hearer-old and *hana ga* is new or hearer-new) rather than the distinction of definite and indefinite.

Thirdly, there are other case markers such as *o* (accusative or object) and *ni* (dative or locative) can also take nouns, and these nouns cannot be distinguished definite from indefinite only by the grammatical role of the case markers:

(3.8) Mizu   o   kudasai.
  water ACC   give (POL)
  'Give me some/the water, please'

Here the water the speaker wishes to have can be specific.

Moreover, case markers are frequently omitted, especially in spoken discourse such as 'Mizu kudasai.'(Give me some water. please) The distinction between definite and indefinite is not valid from the grammatical point of view and the semantic distinction between *wa*-related definiteness and *ga*-related indefiniteness is not clear-cut at all. Furthermore, as the example (3.7) illustrates, the definiteness of topic marker *wa* only tends to be motivated by the discourse factors of the thematic

structure, not grammatical ones. Therefore, the distinction between definite and indefinite depends on the information structure in discourse, i.e. whether the current entity is given or new as the information status.

As Figure 3.1 shows, Japanese exhibits a set of demonstratives with the three-way division: *ko-so-a* series of demonstratives. Let us focus on *that/ so-a* words as the compatible use between English and Japanese demonstratives. (The discussion of *this/ ko* words is excluded in this section, because these proximal demonstratives are similar in the behaviour and function of both languages.) Practically, in English the distal demonstrative *that* is divided into two ways of Japanese demonstratives: English *that* can be translated into either Medial *so-* or Distal *a-* series in Japanese. However, this translation is not always correct. Medial *so-* series, either adnominal (*sono* N 'that N') or pronoun (*sore* 'that'), as has been discussed, needs more special attention. *So*-series demonstratives are basically anaphoric and the cognitive status requires at least 'activated'. In contrast, Distal *a*-series demonstratives in both adnominal (*ano* N 'that N') and pronoun *are* ('that') are basically deictic and the cognitive status requires at least 'familiar'. Kinsui (1999) emphasizes the distinction between the deictic feature of *a*-series demonstratives and anaphoric feature of *so*-series demonstratives. This fact is shown in the following examples in both adnominal and pronoun of Distal *a-* series demonstratives:

(3.9)

Kinou		Yamada san	ni	aimashi	ta.
Yesterday	Ø[TOP]	Yamada Mr/Mrs	OBJ	meet	PAST

Ano	hito	kawatta	hito	desu	ne.
That	person	different	person s	POL	FP.

'Yesterday I met Mr Yamada. That person is different, isn't he?'

(3.10)

(The husband asks his wife for something, who has been together with him for many years.)

Oi,		are		motte	kite	kure.
INTERJ		that	Ø[DAT]	bring	come	IMP

'Hey, bring that to me.'   (Kinsui 1999: 72)

Ano hito 'That person' in example (3.9) appears to be anaphoric in the sense that the referent is in the immediately preceding utterance, but *ano* (*that*) indicates an accessible referent in the addressee's knowledge rather than a currently given discourse. Similarly, example (3.10) is also the evidence that there is 'an entity', instead of 'a referent' in the addressee's knowledge rather than in the extra-linguistic situation. Here Distal *are* 'that' indicates that the accessible entity lies in the addressee's long-term memory that the speaker assumes the addressee can retrieve it without any linguistic context. This usage can correspond with 'reminder' *that* in GHZ (1993)'s terminology, 'recognitional' in Himmelman's terminology, and can be properly stated as 'interactional' in Kitano's (1999) sense. Consider the example below:

(3.9')
Ano hito/ *Sono hito/ ?Kare kawatta   hito   desu ne.
'That person/He is different, isn't he?'

As example (3.9)' shows, purely anaphoric *sono* is not acceptable. Adjective *ano*
needs a special treatment when it is used here, because it requires an assumption by
the speaker that the referent is familiar to the addressee, whereas *sono* cannot trigger
this assumption with its anaphoric nature. *Kare* is possibly an alternative reference,
because third-person pronoun *kare/kanojo* ('*he/she*') can correspond with an stressed
pronoun *HE* rather than unstressed pronoun (*he*), but these pronouns are normally
quite restricted in their use due to social constraints (Clancy 1980; Obana 2000). In
GHZ's interpretation, however, it is acceptable only when the speaker knows the
person quite well.   Otherwise, *Kare* may be rather impolite, if it is the case that the
speaker only met him once. Japanese third-person pronouns are extremely restricted
to a particular context in their usage. In English, on the other hand, pure referential
pronoun *he* will be the most natural translation.   Thus, the research for related
correspondence in forms and meanings of Japanese demonstratives need further
investigation into the difference between English and Japanese referring expressions
in terms of discourse processing. Further and thorough discussion on this issue is
provided in Obana (2003).

As discussed earlier in this section, Japanese bare nouns are either definite or
indefinite, and definiteness of NPs is the most dominant type of reference in
structuring a discourse as a lexical topic chain in both English and Japanese.
Furthermore, all the demonstratives entail the cognitive status of uniquely
identifiable, and Prince's (1981b) notion of inferrables is considered to be a similar
status. Nevertheless, as Gundel (1996) herself admits, there is a limitation of the

GHZ framework account on Prince's (1981b) 'inferrables', and a more general theory of anaphora resolution is necessary. Gundel suggests how the theory of reference interpretation proposed in GHZ (1993) combined with Sperber and Wilson's (1986,1995) relevance theoretic account of utterance interpretation provides an insightful account of the properties of Prince (1981b)'s 'inferrables' and GHZ (1993)'s uniquely identifiable.

At the same time, Gundel (1998) attempts to integrate this framework with centering theory on the grounds that GHZ and centering theory make similar predictions about the distribution and interpretation of pronouns and full NPs in naturally occurring discourse (183). GHZ (1993) assumes that pronouns (and zero pronouns in Japanese) refer to entities at the 'focus of attention' in a current utterance, whereas demonstratives refer to entities that have less accessible and less salient referents.[8] In fact, the concept of a 'focus shift' (GHZ:1993:297) may be correlated with the states of SHIFT transition in the centering terms (Grosz, Joshi, and Weinsten 1995, which indicates that the current center shifts to a different center in the subsequent utterance. Applying centering theory to the analysis is discussed in Chapter 5.

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[8] Similar observation has been reported and discussed in a number of studies. (Linde 1979; Ehlich 1982; Givón 1983; Ariel 1988, 1990; Himmelmann 1996; Cornish 1999; Diessel 1999)

3.7 Distribution of deictic expressions: an analysis

According to the three aspects of deictic expression: spatial deixis, anaphoric demonstratives, and discourse deixis, I will demonstrate their distribution and discuss their characteristics in this section. As I introduced in 3.3, 3.4, and 3.5, all the deictic expressions are mainly divided into three types. They are referred to as Spatial (spatial deixis), Dem. (anaphoric demonstratives) and DD (discourse deixis). Dem. (anaphoric demonstratives) is grammatically divided into two subtypes: Dem. Adon. (Demonstrative adnominals) and Dem. Pro. (Demonstrative Pronouns), respectively. In Japanese, each of these deictic expressions are categorised into one of the three-dimensional types: Distal *a*-series (Spatial *asoko*, Dem. Adon. *ano*, Dem. Pro. *are*, DD *are*); Medial *so*-series (Spatial *soko*, Dem. Adon. *sono*, Dem. Pro. *sore*, DD *sore*); and Proximal *ko*-series (Spatial *koko*, Dem. Adon. *kono*, Dem. Pro. *kore*, DD *kore*) In English, it is categorised into one of the two-dimensional types: Distal (*that* and Spatial *there*) and Proximal (*this* and Spatial *here*).[9]

The Japanese and English labelless MTC contains a number of deictic expressions that are employed to refer to various discourse entities. I wish to concentrate my attention on those deictic expressions that are used to refer to the landmarks on the maps and their notable patterns of distribution in relation with discourse factors.

The distribution of deictic expressions in Japanese and English MTC is investigated in this section. For the present study, I selected two Japanese Map Task dialogues (*ab* and *ac*) and two English Map Task dialogues (Lleq4c2 and Lleq4c8), both of which were collected from the eight dialogues of each language based on the

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[9] Spatial deixis used in the data of both English and Japanese are conceived to be basically anaphoric as far as the participants refer to the landmark or location on the map, where the entities are mentioned in the previous utterances.

same labelless maps and the same experimental design as a parallel corpus with different participants. The detailed information of MTC is introduced in Chapter 4.

3.7.1 Japanese Map Task Corpus

The distribution of deictic expressions in the Japanese MTC is investigated in this section. I selected two dialogues based on the same map and the same giver, who gives the first and second session of the task, each time with different followers. In this analysis, I ignore the difference of the session, and the result is the total of deictic expressions in two dialogues.[10]
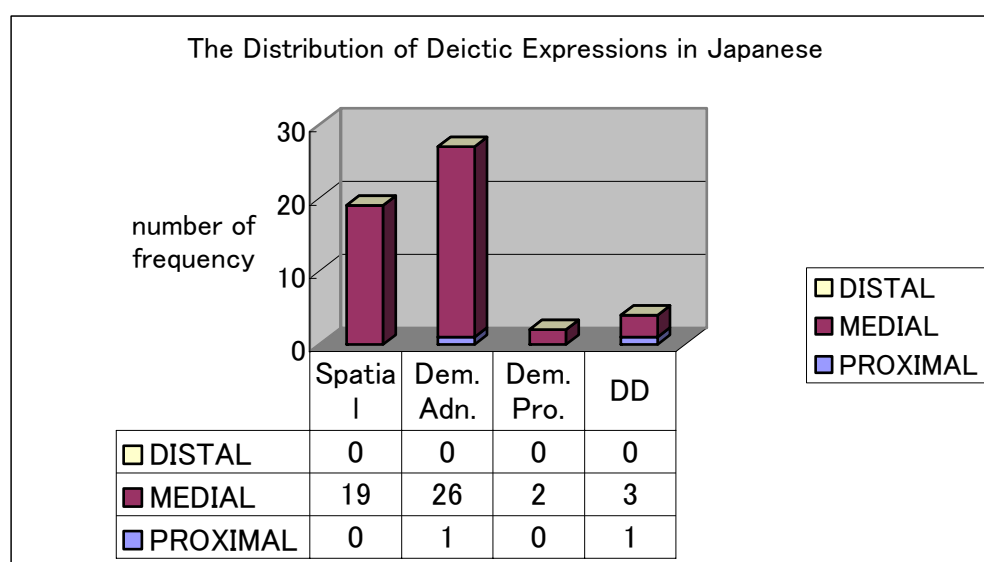
Figure 3.2. The Distribution of Deictic Expressions in Japanese

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[10] In the task, both the instruction giver and the instruction follower take two turns. In the instruction giver's second turn, the number of *sono* N is reduced (17 times in the first session and 9 times in the second session), and the occurrence of spatial deixis is twice as frequent (13 times) as in the first turn (6 times). In the giver's second turn, the giver's labor in describing and identifying a certain object and route across a map can become less, because the giver now knows the information of the map and landmarks and learns how his or her instruction works in terms of the follower. Thus, the finding of the reduced number of adnominal demonstratives in the second turn may suggest that practice at a task results in more controlled and center-oriented treatment of entities, 'due to lower conceptual planning demands' (cf. Branigan, Lickley and McKelvie: 1999). With the limited amount of data, no reliable discussion can be conducted, but future research may suggest that the difference in a giver's session times can affect some linguistic features.

The figure shows that the major type of demonstratives in Japanese dialogue is the anaphoric use of Medial *so*-series. Out of 52 occurrences in total, 50 occurrences are *so*-series of deictic expressions (including 19 Spatial as anaphoric use). There are only two occurrences of Proximal *ko*-series, and none of Distal *a*-series deixis. Among the Medial uses, adnominal demonstratives *sono* NP are the most frequent (26 out of total 52), and there are a few occurrences as the anaphoric demonstrative pronoun *sore* (2 times) and as discourse deixis (3 times).

As is shown, there is considerable use of spatial deixis in the Japanese data (19 tokens). Here I will focus on the use of *sono* NP, which requires at least the status of 'activated' in the GH. In the Map Task dialogues, *sono* NP tends to occur as one of the devices called 'immediate anaphor' (Lichtenberk 1996 quoted in Himmelmann 1996), which is an immediately subsequent reference after the first mention of an entity and is realized in the process of establishing an entity in discourse.

In contrast to the Medial adnominal uses of *sono*, the Medial demonstrative pronoun *sore* is limited in number. In GH, the cognitive status of demonstrative adnominal *sono* N and demonstrative pronoun *sore* is the same in their cognitive status, 'activated'. This may suggest that *sono* N contributes to the topic chain in discourse, because *sono* N is anaphoric. It is possible that the speaker avoids putting the hearer to some unjustifiable effort in retrieving the plausible referent. This is because Medial adnominal demonstrative *sono* N is less accessible, but contains more lexical information than pronoun *sore*, though both forms will be appropriate only if the referent is currently activated.

In addition, I will argue that demonstratives may not necessarily refer to less salient referents. Because of its anaphoric meaning, it is clear that Japanese Medial demonstratives contribute to discourse coherence despite their lower ranking of

transition state in analysis. This observation suggests that *sono* N indicates 'focus-shift' proposed by GHZ (1993:298).

(3.11)
(a) Ø Toori e dete   shibaraku   hashitteku
     Ø street to go out for sometime   run
     'He goes out onto the street and runs for some time.'

(b) To   nanka   yatai mitaina omise ga   atte.
     and   something stall   seem   shop   NOM   be
     'There is a shop like a stall.'

(c) KARE wa   sono   omise   no   toko e   itte.
     He   TOP that   shop   GEN   place to goes
     'He goes to that shop'

As I discussed, in (3.11a) a zero pronoun 'he' without topic marker is currently 'in focus', in GH's framework. To avoid a misleading interpretation, it will be helpful to clarify the term 'focus' used in GHZ (1993) briefly here. As GHZ (1993) explains, they use focus in the kind of sense as 'focus of attention, or 'in focus' in GHZ (1993)'s 'in focus' as a cognitive status, which is actually quite close to what is linguistically referred to as 'topic' in Givon's sense. Thus, in this thesis the notions of 'topic' and 'focus' are not in opposition. A zero pronoun 'he' is the topic of the sentence at the subject position and the most salient discourse entity of the current discourse.

In the next utterance (3.11b), a new entity *omise* 'shop' is introduced. In example (3.11c), an overt 3rd person pronoun KARE ('HE'), which is predicted to behave like demonstratives, with topic marker *wa,* typically implicates that the referent is not in focus, i.e. it implicates a focus-shift. Note that *sono omise* can tend

to occur as what Lichtenbark calls 'immediate anaphor after first mention', as in *sono omise* 'that shop' referring to *yatai mitaina omise* 'a shop like a stall'. Here, in example (3.11c), demonstrative NP *sono omise* rather than bare NP *omise* is chosen. The first mentioned NP *nanka yatai mitaina omise* 'a shop like a stall' is a preferable topic in the subsequent utterance. However, the retrieval of KARE explicitly stands as 'in focus', so the competing entity needs a special attention in the surface structure to make an anaphoric chain between the first and second mention (i.e. *yatai mitaina omise* and *sono omise)*. If there is no candidate of discourse entity in example (3.11c), the unmarked choice should be a bare noun. Thus, the utterance (3.11c), in which *kare* and *sono omise* occur in the same argument clause, stands as a discourse segment indicating that the discourse stage shifts from one state to the next state of the discourse unit.

3.7.2 English Map Task Corpus

The distribution of deictic expressions in the English MTC is provided below:

The Distribution of Deictic Expressions in English

	Spatial	Dem.Ad n.	Dem.Pro .	DD
DISTAL	11	7	24	6
PROXIMAL	2	1	0	0
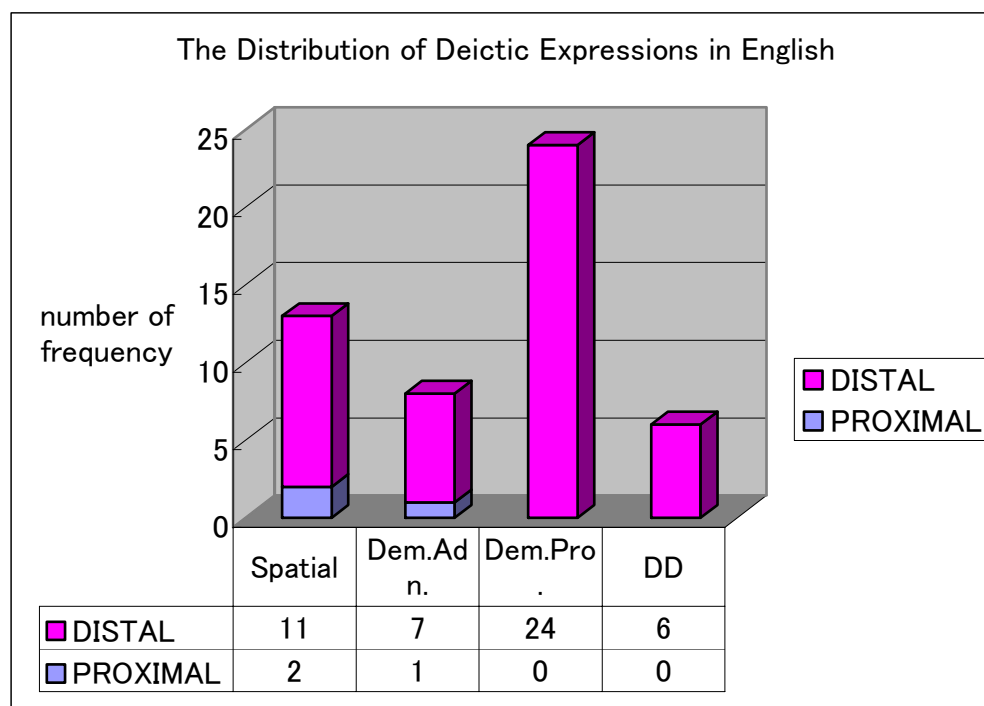
Figure 3.3. The Distribution of Deictic Expressions in English

The main difference between Japanese and English is that, in English, the number of distal deictic expressions is much more frequent than that in Japanese (48 out of 51 occurrences in total).   In the Distal type, Dem. Pro (24 occurrences) are more than three times more frequent than Dem. Adon. (7 times). It is suggested that in Japanese, Medial adnominal demonstratives tend to be used either for immediate anaphora (topic-candidate) or anaphora referring to non-topic referent (topic-shift), whereas in English, Distal pronominal demonstratives provide the unmarked choice for referring to an entity as non-topic referent in activated status, and adnominal use is rather marked because it requires a familiar reading.   I give the example of a Distal pronominal demonstrative *that*, which will be discussed again as example (7.14) in Chapter 7:

(3.12)

*TA 158	on my map I've come up next to a... What is it? Sort of like... It's a sort of like big sort of house, it's got a big roof, and its got three big pools.	

*TB 159   Aha.

*TA 160   Have you... Have you got *that* on your map.

*TB 161   Yeah, I've got *that*, but *that*'s not where I am.

*TA 162   < Alright, /

*TB 163   I'm

*TA 164   well I need you to go *there* {n laugh} >

*TB 165   Okay.

Here demonstratives *that* and *there* are used as referential pronouns to refer to the specific landmark, whose entity contains a combination of lexical information related by indirect anaphora, which is called information packaging in other terms: *big sort of house, a big roof, and three big pools*. This shows that demonstratives do not only indicate a focus-shift but also a topic continuation in a given context of discourse.

I will discuss this issue in Chapter 7 in depth.

3.8 Conclusion

In this chapter, three aspects of deictic expression are considered: spatial deixis, anaphoric demonstratives, and discourse deixis in English and Japanese. I have shown the fact that deictic expressions provide relevant cohesive ties with the other cohesive discourse anaphora and play an important role in bridging a situational and a textual context. Then, according to the Givenness Hierarchy of English and Japanese by GHZ (1993), the referential choice and the cognitive status in English and Japanese are compared. Focusing on Japanese bare nouns without any article, I discussed how bare nouns can be compatible with any of the three cognitive statues,

i.e. type identifiable, referential, or uniquely identifiable. The distinction between definite and indefinite is not motivated by grammatical factors, but rather depends on the information structure in discourse, i.e. whether the current entity is given or new as the information status.

Based on the parallel data, I have presented a small corpus-based analysis of the distribution of three types of deictic expressions, and have found out that the use of *sono* NP in Japanese and *that/that* NP in English are dominant and both deictic expressions play an important role in discourse organization. As the example (3.12) in section 3.7 shows, the evidence may support the claim that 'anaphoric demonstratives are often used to indicate a referent that is somewhat unexpected and not currently in the focus of attention' (GHZ 1993, Dissel 1999). The role that deictic expressions play in discourse organization is a key phenomenon in understanding the integrated view with respect to referring expressions.

I am also persuaded that these anaphoric demonstratives have some effect on the hearer's search for a specific referent in the previous discourse, where the referent has been activated but is not in focus (Gundel 1998). That is, anaphoric demonstratives behave as pointers suggesting the direction to the participants. More specifically, anaphoric demonstratives are used as an immediate anaphor or a focus-shift signalling the discourse segment, which is likely to compatible with 'the discourse node which the pointer is marked moves from node to node on the tree representing the information of the discourse'(Linde:1979: 345). I will clarify this phenomenon in depth in Chapter 7.

Chapter 4

Data Collection

4.1 Introduction

This chapter provides the information about the parallel corpora of English and Japanese Map Task dialogues that are intensively investigated in the thesis. In section 2, I explain the reasons behind the use of the Map Task corpus. Section 3 provides the task design of the two types of parallel corpora of English and Japanese Map Task dialogues: the original corpus and the 'labelless' corpus. In section 4 information about subjects is provided. In section 5, information about the data collection is given. Section 6 presents the matching of corpus data for English and Japanese dialogues. Lastly, I conclude in section 7.

4.2 Aims

Throughout this thesis, the main discussion of the referential phenomena is based on dialogues, more specifically, a parallel corpus of English and Japanese Map Task dialogues (henceforth MTC [Map Task Corpus]). As I mentioned in Chapter 1, I choose dialogue for the corpus study, because it is the most fundamental linguistic expression of human communication. The initial aim behind the parallel corpus of English and Japanese Map Task dialogues was to provide a reliable database for investigating the real picture of the spontaneous spoken language of the two languages, English and Japanese. It is predicted, in naturally occurring spontaneous speech, that interesting phenomena that even native speakers may be unaware of may appear as the linguistic evidence to support the claim of the thesis: considering the

empirical evidence from the grammatical, semantic and pragmatic differences between Japanese and English referential choices in discourse, I propose that the forms of anaphors are not always shorter, and the focus of attention is maintained by the chain of NPs rather than by (zero) pronouns both within discourse segments and over discourse segment boundaries.

To make the best use of the data, at least two important conditions should be considered. One condition is that the data should contain referring expressions in dialogues in which the participants talk spontaneously, but in a controlled environment so that the researcher as a third person can examine specific questions about discourse entities and discourse structure, the choice and distribution of referring expressions, and the relation between the referential choice and local and global coherence of discourse, etc. The other condition is that the task design in English and Japanese should be strictly unified, so that the cross-linguistic study of the corpus data will be available.

On the whole, my major interest in the thesis is to clarify how the choice and distribution of referring expressions are related to discourse development and discourse coherence. The investigation of the data will show that the types of referring expressions in both languages are different but that there is a similar tendency of patterns of use with respect to discourse development in the course of the task. It is of considerable research value that reliable cross-linguistic evidence can be provided to support my claim about the referential patterns of use by applying a discourse model that aims to integrate the local focus with global focus of discourse structures.

4.3 Task Design

This section provides the task design of the two corpora. One is the original English and Japanese Map Task Corpus and the other is the English and Japanese 'labelless' Corpus.

4.3.1 The Original English and Japanese Map Task Corpus

Originally, the Map Task Corpus (MTC) was compiled as a corpus project in the Human Communication Research Centre (HCRC), University of Edinburgh, UK. The corpus consists of recordings and transcriptions of 128 dialogues produced by speakers of Scottish English. Informants were 64 undergraduates of the University of Glasgow, with a mean age of 20, both males and females (See Anderson *et al*. 1991). Inspired by this project, the research group at Chiba University in Japan collected Japanese dialogues based on the task design of the English MTC in the same size. The Japanese MTC has been conducted as a project at Chiba University (henceforth Chiba Corpus), Japan, since 1993, based on the Edinburgh MTC with respect to map and route designs and situational parameters such as familiarity and eye contact. As in the HCRC study, 128 dialogues have been collected (See Horiuchi *et al*. 1999). Both corpora are carefully planned interdisciplinary scientific projects and their large-scale linguistic resources have widely attracted a number of researchers with academically and pedagogically different backgrounds.

The task involves two participants, one is called *the instruction giver* (*giver* for short; *G* or *A* is used in the transcription data) and the other *the instruction follower* (*follower* for short; *F* or *B* is used in the transcription data). Each of them is given a specially drawn map to work with, but each participant is not able to see the other participant's map. The goal of the task is that the giver instructs the follower to draw

a route, while the follower reproduces this route on his or her own map. Both maps have the same total number of landmarks (11 or 12) which are labelled with their intended names. However, the maps which the giver and the follower have are not identical. The participants are informed that their maps may not be identical, but they are not aware of how they may differ. In addition, both participants have the start point marked on the map, but only the giver has the finish point. A sample of the maps is provided in the Appendices.

The original Map Task project has generated a variety of research and studies from different academic perspectives (Carletta *et al*. 1993; 1997, Deverell 1994, Miller and Weinert 1998, etc.). Deverell (1994) based on English MTC, is especially relevant for the present thesis in that her study specifically focuses on the use of referring expressions. I agree with Deverell's (1994) remark that 'since the language of the Map Task Corpus is concerned with a limited domain, the resolution of anaphora within it would be more manageable than that of a completely unrestricted domain' (1). The Japanese Map Task project has also generated a number of studies including Koiso *et al*. (1998) and Koiso, Shimojima, and Katagiri (1998). In addition, public access to the corpus of English and Japanese enables us to compare data fairly easily, and helps us to clarify whether there is an interesting similarity or difference with respect to the use of referring expressions that can affect the discourse development and discourse coherence in each language environment.

The dialogue data has another advantage. Significantly, dialogue is more collaborative and more structured than spoken narratives. In this task, the participants cannot speak freely, and the speakers should listen and understand the utterances and intentions of the interlocutors. Nevertheless, the participants are not prevented from speaking spontaneously. Therefore, the MTC represents naturally occurring dialogue

data.

The task of the MTC is highly structured. Participants adopt a number of strategies. For example, the overall tasks are divided into different parts. The participants do not attempt to describe the whole route, but break down the task into small tasks that both can manage. Carletta *et al*. (1997) develop a coding scheme for MTC, which assumes three different levels within the dialogue - utterance function, game structure, and higher level transaction structure. Their dialogue structure distinctions are useful to detect the hierarchical structure of dialogic discourse. In this thesis, I focus on discourse structure, particularly following Grosz and Sidner (1986)'s notion of 'discourse segment', which corresponds to Carletta *et al* (1997)'s 'conversational games'. This issue will be discussed in Chapter 7.

Compared to narratives, in addition, the use of referring expressions is more addressee-oriented and collaborative in dialogues. Clark and Wilkes-Gibbs (1986)'s view on the referential phenomena as 'referring as a collaborative process' is highlighted by their original empirical evidence. Based on the findings out of the MTC, the types and lexical features of NPs that are employed in the dialogic discourse are investigated in Chapter 8.

4.3.2 English and Japanese Labelless Map Task Corpus

The original MTC in English and Japanese are as immensely useful language data base for various academic purposes of cross-linguistic research. However, in meeting the need of my current research interest, a slightly different task design is required in order to elicit a number of features of particular linguistic interest: referring expressions. The data that instantly drew my interest is not the original version of MTC, but an experimentally-collected small corpus of eight English dialogues based

on maps that do not have written labels to identify the landmarks. This is a small set of data experimentally collected by the HCRC after completing the original MTC, but the amount of data seems reliable enough to elucidate some important linguistic aspects of the referential system.

Since the original MTC is based on the maps that have already been labelled , the type of referring expressions in dialogues is extremely limited due to the 'ready-made' written labels of the landmarks on the maps. Therefore, this small corpus is ideal in inspecting what type of referring expressions are more influential than others in interacting with the discourse structure in collaborative situations.

The labelless MTC is also based on the same maps with the same landmarks as the original ones. The corpus consists of recordings and transcriptions of eight dialogues. English and Japanese MTC use the same labelless maps and the same experimental design: The task involves two participants each of whom has a map to work with; familiar and unfamiliar pair of speakers; each participant plays a role as giver twice on the same map with different followers, and then as follower twice with different givers and different maps. However, the condition concerning familiar / unfamiliar pair of speakers are not considered in this thesis.[11]

Following the specification and transcription policy of the Chiba Corpus, the small set of 8 dialogues based on the Japanese labelless MTC were collected and transcribed at Mie University, Japan. The detail of the experiment conducted for collecting Japanese labelless MTC are reported in Yoshida (2002). The corpus consists of eight recordings and transcriptions as well as an English version. One of

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[11] These conditions may be considered in further research, because they can affect the patterns of use of referring expressions and other pragmatic and discourse factors. For example, the use of conditional clauses as an instruction are strongly connected with the condition concerning familiar / unfamiliar pair of speakers with respect to politeness.

the advantages is that Japanese MTC is transcribed with the support of electronic tools for transcription made by Chiba project group, including the function of calculating time duration of each utterance and utterance unit boundary. That is, an utterance unit boundary is set up by dividing utterances into an individual utterance unit by a pause duration every 400 milli-seconds. Thus, unlike the English version, the Japanese version is provided with the tool of listening to the phonetic information of the giver and the follower along with the transcription data on the Windows computer screen.

Based on this specific data, my current hypothsis is that the participants in the labelless MTC, especially the giver, tend to use a larger variety of referring expressions and deictic pointers more frequently to describe the landmarks and to explain the routes between landmarks than the participants in the labelled MTC. Therefore, the labelless MTC can provide us with relevant data in the sense that the lack of 'ready-made' written labels on the maps encourages the participants to construct their own descriptions to identify entities of landmarks and to employ a number of referring and deictic expressions (Deverell 1994: 22).

Furthermore, the labelless map task dialogue is more complicated than the original MTC due to the additional task design: naming the landmark. This task can require more effort into the participants' cooperation, especially at the initial stage of the dialogue. This makes the dialogue more complex and generates a different process of collaboration. This issue is discussed in Chapter 8.

4.4 Subjects

The English MTC was produced by four undergraduates of the University of Glasgow who took part in the task, with an equal number of males and females. The

Japanese MTC was produced by two female undergraduates and two male postgraduates at Mie University, Japan. The subjects are English and Japanese native speakers respectively. In both sets of data, in carrying out the experiment, four participants consist of two pairs. Each pair is familiar with each other, but unfamiliar with either member of the other pair. Each participant took part in the task four times, twice as giver (using the same map) and twice as follower (following a different map). The partner would be varied, so that instructions would be given to a familiar and an unfamiliar partner, then followed by a familiar and unfamiliar partner. In the experiment, participants are allowed to make eye contact, but showing his or her gestures are restricted. Exchanging the personal information between the subjects is strictly controlled and, of course, all the personal information is confidential and is not included in the electronic version of data.

4.5 Matching of the data

Eight dialogues of each data in English and Japanese are matched on a parallel with each other shown as follows:

English Data Label	Japanese Data Label	Map Label
Lleq4c2	ab	--1
Lleq4c8	ac	--1
Lleq4c1	cd	++2
Lleq4c9	cb	++2
Lleq4c3	ba	+-3
Lleq4c5	bd	+-3
Lleq4c4	da	-+4
Lleq4c6	dc	-+4

Table 4.1 Matching of the Map Task Corpus Data

This table shows the labels of eight English MTC data (left), those of eight Japanese MTC data (middle), and the labels of maps that are used for the experiments in English and Japanese tasks (right). This table also indicates the matching of the English and Japanese Data Label with the Map Label. For example, both English Data labelled as 'Lleq4c2' and Japanese data labelled as 'ab' (each small letter stands for the participant identification.) is based on the Map Label '--1'. As shown, maps are four types: --1, ++2 , +-3 , -+4   In both data, each participant took part in the task four times, twice as giver (using the same map) and twice as follower (following different maps). These labels are included in the examples that are quoted in this thesis.

4.6 Possible accessibility of the data

The obtained dialogues are not publicly open at the present. In the future they may be prepared to be accessible on the website, but should be restricted only for academic purposes.

4.7 Conclusion

In this chapter, based on the original Map Task Corpus of English and Japanese, I explained the aims and the task design of the parallel corpus of English and Japanese 'labelless' Map Task dialogues that are investigated in the thesis. I discussed the advantage of the labelless corpus in examining the patterns of use of referring expressions in both languages. I also discussed that using naturally occurring utterances of dialogue data as the cross-linguistically reliable evidence has a great deal of research value.

Chapter 5

Centering and Dialogue

5.1 Introduction

I have considered the background and empirical evidence for the grammatical, semantic and pragmatic differences between the Japanese and English referential choices in previous chapters. In Chapter 2, I presented the view that the theoretical framework of information status (Prince's Familiarity Scale) and a more unified model of cognitive status (Gundel, Hedberg, and Zacharski's Givenness Hierarchy) can be extended to the cross-linguistic approach to referential choice in discourse. In Chapter 3, based on a small corpus analysis of the distribution of three types of deictic expressions, I proposed that anaphoric demonstratives have an important role in discourse organization. Their use as immediate anaphors and focus-shift devices signals a specific move with respect to a discourse segment. The evidence was partially provided in section 3.7, which gave an example showing that an anaphoric demonstrative is the unmarked choice for referring to a non-topic entity in activated status. At this point, furthermore, a plausible anaphora-resolution model should provide a general and cross-linguistic framework to account for the interaction between local coherence of discourse and the choices of referring expressions; centering theory can attempt to account for this phenomenon. This chapter applies the centering framework to the parallel corpus of English and Japanese Map Task Dialogues discussed in Chapter 4. Focusing on the patterns of use in referring expressions in interactive discourse in English and Japanese, I provide a theoretical background and methodological details for investigating how different types of

referring expressions affect the local coherence of discourse. The initial analysis is presented in the last section, and its main purpose is to assess to what extent the theory can correctly reflect the relation between the distribution of discourse entities and the discourse coherence in an interactive context.

Centering theory is one of the most influential models that account for the constraints on a speaker's use of different types of referring expressions in computational linguistics, and it provides a framework in which a speaker's local focus of attention can be described as the most preferable forms of referring expressions. The main purpose of the theory is to account for interactions between local coherence and choice of referring expressions. In this framework, I investigate correlations between referring expressions and the types of 'center' transition patterns of the utterances in both English and Japanese MTC, and suggest that different transition states tend to be affected by intentional states of participants and global discourse structure rather than purely grammatical rules and constraints of the framework.

After giving an overview of centering theory in section 2, I will describe the methodology and coding system of the framework to be applied in the corpus analysis in section 3. In section 4, I discuss problematic issues in applying centering theory to the dialogue data. Section 5 provides a sample analysis and discusses the possible correlation between the discourse entities and the types of center transition patterns. Presenting the initial results shown in the corpora, I describe the types of referring expression and their actual choice and distribution in each type of center transition patterns in section 6. Finally, in section 7, I conclude the chapter by suggesting ways in which the choice and distribution of referring expressions in English and their Japanese counterparts can be explained in an interactive discourse

model integrated into global discourse structure.

5.2 Centering Theory

5.2.1 Overview

Centering is defined as 'a model of the conversant's center of attention in discourse that is concerned with the relationship between attentional state, inferential complexity, and the form of referring expressions' (Walker, Joshi, and Prince 1998: 1). The notion of 'center' in centering theory is distinct from the notions of 'topic' and 'focus' that has been discussed in depth in the area of pragmatics and discourse grammar (e.g., in Halliday 1967, Kuno 1972, Sperber and Wilson 1986, Valluduvi 1992, Gundel and Fretheim 2006, inter alia)[12]. A discussion of the relation between all of these concepts is beyond the scope of this thesis. At least, it is worth noting that the notion of center cannot be defined in syntactic terms alone. Rather, the notion of center can only be explained by looking beyond the surface form of the utterances in the discourse. Let us consider the discourses below:

(5.1) a. John went to his favorite music store to buy a piano.
     b. He had frequented the store for many years.
     c. He was excited that he could finally buy a piano.
     d. He arrived just as the store was closing for the day.

(5.2) a. John went to his favorite music store to buy a piano.
     b. It was a store John had frequented for many years.
     c. He was excited that he could finally buy a piano.
     d. It was closing just as John arrived.

(Grosz, Joshi, and Weinstein 1995: 206)

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[12] As noted earlier in Chapter 2, the relational notion of 'focus' (as complement of topic) is not to be confused with the referential notion 'in focus' as the cognitive status of a discourse referent (Gundel and Fretheim 2006:193).

Although both discourses (5.1) and (5.2) convey the same information, they differ in the way of saying with respect to what the discourse is about. Intuitively, discourse (5.1) is more coherent than discourse (5.2). Discourse (5.1) is clearly about the single individual named *John*, and each utterance begins with the same discourse entity, *John*. On the other hand, discourse (5.2) has no single clear center of attention. Utterance (5.2a) starts about *John*, but utterance (5.2b) seems to be about the *store*. In utterance (5.2c), *John* seems to be central again, but in utterance (5.2d) the store becomes central again. This frequent change of 'what it is about' can affect the inference loads on the hearer or reader, which makes discourse (5.2) less coherent than discourse (5.1). That is, the chain of inference of this sort may not be straightforward to the addressee with respect to local coherence between adjacent utterances.[13]

For the purpose of taking account of the coherence among utterances within a discourse segment, the notion of center is crucial. The center is the entity that can commonly correspond to what is called 'topic' in Givon's sense, i.e. the current focus of attention in the utterance. Yet, this term is doubtless proposed to avoid the confusion with the linguistic terms such as 'topic' and 'focus'. Brennan (1995:14) simply defines center as 'the single most important discourse entity, at a particular moment'. The basic concept of center is clearly defined by Grosz, Joshi, and Weinstein (1995: 208): 'We use the term *centers* (their emphasis) of an utterance to refer to those entities serving to link that utterance to other utterances in the discourse segment that contains it'. Their original framework emphasizes that centers

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[13] An inference is defined as 'the recovery of information from a discourse which is implicitly or explicitly presented as true by the speaker, but which is not stated directly' (Cann 1993: 197).

are 'discourse constructs', and 'semantic objects, not words, phrases, or syntactic forms' (Ibid.). In principle, centers are nested in an utterance, not in a sentence in isolation. Moreover, Walker, Joshi, and Prince (1998: 3) successfully incorporate centers into the component of the discourse model: 'centers are semantic entities that are part of the discourse model for each utterance in a discourse segment.'

Therefore, according to Walker, Joshi, and Prince (1998), 'center' is distinguished into three different types: Cf (U_i, D), Cb (U_i, D), and Cp. The Cf (U_i, D) indicates the list of FORWARD-LOOKING CENTER, representing discourse entities evoked by an utterance U_i in a discourse segment D (Webber 1988; Prince 1981b). The Cb (U_i, D) indicates the BACKWARD-LOOKING CENTER, which is a special member of Cf representing the discourse entity that the utterance U_i most centrally concerns. In other words, the Cb is 'what is presumed to be the most salient entity in the current utterance at that moment' (Brennan 1995: 141). The Cp is the PREFERRED CENTER representing a prediction about the Cb of the following utterance. Sometimes the Cp will be what the previous utterance of discourse was about, the Cb, but this is not necessarily the case (Walker, Joshi, and Prince 1998: 3).[14] To avoid confusion, the phrase 'the center' will be used to refer only to Cb (U) in this thesis. Let us identify these three types of centers, BACKWARD (Cb), FORWARD (Cf), and PREFERRED CENTER (Cp) with the discourse entities in the discourse in (5.1) and (5.2)[15]:

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[14] The term PREFERRED CENTER was introduced by Brennan, Friedman, and Pollard (1987).
[15] There is a difference in the unit that Cb is contained between Grosz, Joshi, and Weinstein (1983) and Grosz, Joshi, and Weinstein (1995). Compare the unit that Cb is contained in the earlier version with that in the later version of their studies: 'Cb (S) [Cb in Sentence] in Grosz, Joshi, and Weinstein 1983 versus Cb (U) [Cb in Utterance] in Grosz, Joshi, and Weinstein.

(5.1)' a. John went to his favorite music store to buy a piano.

b. He had frequented the store for many years.

c. He was excited that he could finally buy a piano.

d. He arrived just as the store was closing for the day.

Utterance	Backward Center(Cb)	Forward Centers (Cf)	Preferred Center (Cp)
a.	John (?)*	John, store, piano	John
b.	John	John, store	John
c.	John	John, piano	John
d.	John	John, store	John

Table 5.1 Centers in Discourse (5.1)'

(5.2)' a. John went to his favorite music store to buy a piano.

b. It was a store John had frequented for many years.

c. He was excited that he could finally buy a piano.

d. It was closing just as John arrived.

Utterance	Backward Center(Cb)	Forward Centers (Cf)	Preferred Center (Cp)
a.	John (?)*	John, store, piano	John
b.	store	John, store	store
c.	John	John, piano	John
d.	store	John, store	store

Table 5.2 Centers in Discourse (5.2)'

*(?) indicates 'No Cb'

Since Cf is the list of every discourse entity in a given utterance, the distinction between Cb and Cp is a key aspect of centering theory in determining the center transition states, which is defined as Rule 2 of centering in this section. As shown in Table 5.2, the frequent change of 'what it is about', i.e. the Cb, is represented: John → store → John → store. At the same time, the prediction about the Cb of the following utterance, i.e. the Cp, results in disagreement between the Cp and the Cb in

projecting preferences for interpretation in subsequent discourse with the Cp:

a. John (Cp) ≠ b. store (Cb); b. store (Cp) ≠ c. John (Cb); c. John (Cp) ≠ d. store (Cb)

These three centers are associated with three constraints and two rules. The three

constraints of centering are as follows:

Constraints
1. There is precisely one backward-looking center $Cb(U_i, D)$.
2. Every element of the forward centers list, $Cf(U_i, D)$, must be realized in U_i.
3. The center, $Cb(U_i, D)$, is the highest-ranked element of $Cf(U_{i-1}, D)$ that is realized in U_i.

Centering also includes two rules:

For each U_i in a discourse segment D consisting of utterances U_1...., Um:

Rule 1: If some element of Cf (U_{i+1}, D) is realized as a pronoun in U_i,
then so is Cb (U_i, D).
Rule 2: Transition states are ordered. The CONTINUE transition is preferred to the RETAIN transition, which is preferred to the SMOOTH-SHIFT transition, which is preferred to the ROUGH-SHIFT transition.

Let us explain Rule 1 and Rule 2, respectively. Rule 1 captures the intuition that

pronominalisation is one way to indicate discourse salience, and that Cbs are often

pronominalised or deleted. It says that if anything is pronominalised, the Cb must be,

but this interpretation leaves perfectly open the possibility that none of the entities

referred to in an utterance, including the Cb, are pronominalised.

In order to extend the scope of Rule 1, Grosz, Joshi, and Weinsten (1983) clarify

Rule 1 as follows:

1. It does not preclude using pronouns for other entities as long as one is used for the center.
2. It is not a hard rule, but rather a principle, like a Gricean maxim, that can be violated. However, such violation leads at best to conditions in which the hearer is forced to draw additional inferences (48).

It is important to observe that Rule 1 cannot be applied directly to Japanese for two reasons. One is that the overt pronouns such as third person *kare* (male) / *kanojo* (female) are pragmatically restricted in their use. The other is that extensive use is made of zero pronouns. As we saw in example (1.1) in Chapter 1, *kumasan* 'the bear' is a possible Cb, but it is not pronominalised nor replaced with zero pronouns. However, at least with respect to the use of zero pronouns, which Kameyama (1985) argues correspond to unaccented pronouns in English, it is possible to extend Rule 1 to cover Japanese (Walker, Joshi, and Prince, 1998).

Rule 2 defines the typology of transition states: CONTINUE, RETAIN, SMOOTH-SHIFT, and ROUGH-SHIFT, which is summarized in Table 5.3.:

Table 5. 3 Centering Transition States, Rule 2 (Walker, Joshi and Prince 1998)

	$Cb(U_i) = Cb(U_{i-1})$ OR $Cb(U_{i-1}) = [?]$	$Cb(U_i) \neq Cb(U_{i-1})$
$Cb(U_i) = Cp(U_i)$	CONTINUE	SMOOTH-SHIFT
$Cb(U_i) \neq Cp(U_i)$	RETAIN	ROUGH-SHIFT

There are four transition states in centering. CONTINUE are those utterances that contain the same $Cb(U_{i-1})$ in the subject position as the Cb of the current utterance, RETAIN are those utterances that maintain the same Cb as U_{i-1} and where $Cb(U_i) \neq$

Cp (U_i). SMOOTH-SHIFT are pairs of utterances where the Cb(U_i) is contained in the previous utterance but is not the same Cb (U_{i-1}). ROUGH-SHIFT are those utterances where Cb(U_i) $\neq$ Cp (U_i) and Cb(U_i) $\neq$ Cb (U_{i-1}), which is considered to be the least coherent transition state. The utterances coded as *No Cb*, as Hurewitz defines it, are those in which there are no entities, functional dependencies, or definite relationships in common between the current and previous utterance. They are those utterances where U_{i-1} does not contain a Cb (that is, No Cb). Originally, these were three transition states: CONTINUE, RETAIN, 'SHIFT' (Grosz, Joshi, and Weinstein 1995). However, the distinction between SMOOTH-SHIFT and ROUGH-SHIFT is significant, because it is reported that ROUGH-SHIFT transitions are non-existent or extremely rare in naturally occurring discourse (DiEugenio 1998; Hurewitz 1998). Thus, I simply follow the currently established Rules in Walker, Joshi, and Prince (1998: 6). I also use the notation Cb(U_{i-1}) = [?] for the utterance where there is no Cb(U_{i-1})

Thus, based on Rule 2, this distribution of transition states is related to a coherence link between two utterances; some transitions between utterances are more coherent than others, which, Walker, Joshi and Prince (1998) suggest, should be schematized as follows:

CONTINUE > RETAIN > SMOOTH-SHIFT > ROUGH-SHIFT

This scale indicates that the four transition states are ordered. As R2 predicts, the CONTINUE transition is preferred to the RETAIN transitions, which is preferred to the SMOOTH-SHIFT transition, which is preferred to the ROUGH-SHIFT transition. Thus, the CONTINUE transition is considered to be more coherent than any other

transitions. Further discussion on the coding of the four transition states and methodological issue is provided in section 5.3.

As we have seen above, Walker, Joshi, and Prince (1998: 6) assume that 'the combination of the constraints, rules, and transition states makes a set of testable predictions about which interpretation of an utterance hearers will prefer because they require less processing'. In 5.3 I give a demonstration of what Walker, Joshi, and Prince (1998) are referring to. Coherence depends importantly on the concept of the Cb. Note that the Cf list is ranked in order to give a prediction of what the Cb of the next utterance is likely to be. Cf ranking in English is formulated in terms of grammatical function (Subject, Object, Other)[16]:

Cf Ranking by Grammatical Function:

Subject > Object(s) > Other

The following shows how the centering rules and constraints apply to the discourse in (5.3) and (5.4), which is annotated with centering data structures and transitions. The members of Cf are discourse entities represented by small capitals in the examples:

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[16] As English has relatively fixed word order, grammatical function tends to correlate with word order, but this is not invariably the case. That is, the element in the subject position cannot always be the most salient discourse entity.

(5.3)(a) Jeff helped Dick wash the car.

Cb:	[?]
Cf:	[JEFF, DICK, CAR]
Centering Transition:	**No CB**

(b) He washed the windows as Dick waxed the car.

Cb:	[JEFF]
Cf:	[JEFF, WINDOWS, DICK, CAR]
Centering Transition:	**CONTINUE**

(c) He soaped a pane.

Cb:	[JEFF]
Cf:	[JEFF, PANE]
Centering Transition:	**CONTINUE**

(5.4)   (a) Jeff helped Dick wash the car.

Cb:	[?]
Cf:	[JEFF, DICK, CAR]
Centering Transition:	**No CB**

(b) He washed the windows as Dick waxed the car.

Cb:	[JEFF]
Cf:	[JEFF, WINDOWS, DICK, CAR]
Centering Transition:	**CONTINUE**

(c) He buffed the hood.

Cb:	[DICK]
Cf:	[DICK, HOOD]
Centering Transition:	**SMOOTH-SHIFT**

(Walker, Joshi, and Prince 1998: 6-7)

The different centering assignments generate the difference in the centering transition in (5.3c) and (5.4c). According to R2, the centering model predicts that (5.4) is less coherent than (5.3), because preference for the CONTINUE over the other transitions may cause the hearer's inference load in discourse processing by interpreting (5.4c) as SMOOTH-SHIFT (i.e., Cb(2c) ≠ Cb (2b), Cb(2c) = Cp(2c)), which means that the speaker misleads the hearer, and the hearer first interprets the pronoun *he* in

(5.4c) as *Jeff* , and then has to revise this interpretation.

On the other hand, Cf ranking for Japanese is different. This ranking is based on discourse function as well as grammatical function (Walker, Iida, Cote 1994). The following example is slightly more complicated than (5.3) and (5.4).

(5.5)

Cf Ranking for Japanese:

(GRAMMATICAL OR ZERO) TOPIC > EMPATHY > SUBJECT > OBJECT2 > OBJECT > OTHERS[17]

(5.6)   (a)   Taroo wa saisin   no konpyuutaa   o   kaimasita.
              TOP/SUBJ newest   of   computer   OBJ bought
              Taroo bought a new computer.

Cb:	[?]
Cf:	[TAROO, COMPUTER]
Centering Transition:	**No CB**

(b)   Ø   John ni   sassoku sore   o   misemasita.
      TOP/SUBJ   John OBJ2 at once that   OBJ   showed
      (Taroo) showed it at once to John.

Cb:	[TAROO]
Cf:	[TAROO, JOHN, COMPUTER]
Centering Transition:	**CONTINUE**

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[17] The Cf-ranking for Japanese according to discourse salience includes notions that are derived from discourse perspectives. TOPIC is either grammatical (the *wa* marked entity) or zero (the null topic). EMPATHY is the term for the notion of the 'camera angle': 'Empathy is the speaker's identification, which may vary in degree, with a person/thing that participates in the event or state that he describes in a sentence' (Kuno 1987: 206). Incidentally, it is grammatically useful to distinguish between indirect objects (OBJECT2) and direct objects (OBJECT).

(c) Ø   Ø   atarasiku sonawatta kinoo   o   setumeisimasita.

     SUBJ   OBJ2   newly   equipped   function OBJ   explained

(He) explained the newly equipped functions to (him).

Cb:	[TAROO]
Cf1:	[TAROO, JOHN]
	TOP/SUBJ OBJ
Centering Transition:	**CONTINUE**

(Taroo) explained the newly equipped functions to (John).

Cb:	[TAROO]
Cf2:	[JOHN, TAROO]
	TOP/SUBJ OBJ
Centering Transition:	**RETAIN**

(John) explained the newly equipped functions to (Taroo).

Here Cf ranking affects the interpretations of the zero pronouns in (5.6c). There are two possible interpretations. Interpreting *Taroo* as the highest-ranked element in the subject position (CONTINUE) is preferred to *Taroo* in the object position (RETAIN). That is, RETAIN is less coherent than CONTINUE, because Cb (4c) = Cb (4b), but Cb (4c) ≠ Cp (4c), which is supported by the experiment conducted by Walker, Iida, and Cote (1994).[18] Cf Ranking for Japanese indicates that TOPIC is ranked more highly than entities realised as EMPATHY. Entities realised in EMPATHY are ranked more highly than entities realised in SUBJECT, and entities realised in SUBJECT are ranked more highly than entities realised in OBJECT positions, which are ranked more highly than entities realised in subordinate clauses or as other grammatical functions. In contrast to Cf Ranking for English by grammatical function, TOPIC and EMPATHY as discourse functions are highlighted in the ranking. In particular,

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[18] This study tested how many native speakers of Japanese prefer one interpretation over the other. In an informal experiment, Walker, Iida, and Cote (1994) verified the preference for CONTINUE empirically; when interpreting (5.6c), twenty seven subjects preferred the CONTINUE interpretation and one subject preferred the RETAIN interpretation (Z = 13.24, p< .01) (Walker, Joshi, and Prince 1998: 9)

TOPIC is distinguished into two types. One is a grammatically marked topic with the case marker *wa*, which is called the GRAMMATICAL TOPIC, and the other is called ZERO TOPIC, which means that both lexical topic and the case marker are omitted. As we saw in example (5.6b) and (5.6c), zero topics occur in both the subject and object position.

In addition, since ZERO TOPIC is the highest rank in the Cf Ranking, Walker, Iida, and Cote (1994) define the dominance of ZERO TOPIC as a rule of ZERO TOPIC ASSIGNMENT. This rule 'allows a zero that has just been the Cb to continue as the Cp, even when it is not realized in a discourse-salient syntactic position such as subject' (216). It is important to note that although Japanese zero topics are retrieved by either the case marker *wa* or the case marker *o*, these markers are frequently omitted in naturally occurring discourse. Based on Cf ranking, it is necessary to retrieve the entities and to make predictions as to which interpretation the hearer will prefer, but such an account of the extended rule of ranking is beyond the scope of this thesis.

5.2.2 Discourse segmentation: the local focus and global focus in discourse

I have given the centering rules and constraints in the previous section. In order to apply these rules and constraints to naturally occurring discourse, it is necessary to define discourse segmentation to determine the boundaries of utterances and larger discourse segments. The notion of discourse segment is significant for understanding discourse structures as the global focus. The local focus is related to local coherence within the discourse segment, whereas global focus is related to the global coherence over discourse segment boundaries. However, the way of defining a discourse segment has not yet reached consensus among scholars (a detailed discussion is

found in Poesio *et al.* 2004). In this section, I will divide discourse structure into two types: local focus of discourse and global focus of discourse.

Discourse plays a major role in accounting for the choice and distribution of referring expressions. A discourse is defined as a unit that is typically longer that a single sentence and has two levels of coherence: local and global. Local coherence refers to the ways in which individual sentences or utterances bind together to form larger discourse segments. Local focusing corresponds to 'centering', which looks at centers only as a local focusing process within a discourse segment. According to Grosz, Joshi, and Weinstein (1995)'s proposal, I use an utterance rather than a sentence as the unit of local segmentation. This issue is raised and discussed in section 5.4. By applying centering to the local focus of discourse, the distribution of centering transitions in English and Japanese is presented in Chapter 6.

Identifying the segment boundaries between global segments is another difficult task, because the segmentation rules are not resolved. Different researchers with different theories have examined a variety of discourse types and provided the evidence of the existence of segment boundaries such as the explicit use of certain words and phrases including cue words/cue phrases, and specific discourse markers, and more subtle cues such as intonation or changes in tense and aspect (Grosz and Sidner 1986). A global discourse segment marked by the above 'cues' has been called an episodic boundary (Givón 1981), 'sister segments' or 'subordinated segments' (Walker 1998: 415), and also a paragraph boundary is the corresponding segment unit in written mode. Following Grosz and Sidner (1986), Brennan (1998: 234) distinguishes global segmentation from local segmentation and Walker (1989) and Walker (1998) propose the basic guideline for the discourse segment by a method of heuristics. In Grosz, Joshi, and Weinstein (1983: 44), global coherence refers to the

ways in which the larger segments of discourse relate to one another. The way that

discourse segments are related is extensively discussed in Walker (1998, 2000). In

order to determine the discourse segment, Walker (1989), who compares the written

text with a typical type of task-oriented dialogue, uses a combination of orthography,

anaphora distribution, cue words, and task structure. The rules she presents are rather

tentative:

> In the task-oriented dialogues, the action PICK-UP marks task boundaries
> hence segment boundaries. Cue words like *next*, *then*, and *now* also mark
> segment boundaries. These will usually co-occur but either one is sufficient for
> marking a segment boundary (3)[19].

This rule does not cover all the clues to determine the discourse segments, but there

are a number of cue words and phrases occurring at the initial utterance of a

subsequent segment. For example, some discourse segment boundaries are identified

by the use of the cue word *now*, which indicates a new segment that is a further

development of a topic, and indicates a push in the stack model (Grosz and Sidner

1986). 'PICK-UP' may mean any linguistic expression as the primary indicator of

discourse segment boundaries.

5.2.3 Specific questions in dialogic discourse

In section 5.2.1, I presented the centering rules and constraints. In section 5.2.2, two

types of discourse structure, local focus and global focus of discourse were discussed

and the issues of discourse segmentation were presented. This section deals with a

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[19]   Although further investigation is beyond the scope of the thesis, it is useful to note that Walker
(1998) intends to provide more extended rules, and Poesio *et al*. (2004) provide comprehensive
segmentation rules.

number of questions concerning the issues in investigating the pattern of the referential choice between pronominal forms of reference and non-pronominal forms of reference. The specific questions are as follows:

  i)   In the application of Rule 2, are pronouns really preferred
       more in CONTINUE transitions than in other transitions?
  ii) In what type of transition are full NPs used?
  iii) In what type of transition are demonstratives used?
  iv)   How do deictic expressions contribute to the discourse organisation with
        respect to transition states?
  v)   In naturally occurring discourse, 'underspecified pronouns'
       such as definite pronouns (Passonneau 1996: 247)[20], a full NP rather than
           pronouns are frequently used to continue the current Cb in a real text
               (Walker 1998). Why does this occur?
  vi)   Are there any typical patterns of transition shifting for the center to be
        carried over the discourse segment boundaries?

Answers to the first four questions will be provided in Chapter 6. The last two questions are dealt with in Chapter 7.

A quantitative analysis of centering transitions shows that local coherence of discourse can be associated with the patterns of use of referring expressions in both English and Japanese. The hypothesis of this thesis is that the non-pronominal forms of reference rather than pronominal ones can contribute to the topic continuity within and across the discourse segment boundary. Brennan (1995), dealing with the repetition of a full NP rather than the pronominalizing of the most recently mentioned entity, notes that 'such choices could help addressees confirm and predict speakers' movement of attention during the conversation, enabling both partners to

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[20] The use of 'definite pronouns' is restricted to unstressed or reduced forms of third person pronouns that can have well-specified possible referents. This term may be introduced to be distinct from definite phrasel NPs or zero pronouns.

coordinate their attention over their individual mental models'(159). Walker, Joshi and Prince (1998) also suggest that 'the combination of the constraints, rules, and transition states makes a set of testable predictions about which interpretations hearers will prefer because they require less processing' (6).

Presumably, a key to answer the questions raised in 5.2.3 can be associated with topic continuity in discourse processing where the speaker and hearer manage to focus on the most salient discourse entity, especially with respect to the hearer's inference load in processing the referential choice. As Walker and Prince (1996:292) notes, centering is essentially based on a Hearer-Status Algorithm working in tandem with the centering algorithm. It is the case that centering not only accounts for the relation between the speaker's intentional states and referential choice, but also focuses on the hearer's management of discourse entities, in making inferences in less processing time and effort with respect to the local coherence of discourse. Answers to these questions can give an important insight into clarifying the interaction between referential choice and discourse structure.

5.3 Methodology of R2: Coding of Transition States

In the first place, it may be convenient to confirm the methodology of R2 application. As I explained in section 5.2.1, the coding system for centering transitions in this thesis is mainly based on Grosz, Joshi, and Weinsten (1995) and Walker, Joshi, and Prince (1998: 6). However, in applying R2 to the data, it is worth noting that different interpretations of the transition states can affect the results of the analysis. The centering researchers such as Hurewitz (1998) and Di Eugenio (1998) carefully explain this issue.

Hurewitz (1998: 279) mentions that the ROUGH-SHIFT condition, sometimes

referred to as a SHIFT, was so rare (approximately 2 percent of utterances are ROUGH-SHIFTs) that she collapsed these with the 'No Cb condition'. SMOOTH-SHIFT is the transition that the current topic has shifted to a new topic, whereas ROUGH-SHIFT is the transition that a new discourse entity is established as a topic without any appearance in the previous utterance. For this reason, the distinction between SMOOTH- and ROUGH-SHIFT is crucial, and ROUGH-SHIFT is regarded as similar to No Cb in that there is no connection with a discourse entity in the previous utterance.

Out of these transitions, SMOOTH-SHIFT should be paid more careful attention to determine the current attentional state of Cbs. Following Hurewitz (1998: 278), I adopt the assumption that utterances in which the actual referent for the Cb has changed, but in some sense the referent is contained in the previous utterance, (which is what he calls 'instance of' and 'poset' relations such as the relationships between *dogs*, *one dog*, or *Cocker Spaniels*, are to be coded as SMOOTH-SHIFT. That is, some types of noun phrases in the process of establishing discourse entities that the giver and the follower can share can be related in terms of a SMOOTH-SHIFT. The illustration of this treatment from the Map Task dialogue is provided in the Issue 4 in 5.4.

I also adopt the assumption that utterances in which there are what Hurewitz (1998) calls 'functional dependencies' such as the relationship between *house* and *door*, are to be coded as SMOOTH-SHIFT. Furthermore, discourse deictic pronouns (*that /this/it* in English) will be categorized into the SMOOTH-SHIFT when they occur in subject position and no member of $Cf(U_{n-1})$ is present in $Cf(U_n)$. These cases are considered SMOOTH-SHIFT rather than RETAIN. The differences between RETAIN and SMOOTH-SHIFT can affect the local coherence of discourse, which

will be discussed in Chapter 6. Poesio *et al*. (2004) also discuss Rule 2 in terms of the preference of transition sequences, which will also be presented in Chapter 6.

In addition, Rule 1 is extended to the rule of pronominalisation that includes not only personal pronouns and relative pronouns, but also the demonstrative pronouns *this, that, these,* and *those* in the broader definition presented by Poesio *et al*. (2004: 327). This rule can also be extended to analyse Japanese demonstratives *sono* N 'that N'. Furthermore, discourse deictic pronouns (*that*, *this*, or *it*) are coded separately and then later collapsed into the SMOOTH-SHIFT category when the deictic pronoun occurred in subject position and no member of Cf (U_{i-1}) was present in Cf (U_i), e.g. '*That* should be *it*'. *That* does not refer to a specific referent in the previous discourse, but rather a chunk of discourse that is presented in the previous discourse. Here Cf ranking does matter. Given that Cf ranking is ordered according to the salience of discourse, the current Cb is *that*, because the subject position is more preferable to place given information than other positions. Yet *it* might stand as the other candidate of Cb, if Rule 1 allows two Cbs in a utterance.

In this section, therefore, I have mainly discussed the methodological treatment of R2 and its application to the dialogue data with respect to the centering transition states. I have presented some issues that should be taken into account for the reliable analysis of the forms of spontaneous utterances in dialogic discourse. That is, the above breakdown of centering transitions of R2 and the extension of R1 may confirm that not only do direct anaphoric relations tend to contribute to the coherence of discourse, but the anaphoric relations in indirect levels or the deictic connection of propositional contents also tend to provide the linking structure with the previous utterance. To test this prediction, it is necessary to look at the frequencies with which speakers produce certain patterns of referring expressions in spontaneous discourse.

5.4 Centering and dialogue data

Most of the centering related works have been targeted at naturally occurring utterances. The original research using Grosz and Sidner's (1986) stack model is based on task-oriented dialogue and discusses the relation between discourse structures and discourse coherence. A fundamental characteristic of this model is that discourse coherence is divided into two levels of focusing, global and local, thereby the empirical notion of discourse segment can function to account for the linear order of adjacent utterances and hierarchy of discourse structure (Grosz and Sidner 1986, Walker 1998). Although their dialogue data is rather unnatural in the sense that the exchange is what Walker (1989) calls 'master and slave' type, their global view of discourse structure inspires Walker to integrate centering with her global discourse model (Walker 1998, 2000)[21]. There are more studies on centering based on narratives (Passonneau 1996, 1998; Walker 1998), but the studies taking account of centering in dialogues are still experimental and it is problematic to generalize the framework to extend to multi-party discourse or cross-linguistic studies (Brennan 1998; Walker 1998; Byron and Stent 1998).

Obviously, dialogue is an interactional mode of discourse produced by more than one person. For this reason, care needs to be taken in applying centering to the analysis of dialogue. The utterance unit is affected more directly by the other

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[21] The dialogue exchange being referred to as 'master and slave' type can be found in a task-oriented dialogue. Maybe the following extract is a typical exchange ('E' stands for 'expert', and 'A' stands for 'apprentice'):
E: First you have to remove the flywheel.
A: How do I remove the flywheel?
E: First, loosen the two allen head setscrews holding it to the shaft, then pull it off.
A: OK

(Grosz and Sidner 1986: 186)

participants, and the center transition is also likely to be affected by the speaker's intentional states of the utterance. Likewise, the nature of discourse segments is controlled by the speaker's turn, locally and globally. Especially global coherence is likely to be affected by the contextual information shared with the discourse participant. That is, the speaker boundary can be a potential candidate in determining the centering transition states as well as determining the discourse segment boundary in the light of topic continuity, but this is not always the case. Therefore, providing a plausible guideline for the corpus study of dialogic discourse is needed.

At the outset, there are several issues to be considered in applying centering to dialogue data. Byron and Stent (1998) mainly discuss the following problems:

1. Utterance boundaries are difficult to pin down in spoken dialogue, and their determination affects the Cf lists.
2. Whether the dialogue participants, referred to via first and second person pronouns, should be considered as 'discourse entities' and included in Cf.
3. This may be related to issue 1: Which utterance should be considered 'previous' for locating Cf_{n-1}: the same speaker's previous utterance or the immediately preceding utterance, regardless of its speaker?
4. What should be done with abandoned or partial utterances and those with no discourse entity?

I start with considering these issues and attempt to provide a preliminary base line in applying the centering framework to the Map Task dialogue.

Issue 1 Utterance boundaries

In both English and Japanese data, utterance boundaries can be defined as finite clauses, including at least the subject (whether explicit or implicit in form) and the verb regardless of whether the clause is subordinate or non-subordinate. Any

utterance that contains a discourse entity can be considered an utterance unit. However, any partial utterance without any discourse entity, such as minor sentences (incomplete sentences lacking constituents like subjects and objects), discourse markers, elliptical items, and various cue phrases including back channels are excluded from the analysis, because they do not seem to affect the utterance units in detecting discourse entities in local focus (Hurewitz 1998, Walker 1998).

An utterance unit that can be defined as a finite clause may belong to written mode, and more flexible definition is necessary for dialogic discourse. The definition of utterances is updated and clarified by Poesio *et al*. (2004) as what they call *discourse units*. Regarding detailed grammatical prescription, I will basically follow this definition:

Units include clauses (defined as sequences of text containing a verbal complex, all its obligatory arguments, and all postverbal adjuncts) as well as other sentence subconstituents that might independently update the local focus, such as parentheticals, preposed prepositional phrases (PPs), and (the second element of) coordinated VPs.   (323)

Of course, any partial utterance can play an important part in discourse management as a collaborative process between the participants. Utterance boundaries are not normally extended across the speaker boundary. However, in practice, there may be cases that appear to be one single utterance by a single speaker alghough interrupted by the second speaker. For example, in the following extract, utterances TA3 and TA5 by the giver are two utterances rather than just one utterance broken by the follower's utterance TB4:

(5.7)

TA 3: if you go down to the bottom left hand corner of your page, >

TB 4: Aha.

TA 5: do you have a van?

(Lleq4c8)

Here utterance TA3 and TA5 by the same speaker are two utterances rather than one single sentence broken by the speaker TB4's backchannel. TA3's utterance is syntactically a conditional clause followed by TA5's non-subordinate interrogative, but, functionally, TA3 is performed as an instruction indicated by the follower's acceptance *Aha*. Detailed analysis on this issue is provided in Chapter 8. Furthermore, in the following exchange, the follower's utterance of checking a specific entity *kuruma* appears to be completed by the giver's prompt utterance with the topic marker *wa* and finite verbs *miemasu* 'see'. Does this exchange consist of separate utterances or does it contain a combined complete clause?

(5.8)   Japanese: ab

G1: kuruma no   tokoro made Ø   nankashite   kudasai
       van   GEN   place   to   SUBJ go down south please
       '(You) go down south to the place of a/the van, please.'

F2: eto kuruma
       eh van
       'eh, a/the van.'

G3:   Ø   wa   minami ni miemasu ka
        SUBJ TOP   south   in see   Q
        'Do (you) see (a van) in the south?'

(ab)

I regard utterances G1 and G3 as two complete utterances, because the follower's

re-mention of the entity *kuruma* functions as a checking device, and this can cause the change of grammatical mood in the giver's utterance perspectives from imperative *kudasai* to interrogative *ka*.

Issue 2 Selection of items for Cf

In both the English and Japanese data, I include all descriptions about 'landmarks' or 'objects' to be regarded as discourse entities. These entities in the utterance are individually counted in Cf lists, and the determined elements of Cf are commonly ranked as Cf ordering. I adopt the ranking proposed by Walker, Joshi and Prince (1998) for Japanese and English. For English, as already introduced in section 5.2.1, the Cf ranking is defined in terms of grammatical function:

Subject > Object(s) > Other

In other languages, however, grammatical function is not necessarily the basis for Cf ranking. Most relevantly here, Cf ranking for Japanese involves in addition concepts of discourse function as follows (Walker, Iida and Cote 1994; Iida 1998):

(GRAMMATICAL OR ZERO) TOPIC > EMPATHY > SUBJECT > OBJECT2 > OBJECT > OTHERS

Further, I adopt Kameyama's 1985 proposal that zero pronouns in Japanese correspond to unaccented pronouns in English and are equally accounted for by Rule 1 as given above. As far as deictic pronouns are concerned, in English, I exclude discourse participants referred to by the first and second person pronouns as discourse entities for Cf, because these are considered to be outside the purview of

the original centering framework. In the Japanese data, similarly, since most of the first and second person pronouns cannot be retrieved from the current utterance, these are ignored as zero topics. Hurewitz (1998) and Di Eugenio (1998) also touched upon the problem of how to deal with situational deictics such as *I* and *you* in terms of the Cf list, and Hurewitz concludes that *I* and *you* are always categorized as 'activated' in the sense of Gundel, Hedberg and Zacharski (1993), and do not match the real topic of utterances even if they are realized as grammatical subjects (1998: 279).

Issue 3 Previous utterances

I consider only the immediately preceding utterance as 'previous utterances', regardless of its speaker. Empty utterances containing no discourse entities are skipped in determining Cf. These empty utterances include acknowledgements such as *OK* and *Yes*, Japanese hesitations such as *etto* and *ano*, and utterances of explaining location such as *Three centimeters … above the bottom of the page?*

Again, according to Poesio *et al*. (2004), what they call the 'vanilla instantiation' proposes a comprehensive model of centering based on the previous centering works. [22] Previous utterances are also discussed here, and importantly, this instantiation incorporates the hypothesis from Kameyama (1998) who claims that every finite clause, including each relative clause and embedded clause, constitutes a single utterance (Poesio *et al*. 336). These should be included in the thesis.

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[22] The 'vanilla instantiation' could be examined further in depth, but such discussion is beyond the scope of the thesis.

Issue 4 Utterances without discourse entities.

As I briefly mentioned under Issue 1 and Issue 3, I exclude any partial utterance and utterances with no discourse entities (i.e. empty utterances), but I do not exclude utterances including any single entity which is not part of a finite clause. Discourse entities occurring apparently in isolation or without being part of a larger unit often reflect the collaborative interaction between the participants. Let us consider the following example:

(5.9)
TA 9: is, do you have a building directly below that? >
TB 10: < Sort of like or something,
TA 11: Yes.
TB 12: cameras or something, /

(Lleq4c8)

Here *Sort of like or something, cameras or something*, are single entities which are not part of finite clauses. Given that the utterance boundary is defined as a finite clause, the noun phrases TB 10 and TB 12 in example (5.9) would be excluded despite the assumption that these vague expressions may be 'expanding' the giver's initial noun *a building* (Clark and Wilkes-Gibbs 1986) by adding more lexical information to the first mentioned discourse entity *a building*. This shows, however, how the giver and the follower contribute to the discourse in establishing a definite reference, because 'participants in a conversation are mutually responsible for establishing what the speaker meant' (Clark and Wilkes-Gibbs 1986: 37). When these noun phrases are included as the Cf lists, the transition states can be affected.[23] Thus, they should be included as an utterance unit. Incidentally, as seen in example (5.8),

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[23] The transition states can be No Cb-CONTINUE-CONTINUE. (See Chapter 6)

the Japanese subjectless clause including a zero pronoun with no topic marker will be regarded as an utterance unit regardless of whether the rest of the clause contains a finite verb or not.

5.5 Sample analysis

5.5.1 Centering transition in the Japanese Map Task Corpus

Based on centering and its coding system, this section provides a sample analysis to show how it works in practice. As I have noted, the rules are extended to meet the needs of the grammatical and discourse principles of Japanese. According to Kameyama's original proposal that zero pronouns in Japanese correspond to unaccented pronouns in English (Kameyama 1985), Rule 1 is extended directly to zero pronouns: 'If some element of $Cf(U_{i+1}, D)$ is realized as a pronoun in U_i, then so is $Cb(U_i, D)$' Since Cf ranking for Japanese can be interpreted 'according to discourse salience', the highest position of Cf ranking for Japanese can also be extended to the application of zero topic (i.e. Zero Topic Assignment: ZTA) over the grammatical topic. For ease of reference, I once again repeat the Cf ranking for Japanese that was given a few pages back (Walker, Iida, and Cote 1994; Iida 1998):

(5.10)
Cf Ranking for Japanese:
(GRAMMATICAL OR ZERO)TOPIC > EMPATHY > SUBJECT > OBJECT2 > OBJECT > OTHERS

Let us consider the example of the CONTINUE transition below:

(5.11)(a) G: sutaato chiten no   minami gawa   ni

          starting point GEN south   side   at

        tatemono   ga   aru   no   wa   wakari masu ka

        building   SUBJ   there is   REL   TOP   see   POL Q

        'Do you see there is a building at the south side of the starting point?'

> Cb: [?]
> Cf: [BUILDING, SOUTH] **No Cb**

(b) F: hai   Ø   ari masu.

     Yes   SUBJ   is   POL

  'Yes, there is (a building).'

> Cb: BUILDING
> Cf: [BUILDING]   **CONTINUE**

(c) G: mazu   *sono   tatemono   o   mezashite* [Ø] *susumi masu ga*

    to begin with   DEM(M) building   OBJ   towards   SUBJ go   POL but

    'To begin with, (you) go towards that building, but'

> Cb: BUILDING
> Cf:[BUILDING]   **CONTINUE**

(d) G: *sono   tatemono   no   nishigawa   o   tootte*

      DEM(M) building   GEN west side   OBJ   passing

  [Ø]   *nankashite   kudasai*

 SUBJ go down south   please

 '(You) go down south passing the west side of that building, please.'

> Cb: BUILDING
> Cf: [BUILDING, WEST]   **CONTINUE**

In (5.11a) *tatemono* 'a building' is introduced as the subject in No Cb transition. In the follower's turn in (5.11b), the center is realized by zero pronoun as zero topic in the CONTINUE transition. In (5.11c) the center is realised by adnominal demonstrative *sono tatemono* 'that building' (Medial *sono* 'that') as the object with case marker *o*. In (5.11d), *sono tatemono* 'that building' realises the Cb in the

CONTINUE transition as the object with case marker *o*. The centering transition is maintained by CONTINUE, and adnominal demonstrative realise a center as lower Cf ranking as the object. Note that these cases of adnominal demonstratives *sono tatemono* 'that building' function as discourse anaphora in the giver's accessing the landmark in the follower's domain.

In the following utterances the center is maintained by zero pronouns in the CONTINUE transition:

(e) G: *kuruma* no   tokoro made   [Ø]   nankashite   kudasai
     van   GEN   place   to   SUBJ go down south   please
     '(You) go down south to the place of a van, please.'

Cb: [?]
Cf: [VAN]   **No Cb**

(f) F: eto kuruma
      eh van
     'eh, the van.'

Cb: VAN
Cf: [VAN]   **CONTINUE**

(g) G: [Ø]   wa   minami ni miemasu   ka
       SUBJ TOP   south   in see POL   Q
      'Do you see the van in the south?'

Cb: VAN
Cf: [VAN]   **CONTINUE**

(h) F :   Ø   wa   arima sen
       SUBJ TOP   is   NEG
    'There is no van.'

Cb: VAN
Cf: [VAN]   **CONTINUE**

(i) F: Ø   kita   ni   arimasu kedo
    SUBJ/TOP   north   in   is   though
    'There is a van in the north, though.'.

> Cb: VAN
> Cf: [VAN]   **CONTINUE**

(j) F: Ø   daibu hanarete   imasu
    SUBJ/TOP   quite   far away   is POL
    'It is quite far away.'

> Cb: VAN
> Cf: [VAN]   **CONTINUE**

The discourse entity *kuruma* 'the van' is a first mention in the lower Cf ranking, i.e.

par of a PP, in (5.11e). In (5.11g), the giver picks up *the van* from the follower's

incomplete utterance (5.11f), and maintains the center as subject position with a topic

marker *wa*.   In (5.11h), only the topic marker still remains and a zero pronoun

realises the center.   Likewise, in (5.11i) and (5.11j), although the centre is retrieved

by zero pronoun and the topic marker, *the van* is the maintained center in the

CONTINUE transition. *The van* the follower mentioned here is not the same van as

the giver intended to refer to: the referent of *the van* makes a difference between the

giver (whose *van* is in the south) and the follower (whose *van* is in the north).

However, the fact that there is no other center candidate of the discourse entity

allows the participants to maintain their accessible entity as a CONTINUE in the

transition state. In the following utterances, a continuation of (5.11), the center shifts

to the previous discourse entity, *tatemono* 'building':

(k) G: jaa to *sono*   *tatemono* to   *kuruma*   no chikakuni   wa

   so DEM(M) building and the van near   TOP

hatake wa   miemasu ka

fields TOP/SUBJ   see Q

'So, near that building and the van do you see fields?'

Cb: [VAN]
Cf: [FIELD, BUILDING, VAN,] **RETAIN**

(l) F: [to] Ø   arimasu

   TOP   is POL

'There is (fields).'

Cb: FIELD
Cf: [FIELD] **SMOOTH-SHIFT**

(m) G: Ø   arimasu ka

    TOP is POL Q

'Is there fields?'

Cb: FIELD
Cf: [FIELD] **CON**

(n) F: hai hai

   yes yes

   'yes, yes.'

The adnominal demonstrative *that building* reappears and the bare noun *kuruma* as the current Cb in (5.11k), but here the new discourse entity *hatake* is introduced with the topic marker *wa* as subject, which is higher than other Cfs in Cf ranking. Therefore the centering transition is RETAIN in which the entity is Cb but not Cp in the current utterance. In (5.11l) the centering transition is SMOOTH-SHIFT in which *hatake* is shifted to the Cb that is realised by zero pronoun with zero topic, and in (5.11m) the Cb is maintained and the center transition is CONTINUE. The continuation of utterances after (5.11n) is as follows:

(o) G: jaa *sono tatemono* wa ima kita ni mieteimasu ka sutaato chiten kara
　　　so DEM(M)building TOP now north in seen　　Q strarting point from
　　　'So now is that building seen in the north from the starting point?'

> Cb: BUILDING
> Cf: [BUILDING, STARTING POINT]　**No Cb**

(p) F: to ima　Ø　　　nishigawa　ni arimasu　kedo
　　　now　SUBJ　west side　in is POL　though
　'It is in the west side now, though.'

> Cb: BUILDING
> Cf: [BUILDING]　**CONTINUE**

In (5.11o) *that building* reappears as topic with the topic marker after two utterances from (5.11k). However, since the Cb in the immediately preceding utterance (5.11m) is *hatake, sono tatemono* is realised as topic with topic marker *wa* in No Cb. Although the referent is not in the immediately previous utterance, *sono tatemono* is not a brand new entity but activated in Prince (1981)'s sense. Here the centering rules cannot correctly predict that the previous center continues as subsequent mention after the sub-segmental interruption (i.e. side-sequence) that contains the new entity *hatake*. The following figure schematizes the patterns of centering transitions and anaphoric devices:

DS	Utterance	Referential form	Centering transition	Type of entity
	a	NP	No Cb	←new entity A
	b	Ø	CON	**Main Topic**
	c	**dem NP**	CON	*tatemono*
	d	**dem NP**	CON	'building'
	e	NP	No Cb	←new entity B
	f	NP	CON	Sub-topic
	g	Ø	CON	*kuruma*
	h	Ø	CON	'van'
	i	Ø	CON	
	j	Ø	CON	
	k	NP	RETAIN	←new entity C
	l	Ø	SMOOTH –SHIFT	Sub-topic
	m	Ø	CON	*hatake*
	n	-----	------	'field'
	o	**dem NP**	No Cb	←returned entity A
	p	Ø	CON	**Main Topic**

DS: Discourse Segment

Figure 5.1 Patterns of Centering Transitions and Anaphoric Devices

in Example (5.11)

As I have shown in a series of utterances, there are some patterns of use between centering transitions and referential choice. Here is the summary of the analysis:

1. Zero pronouns, with or without topic markers, are treated as topics. They typically realise the Cb over the speaker boundary, that is, they are strongly preferred in the CONTINUE transition in the context that the same entity is assumed to be shared by the participants, i.e. 'Ø arimasu' in replying to the giver (5.11.l).

2 Bare nouns are used as definite with topic marker *wa*. Bare nouns also occur as indefinite (a first-mention) with topic marker *wa* in the extended topic (i.e. 'X *ni* ('at') wa X wa' construction) in (5.11k).

3. Adnominal demonstrative *sono* N 'that N' frequently realises the Cb as an immediate anaphor (5.11c). In the view of global focus of discourse, it is also possible that 'that N' recurs at the initial utterance of a discourse segment (5.11o), which means centering theory as it only involves local focus cannot correctly predict this fact like (5.11o).

These findings are now compared with the findings in English MTC in section 5.5.2.

5.5.2 Center transition in English Map Task Corpus

Cf ranking for English is:

$$\text{Subject} > \text{Object(s)} > \text{Other}$$

As example (5.12) typically shows, the way the participants of the MTC make a discourse entity salient is mainly based on the nominal references:

(5.12)

(a) TA 18:Right, if you go to the left... do you have *something* just directly
    below the cross?

| Cb: [?] |
| Cf: [SOMETHING, CROSS]   **No CB** |

TB 19:Yeah.

(b) TA 20: < If you go to the left of *that*, and draw a line down to about... two or
    three centimetres above the page /

| Cb: SOMETHING |
| Cf: [SOMETHING]   **CONTINUE** |

(c) TB 21: Below the level of *the object* below the cross? >

| Cb: SOMETHING |
| Cf: [SOMETHING(OBJECT), CROSS]   **CONTINUE** |

(d) TA 22: above the bottom of the page.

(e) TA 23: Yeah, go to the left of *the object*, and go down... Do you have *another*
    {a dia} {m erm} *object* at the bottom.

| Cb: OBJECT |
| Cf: [OBJECT]   **CONTINUE** |

Cb: ?
Cf: [ANOTHER OBJECT] **No Cb**

TB 24: No.

(f) TA 25: Below *that one*.

Cb: OBJECT
Cf: [OBJECT, ANOTHER OBJECT]   **CONTINUE**

TB 26: No.

In the course of the utterances, the first-mentioned entity *something* in (5.12a) is realised as a Cb by the demonstrative pronoun *that* in the CONTINUE transition in (5.12b). Both (5.12c) and (5.12d) are utterances consisting solely of PPs. I will assume that these utterances in addition contain 'zero/null arguments' that would constitute the subject and object of the missing main verb. In (5.12c) and (5.12d), there is no specific discourse entity concerned other than the previous route description. Here the definite NP *the object* realises Cb in the CONTINUE transitions. (5.12e) has two utterances: *The object* also realises Cb in the CONTINUE transitions. In (5.12f) there are two referential candidates of the adnominal demonstrative, *that one*: *the object* or *another object*. Since *another object* was refused by the follower's negative answer *No*, *the object* must be the referent of *that on*e. Here it is notable that the CONTINUE transition is realised by definite NPs and demonstratives *that* and *that one*. Here is the summary of the analysis:

1. Zero argument represents no specific entity, but discourse entities typically occur in the independently placed prepositional phrase: (5.12c) and (5.12d)[24]
2. Pronouns do not occur in the course of utterances.
3. Definite NPs realise Cbs in the CONTINUE transition.
4. Demonstrative pronoun is used as immediate anaphor (5.12b), and adnominal demonstrative is used as contrastive (5.12f)

The dominant use of nominal references and demonstratives can be explained in terms of the three competitive discourse entities occurring in this discourse (*something/object; cross; another object*). As this example clearly shows, interactions of discourse entities may lead to the lack of pronouns, because pronominal use could cause the ambiguity. This can also be the case in Japanese data, which will be investigated in Chapter 6.

5.6 Initial results and discussion

This section presents the initial results of analysis and discusses the patterns of use in three types of transition states. Table (5.4) summarises the distribution of transition states for 16 dialogues from the English and Japanese MTC.

CENTERING TRANSITION	ENGLISH (%)	JAPANESE (%)
CONTINUE	268 (47)	339(53)
RETAIN	8 (1)	44(7)
SMOOTH-SHIFT	95(17)	53(8)
ROUGH-SHIFT	2(0)	4(1)
No CB	199(35)	194(31)
TOTAL	572(100)	634(100)

Table 5.4. Distribution of Centering Transitions
In English and Japanese

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[24] As discussed in Issue 2 in 5.4, I include all descriptions about 'landmarks' or 'objects' as discourse entities, which may not be part of finite clauses (see also Issue 4).

This result is measured by a χ^2 test. The null hypothesis H_0 states that there is no difference between these two samples other than that due to random sampling variations. Using the 0.01 and 0.05 significance level, the test statistic does not exceed the critical values, and H_0 is not rejected. Therefore, English and Japanese are not deemed to indicate different distribution of centering transitions. This result is intensively discussed in Chapter 6. The rest of this section focuses on the patterns of use in referring expressions in the centering transition of three main types: No Cb, CONTINUE, and SMOOTH-SHIFT.

5. 6.1 No Cb

No Cbs (U_{i-1}) are typical transition states where the new entity is introduced as first mention in the current utterance as follows:

(5.13)
TA 168: {m Erm}... So where are {a y}... You've just finished at the top
    right /
TB 169: Yeah, yeah.
TA 170: right hand corner of the telephone box? >
TA 171: < If you ... /
TB 172: I've got *a level crossing*,   **No CB**

(Lleq4c8)

Here, in the previous utterances *You've just finished at the top right/ right hand corner of the telephone box?* (TA168/170) there is no referent of *a level crossing* occurring in the current utterance, so *a level crossing* is analysed as first mention in the No Cb or NULL transition.

One of the problems of No Cbs is that centers are often continued over discourse

segment boundaries with full NPs instead of pronouns after a brief interruption of a

sub-segment. The center in the CONTINUE transition in TA24 returns to *the bridge*

in TA26:

(5.14)

TB 19: you got... Have you got *a bridge$_i$*? /	**No Cb**
TA 20: *A bridge$_i$*.	**CON**
TB 21: No? >	
TA 22: Yeah, but *the bridge$_i$* is...	**CON**
TB 23: Above?	
TA 24: Ø Is above.	**CON**
Do you have {a a} *little houses$_j$* in the bottom?	**No Cb**
TB 25: No. (Ø)	**CON**
TA 26: You don't.(Ø)	**CON**
Okay then, maybe your explorer forgot to draw *that$_j$* then.	
{n laugh}. {m Erm} Well the safest thing is just go along	
the bottom of the page to the left hand corner, and then	
go up the page... Up the left hand side of the page until	
you're level with *the bridge$_i$*. And then you cross	**No Cb**
the bridge$_i$, moving over to the right.	**CON**
	(Lleq4c9)

Here *A bridge* is introduced as No Cb in TB 19 and *the bridge* realises the Cb in the

CONTINUE transition in the utterances from TB 20 to TB 24. In TA 24 another

entity *little houses* is introduced as No Cb and realises Cb in the CONTINUE

transition. *The bridge* in TA 24 returns to *the bridge* in TA 26, which the hearer can

easily retrieve because this is 'activated' in the sense of Gundel, Hedberg and

Zacharski (1993). However, centering fails to predict this case. Similar pattens of use

in Japanese were examined in (5.11o) as a sample study in 5.5.1, which is reproduced

here:

(5.11)

(o) G: jaa *sono tatemono*   wa   ima kita ni mieteimasu ka sutaato chiten kara

        so DEM(M)building TOP now north in seen   Q strarting point from

        'So now is that building seen in the north from the starting point?'

> Cb: BUILDING
> Cf: [BUILDING, STARTING POINT]   **No Cb**

(p) F: to ima   Ø   nishigawa   ni arimasu   kedo

       now   SUBJ   west side   in is POL   though

    'It is in the west side now, though.'

> Cb: BUILDING
> Cf: [BUILDING]   **CONTINUE**

In (5.11o) *sono tatemono* 'that building' is temporally shifting away from the topicality in the previous discourse, but appears after a break. The entity *sono tatemono* is continuous as a discourse topic from the previous discourse segment. However, Rule 2 in centering theory can only function in the local coherence of discourse: *sono tatemono* is a continuous topic entity rather than a first-mention analysed as No Cb. This issue will be discussed in Chapter 7.

5.6.2 The CONTINUE transition

This subsection compares the CONTINUE transitions in English and Japanese. The most common type of Cbs in the CONTINUE transitions in English is realised by (zero) pronouns *it* or discourse anaphora *that* in the context where the speakers confirm its existence or non-existence and describe its shape, its location, and the route to a target landmark. Cbs are usually maintained at the subject position or in the zero argument (see similar example 5.12) within a discourse segment in English. Consider examples (5.15) and (5.16) below:

(5.15)

TA 42: Do you have *anything$_i$* in between *the field$_j$* and *that*?	**No Cb**
TB 43: The field$_j$?	
TA 44: Well, the...	
TB 45: < Ø $_j$ Like hummocky grass type stuff. Hummocky	**CON**
TA 46: Ø $_j$ Directly below *the derelict building$_k$*?	**CON**
TB 47: ground like grass.>	
TB 48: < No. /	
TA 49: Where is *it$_j$*?	**CON**
TB 50: sort of... *It*'s$_j$ {m um} the north westerly direction from there >	**CON**
TA 51: Ø $_j$ Above *it$_i$*?	**CON**
TB 52: {m Mm} Ø $_j$Above *it$_i$*.	**CON**

<div align="right">(Lleq4c8)</div>

A new topic is introduced as *anything* in TA 42, but the hearer's attention is turned to *the field* in TB 43, and attempts to describe *the field*. *The field* continues to be used as the Cb in zero argument in TB 45 and TA 46, which is replaced with the pronoun *it* in TA 49 and TB 50. In TA 51 and TB 52, *the field* is still maintained as zero topic in the PP *above it*. The entity *the field* is realised as Cb in the CONTINUE transitions from TA 46 to TB 52, and other discourse entities, *anything* and *the derelict building* , remains at the lower position of Cf ranking, and do not affect its center transition. Then the utterance continues:

(5.16)

TB 56: Yeah. there's {m erm} *a building$_i$*, has {c entrance} written on *it*.	**No Cb**
TA 57: Right, and where's *that$_i$*?	**CON**
TB 58: *That$_i$* is...	**CON**
TA 59: Directly below the derelict building$_j$?	**CON**

<div align="right">(Lleq4c8)</div>

Here the new entity *a building* in TB 56 is replaced with the demonstrative pronoun

that in TA 57 and TB 58 and then is realised as the zero topic in the PP in TA59. The entity *a building* is realised as Cb in the CONTINUE transitions from TA 57 to TA 59.

In the Japanese data, on the other hand, it is particularly common that the centers can be continued by a bare NP within a discourse segment, usually at the subject position:

(5 .17)

G: *sabaku mitaina sunachi mitaina* ue   wo   **No Cb**
  [desert like   sand   like   above OBJ]

G: mannaka made
  [middle   to]

G: chokusen de tootte morae masu ka
  [straight   by go   give   POL Q]

F:hai
  [yes]

--- (segment boundary)

G:de *soko*   kara +
  [Then there from]

F:+*sabaku* no   ue   **CON**
  [desert   GEN above]

G: *sabaku* no   ue   made   **CON**
  [desert   GEN above to]

G: ki   mashita *sabaku* no   ue   made   **CON**
   [came   POL   desert   GEN above to] +

F:+hai
   [yes]

(English translation)
G: Can you go straight above like the desert or like the sand to the middle of it?
F: Yes.
G: Then from there
F: above the desert

G: to above the desert

G: I came to above the desert.

F: Yes.

(dc, p.22)

Here the giver's introductory NP as initial presentation *sabaku mitaina sunachi mitaina* 'like the desert or like the sand' is replaced by the follower's with bare nouns as *sabaku* 'desert', then both the giver and the follower repeats *sabaku* three times. Here the participants keep using the established form of NPs as the Cb in the lower position in the Cf ranking.

We have seen the examples in (5.11) where the centre is retrieved by zero pronoun and topic marker *wa* at the subject position. Instead, in the following example, the bare noun *kuruma* is also used:

(5 .18)

    G: *kuruma* wa   dottchihoukou   ni arimasu ka   **CON**
        a van   TOPIC/SUBJ   which direction   to is   Q
        'To which direction is there a van?'

    F: *kuruma*   wa   kita   ni   arimasu   **CON**
        the van   TOPIC/SUBJ   the north in   is
        'The van is in the north.'

5.6.3 The SMOOTH-SHIFT transition

Although the frequency differences in the SMOOTH-SHIFT transition between English and Japanese data are not statistically significant, it may be worth noting that discourse deictic pronouns (*that, this, it*) are frequently used and are categorized as the SMOOTH-SHIFT transition (see also the discussion in 5.3). The SMOOTH-SHIFT with a deictic expression is more common in English data. The

following is a typical fragment of discourse from English data:

(5.19)

TA 28: And then... You go down towards the bottom of the page for about two
centimetres... down your page... then along to the right, just for,
maybe four centimetres. Then, do you have *a little bit of broken*   **No Cb**
fencing$_i$?

TB 29: No.

TA 30: [Ø] $_i$.Near the right hand side of the page?   **CON**

TB 31: [Ø] $_i$.Might, might be. {n laugh}   **CON**

TA 32: Well, something like that$_i$.   **CON**
Anyway, before you get *there$_i$*, you've got to   **SMOOTH-SHIFT**
like, go up towards the top of the page.
Till you're about half way up the page.

                                                             (Lleq4c9)

The new entities are referred to by the full NP with a vague expression, *a little bit of broken fencing* in TA28, The Cbs are continued as zero pronouns in TA 30 and 31, and as the demonstrative *something like that* in TA32. The place deixis *there* in TA32 is analyzed as SMOOTH-SHIFT. According to the coding, deictic expressions including discourse deixis are frequently analysed as SMOOTH-SHIFT. There may be other types of expressions realized as SMOOTH-SHIFTs in Japanese. In Japanese, Medial adnominal *sono* types of nouns are common, but discourse deixis and spatial deixis like *there* are rare. These centering transition sequences can affect the patterns of use of referring expressions, which is discussed in Chapter 6.

In the following example from Japanese data, on the other hand, the previous Cb *kuruma* has just shifted to the new Cb *hatake,* i.e. from RETAIN to SMOOTH-SHIFT, and *hatake* is replaced with a zero pronoun with no topic marker (i.e. zero topic), and remains in the CONTINUE transition:

(5.20)

(k) G: jaa to *sono*   *tatemono* to   *kuruma*   no chikakuni ha

    so   DEM(M) building   and the van   near   TOP

    hatake wa   [Ø] miemasu ka

    fields   TOP/SUBJ   see   Q

    'So, near that building and the van do you see fields?'

> Cb: [VAN]
> Cf: [(YOU), FIELD, BUILDING, VAN,]   **RETAIN**

(l) F: [to]   Ø   arimasu

       TOP   is POL

   'There is (fields).'

> Cb: FIELD
> Cf: [FIELD] **SMOOTH-SHIFT**

(m) G: Ø   arimasu ka

     TOP   is POL Q

   'Is there fields?'

> Cb: FIELD
> Cf: [FIELD]   **CON**

(n) F: hai hai

    yes yes

    'yes, yes.'

The sequence of the centering transitions 'RETAIN-SMOOTH-SHIFT-CON' is a coherent centering transition sequence, which I will discuss further in Chapter 6.

5.7 Conclusion

In this chapter, based on the centering rules and constraints, I first raised the problematic issues of applying centering theory to dialogue data. Specific research

questions were presented and preliminary base line data to analyse the dialogues were discussed. Then sample analyses of centering were conducted in both the English and Japanese data respectively. In the Japanese data, three types of referring expressions were highlighted in their patterns of use: zero pronouns, bare nouns, and adnominal demonstrative *sono* N 'that N'. There was no overt pronoun occurring. In the English data, four types of referring expressions were highlighted: zero pronouns, pronouns, definite NPs, and demonstrative pronouns.

I have also demonstrated the initial result of a corpus-based analysis of the distribution of centering transitions. The findings showed that major types of transitions were CONTINUEs and NO Cbs in both English and Japanese, and that RETAIN and SMOOTH- or ROUGH-SHIFT centering transitions were rather infrequent in both sets of data. Considering the large number of No Cbs (Null transition), it can be suggested that the transition states of utterances tend to be affected by intentional states of the participants and global discourse structure rather than purely grammatical Cf-ranking. This possibility will be carefully evaluated in Chapter 6, where the result of the analysis of the centering transition pattern is also presented. Moreover, the interaction between discourse entities and global coherence will be investigated in Chapter 7.

However, the issues related to dialogue data in applying centering theory have not been completely solved yet. Particularly, the questions raised in section 5.2.3 remain open:

    i)   In the application of Rule 2, are pronouns really preferred
            more in CONTINUE transitions than in other transitions?
    ii)   In what type of transition are full NPs used?
    iii) In what type of transition are demonstratives used?

iv)   How do deictic expressions contribute to the discourse organisation with respect to transition states?

v)   In naturally occurring discourse, 'underspecified pronouns' such as definite pronouns (Passonneau 1996: 247), a full NP rather than pronouns are frequently used to continue the current Cb in a real text (Walker 1998). Why does this occur?

vi)   Are there any typical patterns of transition shifting for the center to be carried over the discourse segment boundaries?

In Chapter 6, further investigation will reveal what kind of centering transitional states can indeed affect the type of referring expressions in discourse coherence. To what extent other discourse factors such as connectives and cue phrases can affect the discourse organization in structuring and focusing the discourse segment will be examined in Chapter 7. This chapter will clarify how centering and global discourse structure is successfully integrated and how anaphoric device serves to contribute to discourse coherence.

Chapter 6

Referring Expressions and Local Coherence of Discourse

6.1 Introduction

In this chapter, I apply centering theory to the corpus study. I statistically examine how the centers (Cbs) are linked with local coherence of discourse in the centering model and how the choice and the distribution of referring expressions are correlated with the center transition patterns. Based on the analysis of the parallel dialogue data of the English and Japanese MTC in Chapter 5, the types and overall proportion of the center transition patterns are investigated. More specifically, despite the grammatical differences in the form of referential expressions between the two languages, the ways in which discourse is developed in both data sets show distinctive similarities in how the topic entities are introduced, established, and shifted away to subsequent topics.

Comparing and contrasting the choice and the distribution of referring expressions of the four different transition patterns of centers, the crucial evidence of English and Japanese referring expressions are shown in the findings that the chains of noun phrases can contribute to topic chains in discourse. Japanese data, especially, show that chains of zero pronouns are frequent only in a particular context which is strictly restricted. This observation suggests that there may be a universal feature that the use of noun phrases is strongly related to maintaining the center as topic continuity in the organization of discourse development in dialogic discourse. It is therefore important to note that full noun phrases do not always induce focus-shift. Instead, noun phrases contribute to the retention of the currently centered entity in a

given discourse.

First, I state the methodology of the corpus study in section 2. Then I analyse the distribution of center (Cb) transition patterns in section 3, and the types of referring expressions in each center transition pattern in section 4. Then I clarify the preferred combination of the transition sequence patterns by investigating the relationship between the types of referring expressions, and discuss the pattern of constructing topic chains in the specific transition sequence patterns in section 5. Section 6 provides the conclusion of the chapter.

6. 2 Method of Analysis

The analysis conducted here is based on the rules and constraints of the centering framework presented in Grosz, Joshi, and Weinstein (1995: 204), in which centering is formulated as 'a theory that relates focus of attention, choice of referring expression, and perceived coherence of utterances, within a discourse segment'. The analysis is conducted with respect to the rules and constraints of centering that were introduced and discussed in Chapter 5.

6. 3 The Distribution of Centering Transitions in English and Japanese Data

Are the ways of discourse development different from language to language? Are there any particular patterns of use in a particular language discourse processing? In this section, I examine the distribution of a backward-looking center (Cb), which is defined as 'the focus of attention' in the discourse entities in an utterance. First, I establish the list of discourse entities called the forward-looking center (Cf) in the utterance immediately preceding of the current one, and determine the entity of preferred center (Cp) in the immediately subsequent utterance. According to the Cf

ranking, the center states of local focus (Cb) are investigated and the types of transition pattern are determined. Based on the initial results of the analysis that was already presented in section 5.6 as Table 5.4, this section sets out to describe how the centering transitions distribute in a different way in both sets of data and what these differences represent with respect to the local coherence of discourse.

The utterances occurring in sixteen dialogues of English and Japanese are investigated. Eight dialogues of the English data contain 572 occurrences of Cbs and 'no Cbs' (null entities that are not counted as Cbs) in total. Roughly in the same number as the English data, eight dialogues of Japanese data contain 634 occurrences of Cbs and 'no Cbs' in total. With varied proportions, Cbs are realized in four types of transitions, that is, Continue (CON), Retain (RET), Smooth-Shift (SMOOTH), and Rough-Shift (ROUGH). In addition, the entities realized as no Cbs are also included in the following figure of distribution of centering transitions in English and Japanese (Figure 6.1):
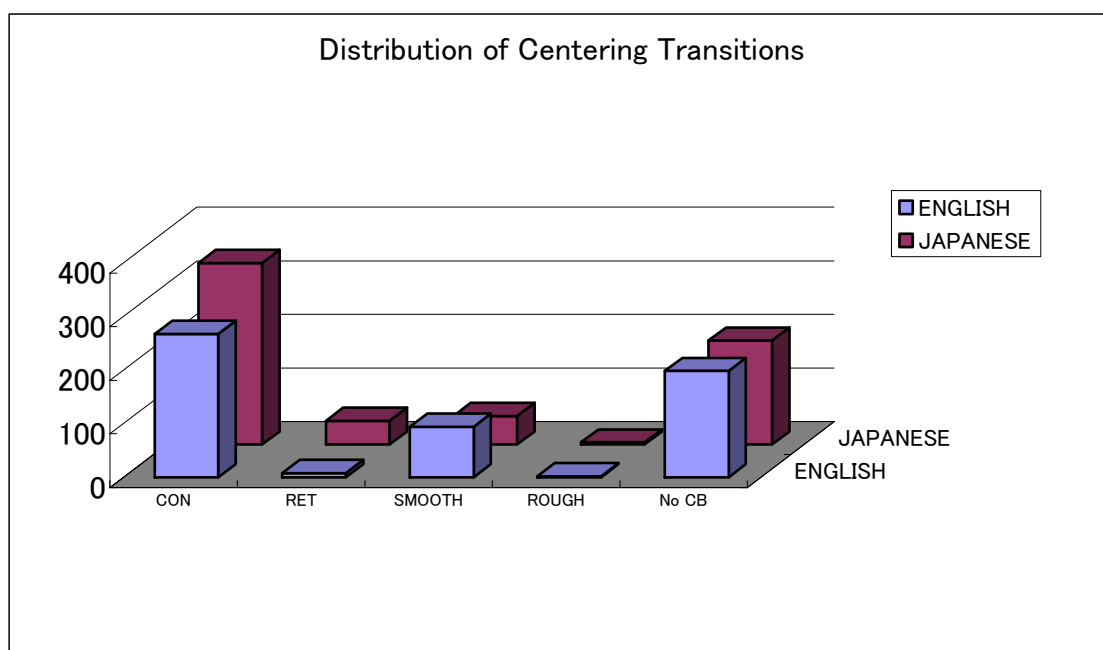
Figure 6.1. Distribution of Centering Transitions

As the graph above suggests, there is no significant difference in the distribution of centering transitions between English and Japanese, and this is borne out by the relevant statistic test (see section 5.6). For comparison, the distribution of centering transitions is also presented in Figure 6.2 (English) and Figure 6.3 (Japanese), respectively. In both English and Japanese, the frequency of the CONTINUE transition is the highest (47% in English; 53% in Japanese), followed by No Cbs in roughly similar frequency (35% in English; 31% in Japanese).

This result is based on the coding of transition states concerning how Rule 2 is instantiated as discussed in section 5.3. Other claims of centering depend on individual centering researchers and can be instantiated in different ways of setting the parameters of the theory. However, this issue is not the current focus of my thesis, and the result may be affected by the genre or style of texts as well as the possible instantiation of the theory. For comparison, I will cite a few results from previous

studies that should be relevant to my results here.

The result corresponds to the results in previous studies of center transitions in Tanimura and Yoshida (2002) as a comparative study of English and Japanese spoken narratives, and Yamura-Takei (2005) as a corpus study of Japanese written texts including narratives and expository writing. According to Poesio *et al*. (2004) investigating the different versions of Rule 2, on the other hand, in the transition statistics quoted from Brennan, Friedman, Pollard (1987), the most frequent transition (47.9% of the total) is No Cb (NULL) and the ratio of the 'pure' CONTINUE transition is only 7.0 % of the total (Poesio *et al*. 2004:330).[25] Similar results were obtained by Poesio *et al*. (2004: 339), in which there are more CONTINUE transitions (9.1%) and fewer NULLs (40.8%). [26]

It is obvious to see that the frequency of the CONTINUE transition, which can directly contribute to the cohesive relations of discourse entities, is the main transition in both English and Japanese. On the other hand, it is necessary to pay careful attention to No Cbs. One third of utterances are coded No Cbs, in which there is no discourse entity to realise Cb in the immediately preceding utterances. In centering, the entities that do not realise Cb in the adjacent utterance are routinely specified as first mention. To put it simply, all the new entities that are introduced in a given utterance are analysed as first mention if there are no antecedents in the immediately preceding utterance. However, this observation is not always accurate,

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[25] Brennan, Friedman, Pollard (1987) and Poesio et al. (2004) add Kameyama's Establishment (the transition between an utterance without a Cb and one with a Cb) in their transition statistics, which may affect their low frequency of the CONTINUE transition.

[26] The difference in frequency with respect to CONTINUEs and NULLs may be motivated by the type of data. Spoken narratives (Tanimura and Yoshida 2002) and written stories (Takei 2005) may be connected with the storytelling style in which the main character is likely to be mentioned repeatedly as discourse topic, whereas the data called 'Museum' and 'Pharmaceutical' (Brennan, Friedman, Pollard 1987; Poesio et al. 2004) are expository written texts produced from an objective point of view, in which the discourse entities are varied and the particular entities are unlikely to construed as a topic continuity.

because centers are often continued over discourse segment boundaries with pronominal or non-pronominal referring expressions. In this case, entities are subsequent-mention rather than first-mention. Centers, of course, tend to be continuous within a discourse segment. The problem is that centering cannot predict that the current entity actually refers to the previously mentioned referent that does not occur in the adjacent utterance. Hurewitz (1998:279) also points out that 'as centering is only involved in tracking the local focus within a discourse, it does not account for transitions to the embedded layers that discourse is known to contain'. That is, the null entities counted as no Cbs can be subsequent-mentions rather than first-mentions across the discourse segment boundaries.

This fact can instantly predict that the utterance judged as No Cb can be related by the CONTINUE transition, so some null entities may be wrongly categorized as first-mention in the centering framework where the local focus of discourse is the only concern. It is necessary to carefully identify the global discourse structure by setting up the discourse segment boundary in order to determine whether the discourse entities are first mentions in the present discourse, or subsequent mentions that are not contained in the immediately preceding utterances (Walker 1998, 2000). The implications of this restriction with respect to the overall theory are discussed in Chapter 7.

In English, aside from No Cb, the SMOOTH-SHIFT transition is the second most frequent (17%) after the CONTINUE transition. The RETAIN transition is rare in English (1%), whereas in Japanese the SMOOTH-SHIFT and the RETAIN transitions are similar in number (SMOOTH-SHIFT 8%; RETAIN 7%). In both sets of data, the ROUGH transition is rare enough to be ignored (0% in English; 1% in Japanese).
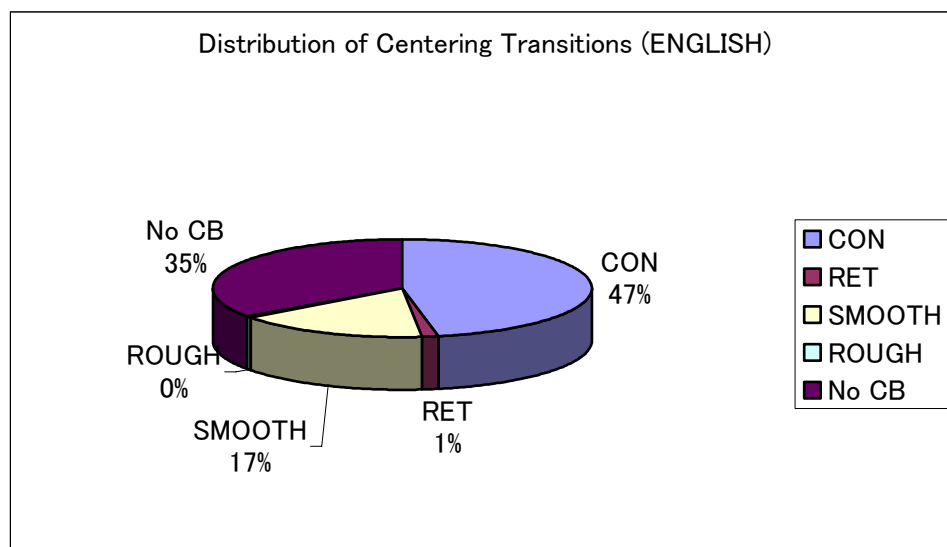
Figure 6.2. Distribution of centering transitions (English)
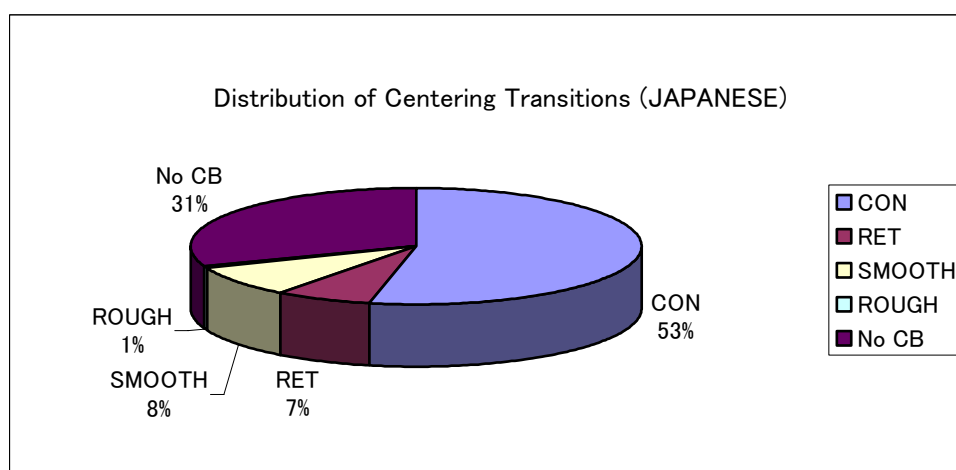
Figure 6.3. Distribution of Centering Transitions (Japanese)

As seen above, the CONTINUE transition occupies approximately half of the total data. As Rule 2 predicts in measuring the coherence of the discourse segment, the CONTINUE transition is preferred to the other transitions. According to this typology of transitions, discourses that continue centering the same entity are more

coherent than those that repeatedly shift from one center to another (Walker, Joshi, Prince 1998).

It is clear that the CONTINUE transition is dominant in both the English and Japanese data, and the type of discourse development that continues the topic entity rather than shifting topics frequently will be preferable. What type of discourse development is then actually occurring in the CONTINUE transition? In practice, it is significant to examine here how the interaction between the referential form and centering transition can contribute to discourse development in introducing a new entity, establishing a topic entity, and shifting the topic entity away in discourse processing.

Furthermore, the degree of discourse coherence is controlled by a number of variables: the types of referring expressions and clause constructions, word order, and discourse factors. Above all, it is important to note the claim that 'different types of referring expressions and different syntactic forms make different inference demands on a hearer or reader' (Grosz, Joshi, and Weinsten 1995). Focusing on the interaction between the types of referring expressions and discourse coherence is relevant here. Let us first reconsider the extracts I quoted for analysis in example from (5.11 a) to (5.11 p) in 5.5 with respect to the relations between the types of referring expressions and discourse coherence, which is schematized as follows, starting with Japanese:

DS	Utterance	Referential form	Centering transition	Type of entity
	a	NP	No Cb	←new entity A
	b	Ø	CON	Main Topic
	c	dem NP	CON	*tatemono*
	d	dem NP	CON	'building'
	e	NP	No Cb	←new entity B
	f	NP	CON	Sub-topic
	g	Ø	CON	*kuruma*
	h	Ø	CON	'van'
	i	Ø	CON	
	j	Ø	CON	
	k	NP	RETAIN	←new entity C
	l	Ø	SMOOTH –SHIFT	Sub-topic
	m	Ø	CON	*hatake*
	n	-----	------	'field'
	o	dem NP	No Cb	←returned entity A
	p	Ø	CON	Main Topic

DS: Discourse Segment

Figure 6.4. Patterns of Centering Transitions and Anaphoric Devices

in Example (5.11)

This figure shows that Japanese NPs are interwoven with zero pronouns in center transition patterns. As I suggested in section 5.5.1, NPs appear to play two roles in a given discourse. The first role is to introduce new entities into a given discourse as 'brand new'. Here utterances such as (a), (e), and (k) all introduce new entities (labelled A, B, and C respectively) with varied syntactic function: (a) *tatemono* 'building' (as subject), (e) *kuruma* 'van' (as adjunct), and (k) *hatake* 'field' (as topic) The second role is to recapture the established entity as discourse topic within and across the discourse segment boundaries. Here this role is assigned to demonstrative NPs in place of bare nouns in utterance (c) and (o): *sono tatemono* 'that building', which is temporarily displaced from the state of the discourse topic between the utterances (e) and (n), and regains the position of discourse topic in utterance (p). Yet, the fact that demonstrative NPs rather than bare nouns function as links in a topic

chain may indicate a particular type of anaphoric device and its pragmatic implication: a focusing device. Note that the demonstrative NP in utterance (c) refers to the immediately preceding entity *tatemono* 'building' as 'immediate anaphor', which has an anaphoric device to indicate that the entity that is previously introduced as a new entity is currently established as a discourse topic after the checking device is completed between the participants in utterance (a) and (b): (a) 'do you see there is a building at the south side of the starting point?' and (b) 'Yes, there is.' Also note that the demonstrative NP used in utterance (o), which is tracked as No Cb due to 'the local focus' restriction of the centering framework, is actually continuous from the main topic in utterance (c) over the discourse segment boundary. The discourse segment specifying the main topic (utterances (a) – (d)) overrides the discourse segments specifying the sub-topics (utterances (e) – (j) and utterances (k) – (n)), and the previous main topic with respect to the main task hierarchically links up with the returned main topic in the initial utterance (o) of the discourse segment. The fact that NPs are strongly connected with topic continuity across the discourse segment boundaries is discussed in depth in Chapter 7.

The question now arises: how do zero pronouns function in order to maintain the topic? Do they behave like NPs in a given discourse? As suggested in the summary in 5.5.1, zero pronouns typically occur in chains over the speaker boundary and are maintained as Cbs in the CONTINUE transition. Since the zero chain instantaneously breaks down over the discourse segment boundary, it can only compose a topic chain as sub-topic or non-focused topic with respect to the sub-task when the entities continue within the discourse segment. As Figure 6.4 illustrates, the zero topic creates links over the speaker boundary in utterances (b), (h), (i), (j), (l), (m) and that occurs in particular clause constructions such as copula clauses or

existential sentences (See example 5.11 (e) – (j) in section 5.5.1). However, zero

forms are not continuous over the discourse segment boundaries for the purpose of

maintaining the discourse topic, but function as a local topic currently shared by the

participants of dialogues.

The findings significantly correspond to Obana (2003)'s result based on her

examination of NPs and zero anaphors in Japanese novels. Here is her summary of

results:

1. A zero chain does not coincide with topic continuity. The topic can be continuous
   even when a zero chain breaks.
2. NPs do not necessarily offer a breaking point in an episode. They coexist with
   zero anaphors in the same discourse, presenting the same information value.
3. The choice between NPs and zero has nothing to do with the hierarchy of their
   information values. The choice is determined according to how one sentence is
   connected with the other.

(427-428)

Number 1 can be interpreted to mean that NPs can maintain the discourse topic in the

global coherence of discourse, whereas zero pronouns function as an unfocused

sub-topic in the local coherence of discourse. This reference assignment in discourse

may directly correspond with the 'the discourse camera' and 'the zooming camera' in

Obana's terms (2003). In Figure 6.4, the main topic, *tatemono* 'building' is

associated with 'discourse camera', which 'discloses the focused object to the reader'

(416), and sub-topics (A), (B), and (C) can be associated with 'the zooming camera',

by which 'the unfocused objects are zoomed in on in order to be temporarily focused

in the same discourse' (416). Number 2 can elucidate the fact that NPs and zero

anaphors are likely to be interchangeable. I hypothesize that the patterns of use of

NPs are an unmarked choice in discourse, and the patterns of use of zero pronouns are syntactically constrained in a particular clause construction. In terms of number 3, this can be paraphrased that the referential choice is determined according to how discourse entities are associated with the local and global coherence of discourse. Although the difference between written narratives and spoken dialogues may affect the choice of referential forms in the discourse arrangement, our findings verify that there are similar patterns of use of referring expressions in Japanese discourse in general. Therefore, it is claimed that this similar patterns of use reflects the typical patterns of Japanese anaphoric devices.

6.4. Distribution of Cbs in centering transitions: types of referring expressions

As seen in section 6.3, in English, the balance of CONTINUE transitions is 47% of the total. The referring expressions of Cbs in each of the four transition patterns are classified into four types: zero pronoun (ZERO), pronoun (PRO), noun phrases (NOUNS), and demonstratives (DEMON). Let us consider Figure 6.5:
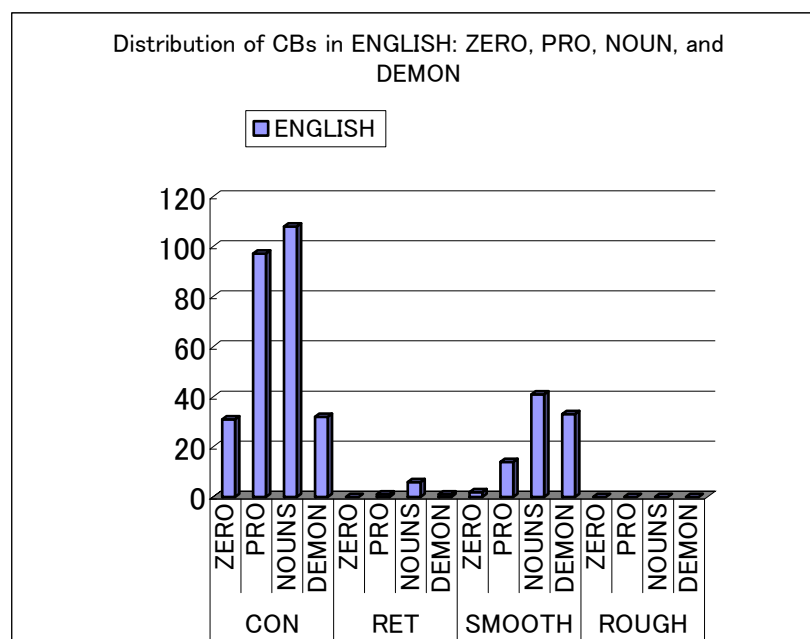
Figure 6.5. Distribution of Referring Expressions in Centering Transitions (English)

Here the most frequent type of referring expressions used in the CONTINUE transition is noun phrases (40.30%), followed by pronouns, zero pronouns, and demonstratives. Although the total frequency of zero and pronouns exceed the frequency of noun phrases, the distribution of this quite large number of noun phrases is beyond our expectation. This is because I excluded the entities of no Cbs, which means the NPs as first mentions are not included, and all the NPs counted here are subsequent mentions, which can be potential candidates of Cbs.

The referring expressions in Japanese are also classified into four types, as follows:
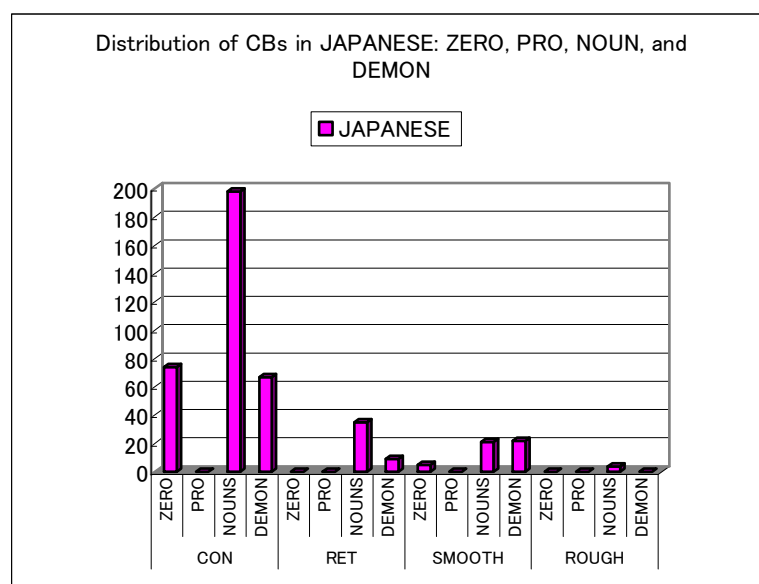
Figure 6.6. Distribution of Referring Expressions in Centering Transitions (Japanese)

As shown above, there is no occurrence of overt pronouns in Japanese. This is because the only type of Japanese third-person pronouns is *kare/kanojo* ('he'/'she') and their use is extremely restricted to a particular context in discourse as discussed in 2.2. It is also assumed that missing NPs, i.e. null anaphora in Japanese plays a similar role to pronouns in English (Tsujimura 2007). The occurrence of zero pronouns is similar to demonstratives in number. By contrast, NPs are the main type of referring expressions in the CONTINUE transition (58.41%), which is 2.68 times higher than zero pronouns (21.83%). As in English, the entities in the NULL transition are excluded, so all the nouns are subsequent mentions rather than first mentions. Comparing the balance of NPs in relation to the total types of reference in the CONTINUE transition, Japanese noun phrases are 1.5 times more frequent than their English counterparts. The result that more NPs than pronominal forms are employed in the CONTINUE transition is beyond our expectation in terms of the referential choice. In contrast to this result, previous studies (Iida 1998; Tanimura

and Yoshida 2002: Yamura-Takei 2005) show that zero pronouns are employed far more frequently than non-zero pronouns in the CONTINUE transition. This result may be due to the analysis based on the interactive discourse, which is different from the results shown in most previous studies that are based on written texts and spoken narratives. Strube and Hahn (1999), however, intending to extend the Cf ranking by importing Prince's Familiarity Scale, mention that 'some texts usually contain few pronouns and are characterized by a large number of inferrables, which are often *the* (the authors' italics) major glue in achieving local coherence (323).[27] Inferrables contain several forms of nominal descriptions mainly including definite NPs. Poesio *et al*. (2004) tested R1 (the Rule of pronominalisation with respect to Cb) by their 'vanilla instantiation' (332) in English written texts. Although I do not discuss this annotation scheme any further, their results are worth noting: only 55 % of the 374 mentions of Cbs are pronominalised, while 44.9% are Cbs that are not realized as pronouns. This shows that Cbs are not always dominantly realized by the pronominal form and that NPs can significantly contribute to discourse coherence.

For comparison, I will turn to examine the relation between the distribution of Cbs and the type of referring expressions in the data of English and Japanese in Figure 6.7:

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[27] 'some texts' comprise expository texts, e.g., test reports, technical summaries, rather than literary texts, or news paper articles about persons (Strube and Hahn 1999: 323). In the interactive discourse with more than one discourse entity, it may be that inanimate entities are likely to be accommodated by nominal expressions rather than pronominal forms, while the animate entities such as persons and animals are likely to be accommodated by pronominal rather than non-pronominal forms.

Distribution of CBs in ENGLISH and JAPANESE: ZERO, PRO, NOUN, and DEMON
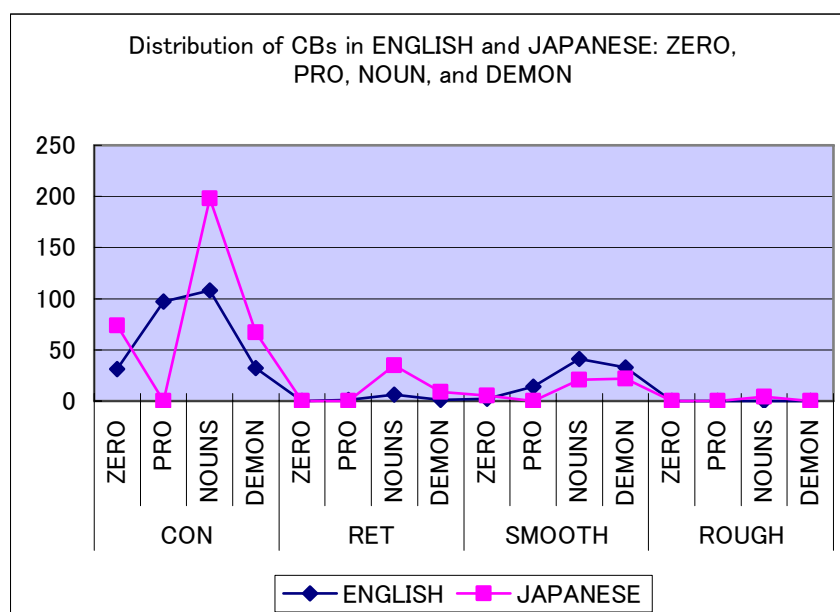
Fig 6.7. The Distribution of Referring Expressions in Centering Transitions
in English and Japanese

To consider the process of how the Cbs are introduced, established, and shifted away in discourse, examining the choice of referring expressions in the CONTINUE transitions may be relevant. Let us look at the following extracts in the CONTINUE transition in English and Japanese. In example (6.1) in English, paying attention to the transition pattern of Cbs, the chain of NPs tends to be combined with the chain of pronouns and zero pronouns:

(6.1) (English: Lleq4c2)

TA109: And then you're turning up towards *this grass*	**CON**
TB110: And going round *it*	**CON**
TA111: Yeah round the left hand side and then over	**CON**
the top	**CON**
TB112: Right	
TA113: And then stop when you get to the/	
TB114: Edge of *it*	**CON**
TA115: Edge of *it*	**CON**

TB116: Okay

TA117: And then do you have a house with on *it*?   **RET**

    [Ø] Just up from *the grass* on the right   **SMOOTH-SHIFT**

TB118: No

Here *this grass* in TA109 is immediately replaced with pronoun *it* and zero pronoun [Ø], then established as a Cb in the CONTINUE transition until the new entity *a house* is introduced. This new entity can predict the shift of Cb in the RETAIN transition, because the entity *a house* is placed in the object position in the argument, which is higher than PP with respect to Cf ranking. Then, finally, the current Cb shift to the entity *house* in the subject position of the elliptical finite verb as zero pronoun [Ø], and the definite noun phrase *the grass* retains in the position of PP: the SMOOTH- SHIFT transition is completed. Here the chains of (zero) pronouns breaks down when the new discourse entity 'a house' is introduced: the current Cb shifts to 'a house' as zero topic, which in turn triggers the occurrence of the definite NP 'the grass'. This suggests that the chains of NPs tend to be combined with the chains of pronouns and zero pronouns.

    In Japanese, it is possible to see that the temporary chains of zero pronouns do also occur, but the chains of NPs tend to link the topic entities in the CONTINUE transition with these zero entities, as illustrated in example (6.2).

(6.2)(Japanese: da)

10F: *taki* ga arimasu ka saisho toottekita   **NULL**

    waterfall SUBJ is POL Q beginning passed by

    'Is there *the waterfall* that we passed by in the beginning?'

10G: (i)ya [Ø wa] naidesu   ne   **CON**

    no [Ø TOP]   is not POL PAT

    'No, there isn't.'

10F: *taki*   yorimo sarani nishigawa ni ikutte koto desu ka   **CON**

      waterfall from   further west side to go to thing   is   Q

      'Does it mean you are going to further west from *the waterfall*?'

10G: *taki*   yorimo sarani   ya iya iya [Ø]higashigawa de tomattte imasu   **CON**

      waterfall from   further   no no no east side [of Ø] at stopping is POL

      'Further from *the waterfall*, no, no, no, I am stopping at the east side of it.'

10F: ah [Ø]higashigawa de tomattte imasu   **CON**

      ah east side [of Ø] at stopping is POL

     'ah, I am stopping at the east side of it.'

10G: mm ah hai wakatta

          yes see

     'mm, ah, yes I see.'

10F: [Ø] daitai kita   ni arimasu   *taki*ttte   **CON**

         nearly north to is POL   *waterfall*

      'It is nearly to the north, *the waterfall*?'

10G: hai [Ø wa] kita ni arimasu daitai   **CON**

      yes [Ø SUBJ] north to is POL nearly

      'yes, there is, to the north, nearly.'

In Japanese, the zero pronouns of the Cb *taki* 'the waterfall' are chosen in the context of answering to the question inquiring whether there is existence of the specific landmark or not, while bare nouns are chosen in the context of explaining about the place of *taki* 'the waterfall'. Here, the entities that are current topics are consistently maintained by bare nouns *taki* 'the waterfall'and zero pronouns: NPs and zero anaphors may be interchangeable or equivalent in contributing to discourse coherence. Despite the grammatical constraints of ellipsis in the specific locative PP, this example suggests that the instruction giver intends to avoid the ambiguity by the use of bare nouns, because *taki* 'the waterfall' is the only visual landmark that both participants can currently share. This also suggests that a full noun phrase can be realized as the currently centered entity rather than indicating focus shift.

     The interaction of noun phrases and zero pronouns in Japanese varies depending

on the different context of situation in discourse. Especially in Japanese discourse, however, it is crucial that NPs contribute to the topic chain of the discourse as well as zero pronouns due to the restricted use of pronouns. Obana (1999:31) points out that 'when pronouns do not occur in a context, NPs and zero anaphors may semantically contribute as equivalents. In some contexts, NPs do not carry initial new information, and occur as a replacement of zero anaphors'. I entirely agree with her observation. Thus the possibility allowed for in Rule 1 that the Cb may occur as a full noun phrase if no other NP is pronominalised is instantiated in Japanese. Further, it is necessary to extend Rule 1 to treat null pronouns of Japanese as equivalent to overt pronouns in a language like English.

Regarding a violation of Rule 1, Grosz, Joshi, and Weinstein (1995) points out the case where Cb is realized by a non-pronominal expression such as a proper name or definite description. Their examples are quoted below:

(6.3)   a. My dog is getting quite obstreperous.
        b. I took him to the vet the other day.
        c. **The mangy old beast** always hates these visits.
(6.4)   a. I'm reading The French Lieutenant's Woman
        b. **The book, which is Fowles's best**, was a bestseller last year.

(216)

The full noun phrases that realise the centers induce a special implication for the hearer or reader, who not only infers that the Cb has not changed even though no pronoun has been used, but also recognises that the description holds of the old Cb. This pattern of description is quite common in particular types of spoken and written modes such as sports commentary, newspaper articles, and fictional narratives. The main function of such use is to characterize the main character (e.g. disposition,

status, and special profile) with additional information. However, this case apparently does not apply to the chain of NPs in Japanese discourse that I am concerned with.

The chain of NPs is related to the discoure topic. Let us return to the example of the narrative quoted in Chapter 1 as (1.1 and 1.1'), which is recreated here with centering annotation in example (6.5):

(6.5) (a) Kumasan ga   fukuro wo   mitukemashita

       Bear   SUBJ   bag   OBJ   found POL

       'A bear found a bag.'

> Cb: [?]
> Cf: [KUMASAN, FUKURO]

   (b) 'Oya, nani kana.   Ittpai   Ø haitte   iru'

       INT what   P   plenty PP being   is

       'Eh? What is it? There is plenty in it.'

> Cb: FUKURO
> Cf: [FUKURO]   **CONTINUE**

   (c) Kumasan ga tomodachi no risusan ni kikini ikimashita

       bear   SUBJ friend   of   squirrel to ask to went POL

       'He (the bear) went to ask his friend, a squirrel.'

> Cb: KUMASAN
> Cf1: [KUMASAN, RISUSAN]   **CONTINUE**
> Cf2: [?] No Cb   **No Cb**

   (d) Kumasan ga fukuro wo akemashita

       bear   SUBJ bag OBJ opened   POL

       'He (the bear) opened the bag.'

> Cb: KUMASAN
> Cf: [KUMASAN]   **CONTINUE**

(e) Nanimo Ø arimasen

   nothing PP is POL

   'There is nothing in it.'

> Cb: [?]
> Cf: [FUKURO]   **No Cb**

(f) 'Shimatta.   Ø   Anaga aiteita.'

   INT   TOP   hole   opened

   'Oh no, it has a hole.'

> Cb: FUKURO
> Cf: [FUKURO,   ANA]   **CONTINUE**

(g) Atatakai kaze ga fuki hajime mashita

   Warm breeze SUBJ blow started POL

   'Warm breeze started to blow.'

> Cb: [?]
> Cf: [KAZE]   **No Cb**

(h) Nagai nagai hanano ittponmichi ga dekimashita

   Long long   flower of way   SUBJ made POL

   'Long, long single road of flowers was made'

> Cb: [?]
> Cf: [HANA, IPPONMICHI]   **No Cb**

There are two layers of discourse structure: the narrative structure (a, c, d, e, g and h) and the dialogue structure (b and f), which can be treated separately with respect to the centering application, as shown above. Here the CONTINUE transition in narrative structure is realised by the bare noun *kumasan* 'bear' out of Cf1 in (c), whereas the CONTINUE transition in dialogue structure is realised by the zero pronoun of *fukuro* 'bag' in (b), which affects the centering transition in the subsequent utterance in (c): *kumasan* 'bear' is analysed as first mention, that is, no Cb out of Cf2 in (c). The narrative structure is upheld by the chain of NPs as main

topic, whereas the dialogue structure, which is an inner speech of the bear, is upheld by the chain of zero pronouns as sub-topic. Note that clause (e) is different from the previous narrative clauses in that this clause is represented by *kumasan* 'bear''s point of view, which is close to the inner speech of *kumasan* 'bear' itself. Interestingly, the temporary shift of tense from the past *akemashita* 'opened' to the present *arimasen* 'there is' is marked here and gives the subtle interpretation with respect to the cognitive status of the clause (e). Thus, it is obvious that *kumasan* 'bear' is the main topic and fukuro 'bag' is the sub-topic.

On the other hand, in a 'natural' English version, the main topic is constantly represented in the subject position, which is the most salient in the grammatical function of English Cf ranking. In contrast, in Japanese discourse, the main topic is not only placed in the most salient grammatical function, that is, in the subject position, but also is lexically maintained by the chain of NPs. This can suggest that since the Japanese zero pronouns only support a weak cohesive relation as a sub-topic, the Japanese NP functions as a main conduit for maintaining topic continuity in discourse. Therefore, Japanese NPs are not semantically redundant nor require an excessive pragmatic inference to the hearer's processing, but the chains of NPs are used as the unmarked means of topic continuity in discourse.

Moreover, the following example shows that the chain of NPs is not only generated in the Japanese MTC, but also occurs in the English MTC:

(6.6)

*TA 64	Are you near *a rope bridge*, perchance?	[ROPE BRIDGE]	**No Cb**
*TB 65	No, I'm not.		
*TA 66	< {n laugh} {m erm} {m um} Oh, wait a minute, {m erm}		
	Where is *the rope bridge* then, near to you? /	[ROPE BRIDGE]	**CON**
*TB 67	{m erm}		
*TA 68	xxxxx that way {n laugh} >		
*TB 69	Well, do you remember when we went south west?		
*TA 70	< Aha./		
*TB 71	{m er} well,		
*TA 72	xxxxxxx >		
*TB 73	*It*'s down near, {m er} *it*'s nowhere near the little village.	[ROPE BRIDGE]	**CON**
*TA 74	Well, basically, you need to go to *the rope bridge* {n laugh}		
		[ROPE BRIDGE]	**CON**
*TB 75	Okay.		
*TA 76	You need to go over *the rope bridge*.	[ROPE BRIDGE]	**CON**
*TB 77	I've to go over *the rope bridge*?	[ROPE BRIDGE]	**CON**
*TA 78	Yes.		

(Lleq4c1)

Here the definite NPs *the rope bridge* realises the center in the CONTINUE transition in a series of utterances. Note that pronominal *it* in TB73 actually returns to realise the Cb as *rope bridge* in TB73 after the digression from TB 69 to TB 72. It is obvious that TB 69 starts an embedded utterance with a discourse marker *Well*. Nevertheless, it is evident that full NPs do not show focus-shift, but contribute to the discourse coherence interacting with pronouns *it*. Therefore, although pronouns are the stereotypical anaphoric expressions, definite descriptions such as *the rope bridge* are used even when there is no ambiguity.

Grosz, Joshi, and Weinstein (1983) also note that Rule 1 is a principle like a Gricean maxim that can be violated rather than a hard rule, but 'such violation leads at best to conditions in which the hearer is forced to draw additional inferences' (48).

I doubt if the hearer or reader may be forced to draw additional inferences by processing a chain of NPs, especially in Japanese. Again, if this is the case, applying the extension of Rule 1 to Japanese NPs can be a sensible solution.

Based on a comparative study of reference management in two different texts, Sunakawa (2005) also proposes that the more discourse entities are introduced into the discourse, the more nouns are used to refer to the currently occurring entities in a given discourse. This finding obviously indicates that the occurrence of multiple discourse entities in the text can make their targeted referents difficult to identify. Therefore, the use of an attenuated form of reference can lead to an excessive amount of inference load on the hearer in processing. The motivation of using noun phrases rather than zero pronouns in a context containing multiple discourse entities is consistent with the dialogues of the Japanese and English MTC.

6.5. The distribution of Cbs in transition sequence patterns

In the final section, 11 types of transition sequence patterns are examined. Discourse coherence is continuous: some combinations of the centering transition are more preferable than others. How do we know that combination A is more preferable than combination B? Strube and Hahn (1999) propose that all occurrences of centering transition pairs should be classified with respect to the 'costs' they imply. They advocate the idea that 'certain centering transition pairs are to be preferred over others' rather than claim that 'no one particular centering transition should be preferred over another (332). For the purpose of judging discourse coherence, they intend to stipulate and examine the scale showing that certain combinations are preferable to others. Considering adjacent transition pairs as an indicator of validity of utterance combination, the four centering transitions can be combined with each

other as a pair to produce 11 types of transition sequence patterns, which are listed below[28]:

CON-CON
RET-CON
SHIFT-CON
NULL-CON
CON-RET
RET-RET
SHIFT-RET
NULL-RET
CON-SHIFT
RET-SHIFT
SHIFT-SHIFT

By 'costs', Strube and Huhn (1999) mean the degree of processing costs to the hearer: CON-CON is a sequence that requires the lowest processing costs, while RET-CON is a sequence that implies higher processing costs than RET-SHIFT (332). It may be useful to examine the correlation between these transition sequence patterns and the types of referring expressions that are used in each pattern. In observing which transition sequence patterns are more preferable than others in keeping discourse coherent, it is predictable that the scale of discourse coherence is gradient. That is, the system of measuring coherence is graded on a scale from less coherent to more coherent rather than binary, that is, coherent or not coherent. In observing what types of referring expressions tend to occur more frequently than others in each transition sequence patterns, I assume that the distribution of Cbs in

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[28] To make things less complicated, the SHIFT includes both SMOOTH-SHIFT and ROUGH-SHIFT, where the majority of SHIFTs are SMOOTH-SHIFT because the ROUGH-SHIFT is rare in frequency, as seen in section 6.3.

transition sequence patterns clearly reflect this perspective.

Since frequent focus shift is a common feature in dialogic discourse, it is worthwhile noting that some combinations of the transition pattern are more preferable than others with respect to discourse coherence. It has been suggested that the evidence shows that 'NULL – CON – RET – SHIFT - CON' is considered to be an ideal combination of the sequence transition patterns with respect to discourse coherence (Grosz, Joshi, and Weinstein 1995, Strube and Hahn 1999, Takei 2005, and Takei *et al*. 2005). That is, 'NULL-CON' is the transition sequence that shows that an initially introduced entity is being established as a Cb, 'CON-CON' is the highest level of transition sequence patterns in maintaining Cbs, 'CON-RET' predicts the change that the subsequent entity can become a Cb, 'RET-SHIFT' is the transition sequence pattern that the subsequent entity can shift to be replaced with the new Cb. 'SHIFT-CON' is also a natural sequence pattern where the shifted entity is being established as a current Cb. The distribution of Cbs in transition sequence patterns in English and Japanese are presented in the following Figures 6.8 and 6.9:
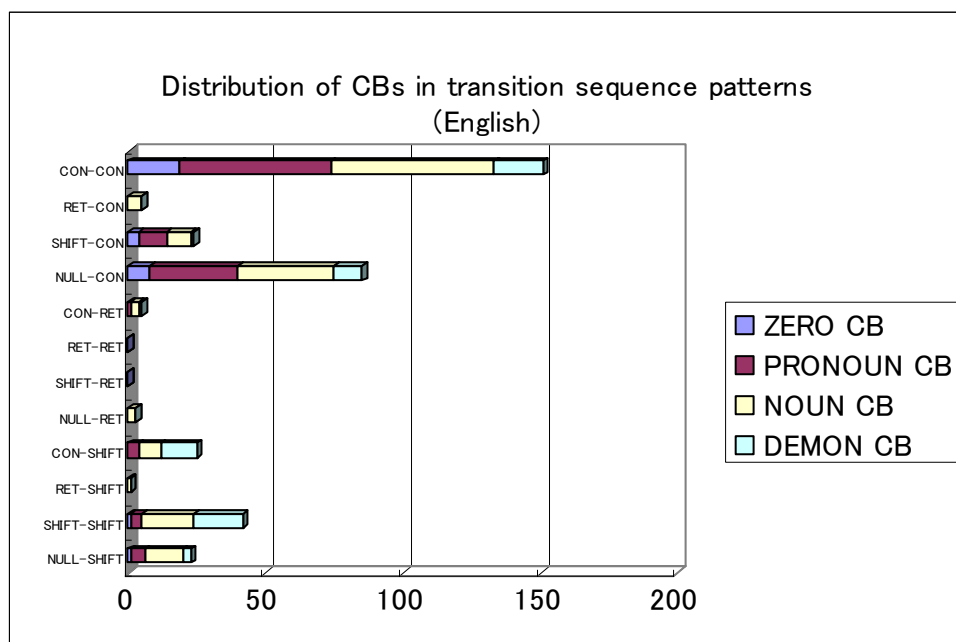
Figure 6.8. Distribution of CBs in transition sequence patterns (English)
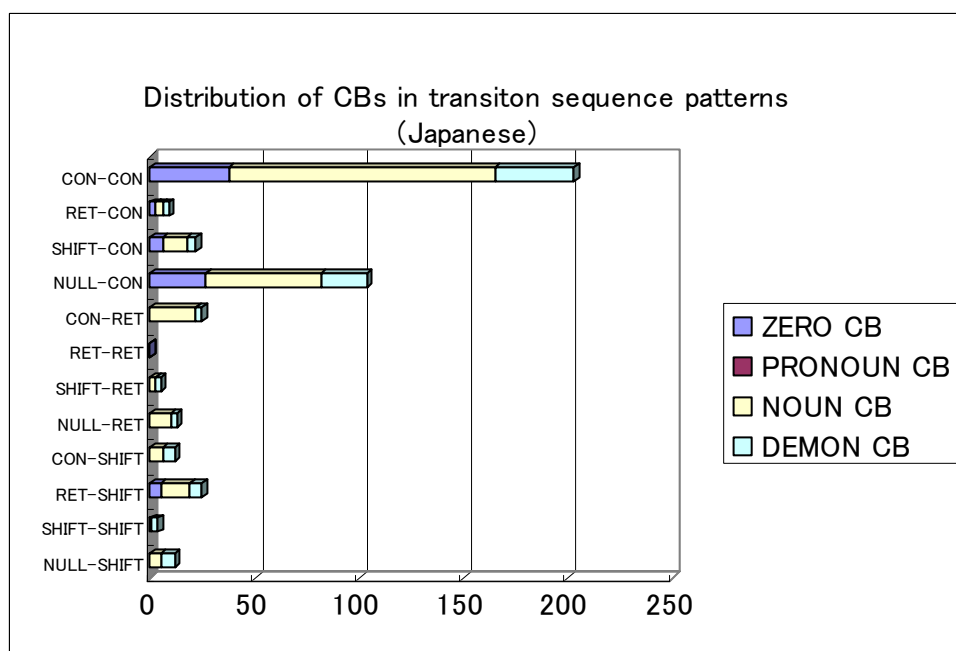
Figure 6.9. Distribution of CBs in transition sequence pattern (Japanese)

Likewise, the distribution of Cbs in CON-oriented transition sequence patterns presents a similar tendency in English and Japanese. NULL-CON, CON-CON, and SHIFT-CON sequence patterns are dominant as preferable combinations in both data.

Besides, CON-SHIFT and SHIFT-SHIFT transition patterns may be less preferable combinations, which can affect the addressee's inference load.

There is another issue to be taken into account. The preference of transition sequence patterns does not automatically determine the scale of coherence. For example, SHIFT-SHIFT is considered to be a less coherent combination, but in fact, there are cases where the judgement of coherence by transition sequence pattern does not always correspond to intuition. For example, most of the utterances that contain deictic expressions such as place deixis or discourse deixis may constitute SHIFT-related sequences. In the following example, according to the coding of transition states (see 5.3), as well as discourse deictic pronouns of English *that/this/it* , Japanese spatial deixis, *soko* ('there') and *koko* ('here'), is categorized into the SMOOTH-SHIFT:

(6.7)

18G: de	*soko* ga	gooru<250>fini	**SHIFT**
	then there SUBJ goal	finish(?)	

'Then, that is the goal'

18F: att	*koko* ga	gooru finishu	**SHIFT**
	INTJ here SUBJ	goal finish	

'This is the goal finish'

18G: hai

yes

'Yes.'

<div align="right">(cd.)</div>

Here the specific spot, which the participants are pointing at, is not visually accessible to each other, because they have their own maps that are not seen by the interlocutor. Deictic *soko* 'there' is used to point to the follower's spot by the giver, and *koko* 'here' is used to point to the follower's spot by the follower himself. Both

deictics function as pro-forms rather than adverbs in the subject position. However, the speaker still assumes that the addressee can access the spot that the speaker assumes is 'virtually' identical.

In addition, some transition sequence patterns are realized by the paraphrase of the initial discourse entities in that the expressions are extended from the initial expressions:

(6.8)

*TA 59：And then, do you have on the bottom right hand side of	
your page {merm} *like two boats that looks like* /	**NULL**
*TB 60：Yeah, and *a caravan, or something*.	**CON**
*TA 61：and *birds*. >	**CON**
*TA 62：Yeah.	
*TB 63：Yeah	

Here the first-mentioned description *like two boats that looks like* is expanded to *a caravan*, *or something* by the interlocutor, and this description further adds another nominal form *birds*. Yet, all these descriptions refer to the same discourse entity, which accommodates every piece of information. A single entity is described by a group of words and phrases rather than a simple NP in the process of collaboration. This notion is discussed further in Chapter 8. Since this anaphoric relation is recognised as indirect anaphora, the centering transition is unmistakably analysed as the combination 'NULL – CON – CON'.[29] Why does this pattern occur? Yet, these patterns may be analysed as a NULL transition rather than as the CONTINUE transition, if the centering rules cannot be extended to include indirect anaphora, inferrables, and lexical variations, etc. These utterances are not unusual in referring

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[29] I would like to thank Massimo Poesio for helping to clarify this perspective.

as a collaborative process in dialogues, and do not harm the coherence of discourse at all. Above all, in English, an initially introduced discourse entity as first-mention can be established as Cb in the subsequent mentions, which is extended or replaced by the interaction between the participants. I will investigate this case in depth in Chapter 8.

6.6 Conclusion

It has been clarified that despite the difference in grammatical forms of referring expressions between English and Japanese, there are similar patterns in the way the speakers introduce a discourse entity, establish it as the focus of attention, and then shift that focus away to new entities as the discourse develops.

Firstly, it is clear that the NP chains contribute to discourse coherence in both sets of data. The chains of NPs can contribute to the topic chains in the CONTINUE transition. In CONTINUE transitions, most of the entities are represented by the topic chains of pronouns and noun phrases in English, and mainly by bare nouns in Japanese. As I discussed in section 6.3 and 6.4, the Japanese data, especially, show that the chains of zero pronouns are frequent in a particular context in which their patterns of use is strictly limited to the local focus of discourse. Moreover, the distribution of NPs suggests that NPs play different roles in different types of center transition patterns. That is, NULL and SHIFT are the transitions in which the entities are introduced as a full NP and the expressions can be extended according to the understanding of the entities for the participants.

Next, special attention is drawn to the entity in the NULL transition, where the full NP as first mention, normally indefinite or definite NPs in English, and full NPs in Japanese, are not always a brand-new entity in Prince's (1981) sense. It can be

predicted that the utterance judged as No Cb can be related by the CONTINUE transition, so some null entities may be wrongly categorized as first-mentions in the centering framework where the local focus of discourse is the only concern.

Thirdly, in the SHIFT transition, full NPs are also used, yet the cognitive status of the entity is not always a brand-new entity, but previously unused or inferrable. They are textually evoked in the previous discourse segments. Therefore, more importantly, a certain number of NPs occurring in the NULL and SHIFT transitions are subsequent-mentions and can continue over the discourse segment boundary. I will consider how these entities are correctly retrieved in discourse coherence and will extend the discussion in Chapter 7. In addition, RET and SHIFT-related transition sequences, especially, should be taken into account with respect to the interaction with the CON transition in further studies. When discourse coherence is considered, it is crucial to focus on this combination, because the degree of discourse coherence can be measured not only by the individual transition pattern but also by the sequence of transition patterns.[30]

Furthermore, some pronominal forms in English do not always realize the currently centered entity, but signal a focus shift at the initial utterance of the discourse segment. Likewise, as we have seen, Japanese zero pronouns are not likely to function as a global focus, but can only compose a topic chain as sub topic or non-focused topic. In contrast, some NPs including demonstrative NPs in both sets of data do not always induce a focus shift, but continue over the discourse segment boundaries.

At the same time, it is clear that centering Rule 1 cannot account for the topic

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[30] Strube and Hahn (1999) explains that 'certain sequences of transition types may be entirely plausible though they include transitions which, when viewed in isolation, seem to imply considerable inferencing load'.

chain of NPs. Should we abandon this rule or should we extend the rule to deal with NPs and demonstrative NPs that can link with the discourse topic? It is obvious that the existing centering rules cannot predict these cases, because the model does not cover the global focus of discourse (The detailed discussion of global focus is in Passonneau and Litman 1996, Walker 1998, 2000). These cases are also discussed in Chapter 7.

Chapter 7

Referring Expressions and Global Discourse Structure

7.1 Introduction

As I observed in Chapter 2, forms of referring expressions in Japanese are mainly divided into four types: full NPs or, to be more exact, Japanese bare NPs with no article, demonstratives (i.e. either with determiners or with pronouns), 'overt' pronouns and zero pronouns. In contrast to English, the referential choice in Japanese is grammatically restricted to the frequent alternation between full NPs and zero pronouns. Japanese demonstratives can closely interact with full NPs in regard to cognitive status anaphorically or deictically (Obana 1999). Based on the distributional parallelism of the type of referring expressions interacting with discourse coherence in Japanese and English in Chapter 6, my data confirm that, of these four types in Japanese, bare nouns are the most common for subsequent mentions as well as first mentions in maintaining topic continuity, while zero pronouns are used for sub-topics within a discourse segment. In English, on the other hand, indefinite or definite NPs are the major type of referring expression used to identify a discourse topic in the Map Task dialogues.

In this chapter, I explore the idea that full NPs play a major role in English and Japanese Map Task dialogues when the topic entity is in the process of being established in the course of discourse development. Based on Walker's integrated discourse understanding model called the 'cache model', I will argue that the forms of anaphors are not always shorter, and the center of attention is maintained by the chain of NPs rather than by (zero) pronouns both within discourse segments and over

discourse segment boundaries.

In section 2, I set up a specific research question based on a general view of Japanese and English referential assignments. Section 3 introduces Walker's cache model as an integrated discourse model and explains the notions involved. Section 4 presents the results on the correlation between the Cf ranking and the distribution of the four types of referring expressions in both Japanese and English. Section 5 examines how (zero) pronouns, NPs, and demonstratives can contribute to the coherence of discourse within the discourse segment and over discourse segment boundaries. Section 6 discusses the use of NPs and their interpretation. Furthermore, this section aims to provide the possible resolution on the use of NPs in the 'focus pop' segment. Section 7 provides the conclusion.

7.2 Research questions

As a general rule, English indefinite and definite nouns correspond to Japanese bare nouns whose functional role is realized by case markers such as *wa* 'topic', *ga* 'subject' or 'nominative', *o* 'object', which are frequently omitted. English pronouns basically correspond to zero pronouns in Japanese. As Clancy (1980) insists, it is assumed that implicit referring expressions (i.e. pronouns and zeros) are cognitively perceived as a focus of attention in discourse, whereas the occurrence of explicit referring expressions (i.e. noun phrases) reflects a topic shift, alteration of the participants' perspectives, the exclusion of ambiguous candidates, and other aspects of the discourse situation.

However, is it a crucial factor that focus of attention is always realized by implicit referring expressions? It seems that, according to the common ground they can share, the discourse participants negotiate over the appropriate expressions,

replace them with better expressions, and establish them as a distinctive form of expression that may appear to function like a proper name. This observation suggests that the choice and the distribution of referring expressions in task-oriented dialogues depend on the way participants collaborate to judge the most salient entity in the current discourse against their common ground. I investigate the way of referring as a collaborative process in Chapter 8, but in this chapter, I clarify how the different forms of referring expression are exploited in the different stages of discourse, especially focusing on the chain of NPs and its implication in discourse development.

7.3 The role of full NPs in the global focus of discourse

7.3.1 The limitation of centering theory

In this section, based on the findings in Chapter 6, I clarify the limitation of centering theory. The original centering theory (Grosz, Joshi, and Weinstein 1995) is formulated as 'a theory that relates focus of attention, choice of referring expressions, and perceived coherence of utterances within a discourse segment' (204). Since then, there have been a number of variations of the centering algorithm. My main concern at this stage is not to focus on the specification of the centering algorithm but to consider how centering resolves the case where Cb is realised by a non-pronominal expression, i.e. a NP within a discourse segment and over the discourse segment boundary. It is clear that the existing centering rules cannot account for these, but an extension of R1 can correctly deal with the case.

More recently, the keen concern of the centering model has been to construct a unified algorithm to explain the local coherence and salience for anaphora resolution in different languages. For this purpose, there have been a large number of works on anaphora resolution at the level of immediately adjacent utterances within the

centering framework. Despite industrious efforts, the main weakness of centering theory lies in the fact that only a simple linear backward search for the antecedents in the previous utterance may cause a wrong prediction on the centering assignment with respect to referential choice. This cannot account for the fact that 'the centers are often continued over discourse segment boundaries with pronominal referring expressions whose form is identical to those that occur within a discourse segment' (Walker 1998: 402). Of interest is the fact that not only pronominal referring expressions but also NPs can be continued over discourse segment boundaries as a center instead of focus shift. It is essential to consider more extended models of the centering framework to describe the referential properties on a larger scale of global discourse coherence, because it seems implausible that centering pays no regard to the case where the center is realised by a non-pronominal expression within and over discourse segment boundaries. To explain global focus, researchers try to make the framework more sophisticated so as to integrate the local coherence of discourse with the global coherence of discourse. There have been several attempts to extend the centering framework from the local focus to global focus of attention, which will be discussed later in this section.

On the other hand, from cross-linguistic perspectives, it is true that centering theory has contributed to the construction of a unified algorithm in different languages. For example, establishing different Cf-ranking between English and Japanese is an important contribution to the improvement of the theory. To investigate how the types of referring expressions of Japanese and English are correlated with the transition of the center, I have used the original centering model (Grosz, Joshi and Weinstein 1995) in Chapter 6. In the centering framework, the determined elements of Cf ('forward-looking center) are commonly ranked as Cf

ordering. Based on Grosz, Joshi and Weinstein (1995) and Walker, Joshi and Prince (1998), I adopted this ranking in analyzing the English data. Cf ranking for English is characterised in terms of grammatical function:

(7.1)   subject > object(s) > other

(Grosz, Joshi and Weinstein, 1995)

Walker, Iida and Cote (1994) propose that the Cf ranking is language-specific depending on the means the language provides for indicating discourse function. Centering has been applied to Japanese discourse.

Furthermore, according to Kameyama's original proposal that zero pronouns in Japanese correspond to unaccented pronouns in English (Kameyama 1985), Rule 1 is extended directly to zero pronouns: 'If some element of Cf (U_{i+1}, D) is realized as a pronoun in U_i, then so is Cb (U_i, D)'. Cf ranking for Japanese is characterised in terms of a combination of discourse and grammatical functions as follows (Walker, Iida and Cote 1994; Iida 1998):

(7.2)   (GRAMMATICAL OR ZERO) TOPIC > EMPATHY > SUBJECT > OBJECT2 > OBJECT > OTHERS
(Walker, Iida and Cote, 1994)

This ranking explains that the higher element in the Cf is likely to become the Cb ('backward-looking center') in the current utterance. That is, in English, the subject is the highest candidate for the center, while in Japanese the topic is the highest candidate for the center. Iida (1998) also tests this ranking and investigates the interaction of higher-level discourse structures with the use of zero pronouns in

Japanese. Her findings are that 'the speaker cues the hearer when the center shifts so that hearers can adjust their attentional state' (13). Moreover, she also points out that the centering theory should account for the global focus of discourse and proposes that 'the combination of the centering algorithm with global Cb list captures some aspects of global coherence' (179).

On the other hand, as is observed in Chapter 6, the original centering model cannot predict that the centre of attention can be maintained not only within the discourse segment but also over the borders of discourse segments. Although the original centering model only pays attention to the local focus within the discourse segment, there have been challenging attempts to clarify how centering interacts with global discourse structure in the previous decades as discussed in the works in the introduction of Walker, Joshi, and Prince (1998), and recent works by Hahn and Strube (1997), Brennan (1998) and Walker (1998, 2000). Based on their proposals, three issues are considered in three different stages. The issues concern (1) specification of discourse segment boundaries, (2) the recognition of discourse segments and the referential forms (i.e. pronominals or non-pronominals) of a segment-initial utterance, and (3) a possible discourse model to integrate the centering framework with the global focus of discourse.

Firstly, since centering is underspecified with respect to the interaction of centering with discourse segment boundaries, it is unclear whether in fact centering should be affected by segment boundaries at all (Prince 1994). Consider this example in Walker, Joshi, and Prince (1998:20-21) (the illustration is the discourse excerpt, which was originally in Walker and Prince (1995)) below:

(7.3)

> … it was an emergency for her $_j$ to pick up the phone right away. [Her $_i$ sister] $_j$ not being home, she $_i$ hung up. [Her $_i$ sister] $_j$ came home a short time later, heard [her $_j$ messages] $_m$, heard [her $_j$ sister] $_i$ calling for help. She $_j$ then called [her $_j$ father] $_n$, who called the Milton police …

(a)   [Her $_i$ sister] $_j$ not being home, she $_i$ hung up.

Cb:	FEM-I
Cf:	[FEM-I, FEM-J] CONTINUE

-- → 'discourse boundary'

(b) [Her $_i$ sister] $_j$ came home a short time later.

CbI:	[?]	No Cb
Cb2:	FEM-I	
Cf:	[FEM-I, FEM-J]	CONTINUE

(c) o$_j$ heard [her$_j$ messages],

Cb:	FEM-J
Cf:	[FEM-J, MESSAGES-M] SMOOTH-SHIFT

(d) o$_j$ heard [her$_j$ sister] $_i$ calling for help.

Cb:	FEM-J
Cf:	[FEM-J, FEM-I] CONTINUE

Here a change in Cb is affected from (7.3b) CONTINUE to (7.3c) SMOOTH-SHIFT; if (7.3b) is segment-initial, it is assumed that Cb is not carried over from the previous segment, i.e. no Cb in (7.3b-Cb1), and, on the other hand, (7.3b) continues the current discourse segment as in the CONTINUE transition in (7.3b-Cb2). Walker and Prince (1995) points out the possibility that (7.3b) is a new discourse segment and discusses the evidence. The evidence they provide includes the fact that 'the speaker's fundamental frequency (Fo) at the end of utterance (7.3a) is close to the bottom of the speaker's range and that *her* in (7.3c) is accented' (Ibid: 21). However,

it is difficult to say that (7.3b) is segment-initial and the Cb continues at the same time 'without a clear specification of the interaction of centering with discourse segment boundaries' (Ibid: 21). Despite the fact that there is a discourse boundary between (7.3a) and (7.3b), it is not clear whether this change in Cb might have been predictable by centering theory.

Secondly, in intuitive terms, however, it appears to be clear that the Cb is still maintained over the boundary of the discourse segment. How can we interpret the evidence that there is a centering transition maintaining the previous Cb rather than defining a null Cb despite the indication of the new discourse segment? Passonneau (1998)'s result of examination of the effect of segment boundaries on centering transitions based on her spoken narratives reflect on this issue. Here is the extract from Passoneau and Litman (1996) where a corpus of spoken narratives, the *Pear Stories* (Chafe 1980) is investigated:

Seg	U_j	
6	28	And you think 'Wow,
		this little boy's$_i$ probably going to come and see the pears,
	29a	and *he$_i$*'s going to take a pear or two,
	29b	and then go on *his$_i$* way
7	30	um but *the little boy$_i$* comes, (CONTINUE)
	31	and uh he$_i$ doesn't want just a pear,
	32	*he* wants a whole basket.
8	33	So *he$_i$* puts the bicycle down, (CONTINUE)
	34	and he$_i$ . . . you wonder how he$_i$'s going to take it with this

Figure 7.1. Excerpt from Passonneau and Litman (1996)

(This excerpt is from Passonneau and Litman (1996), which is quoted from Walker, Joshi, and Prince (1998: 22), where the notes say that the lines indicate empirically verified discourse segments)

In the example, the Cb maintains as CONTINUE transition over the discourse segment boundaries: *the little boy* in Segment 7/Utterance 30 and *he* in Segment 8/Utterance 33. Passonneau (1998) examines the correlation of centering transitions with the empirically derived segments, and finds that the frequency of CONTINUE is lower for segment initial utterances, while the frequency of both types of SHIFT transitions is higher for segment-initial utterances. This finding directly corresponds to the analysis of the example of Walker and Prince (1995). However, Passonneau (1998) shows that it would be difficult to use centering transitions alone to predict segment boundaries. This claim, in other words, is related to the claim of Walker (1998) saying that discourse segment structure does not determine the accessibility of centers (416).[31]

Thus, Passoneau suggests that centering transitions do not directly reflect segment structure. Passoneau (1998) also found that there are two discourse structures that correlate with 'overspecified NPs, NPs that are used in a context in which a pronoun would have been unambiguous in a segment-initial utterance'(Walker, Joshi, and Prince 1998: 23), which provides support for a suggestion of Gundel (1998) based on the contrastive examples from Grosz, Joshi, and Weinstein (1986) below:

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[31] Thus, the realization of the Cb (linguistic form) is used as 'an indicator of whether discourse segmentation has a direct effect on accessibility' (Walker 1998: 416).

(7.4)

(a) Susan gave Betsy a pet hamster.

(b) She reminded her that hamsters were quite shy.

(c) ?And then Susan laughed.

(7.5)

(a) Susan gave Betsy a pet hamster.

(b) She reminded her that hamsters were quite shy.

(c) And then Susan left

In Passoneau's interpretation, *Susan* is an overspecified NP and hence infelicitous in utterance (7.4c), whereas the overspecified NP *Susan* in (7.5c) is felicitous and there is no increase in processing load only if the utterance is a segment-initial. This is supported by a suggestion of Gundel (1998: 196) that 'Susan does not have to be pronominalised in (7.5c), however, since this sentence, unlike its counterpart in (7.4), is most naturally interpreted as beginning a new discourse segment'.

It is clear that centers can be continued over discourse segment boundaries and that both pronouns and full NPs can be used for continuations across segment boundaries, but, finally, how could we explain this within the centering framework? In order to capture global coherence, it is necessary to search for some way towards integrating centering with a model of global discourse structure. Walker's cache model can provide a solution. Walker (1998) proposes that 'Brennan, Friedman, and Pollard's (1987) centering algorithm is easily integrated with the cache model and that the problems that are caused by within-segment centering can be eliminated by replacing Grosz and Sidner's (1986) stack model of attentional state with an alternate model, the cache model' (Walker 1998:401).

Walker's (1998) data suggest that 'for every type of intentional structure configuration, centers can be continued over discourse segment boundaries, and that

both pronoun and full NPs can be used for continuations across segment boundaries'
(Walker, Joshi, and Prince 1998: 24). Based on this finding, she argues that 'since
centers are in the cache, they are carried over segment boundaries by default'
(Walker 1998: 426). Walker's results provide further support for Passonneau's (1998)
analysis.

Furthermore, Walker suggests two possibilities for the occurrence of a full NP in
the continuation of the Cb across adjacent utterances. One possibility is that the use
of the full NP is one of a number of potentially redundant cues that the speaker has
available for signaling intentional structure. A second possibility is that the full NP is
used to signal the rhetorical relation of contrast indicated by *but*. There are other cue
words to be used in identifying the segment boundaries such as *anyway*, and the type
of retrieval cues represented by Informationally Redundant Utterances (IRUs) in
Walker (1998, 2000), but I return to this discussion later in this Chapter.

7.3.2 Walker's Cache Model

This section provides an introduction to Walker's (1998, 2000) cache model,
which deals with the center transition of the global focus in an integrated model of
centering, an approach which is strongly supported by Grosz and Sidner's (1986)
stack model and its notion of attentional state. Stack model provides a framework for
describing the processing of utterances in a discourse. Grosz and Sidner (1986) claim
that:

In this theory, discourse structure is composed of three separate but interrelated
components: the structure of the sequence of utterances (called the linguistic
structure), a structure of purposes (called the intentional structure), and the state of
focus of attention (called the attentional state). The linguistic structure consists of

segments of the discourse into which the utterances naturally aggregate. The intentional structure captures the discourse-relevant purposes, expressed in each of the linguistic segments as well as relationships among them. The attentional state is an abstraction of the focus of attention of the participants as the discourse unfolds. The attentional state, being dynamic, records the objects, properties, and relations that are salient at each point of the discourse. The distinction among these components is essential to provide an adequate explanation of such discourse phenomena as cue phrases, referring expressions, and interruptions (175).

The cache model maintains Grosz and Sidner (1986)'s distinction between intentional structure and attentional state, but Walker (1998) provides this distinction with inventive interpretation: 'the cache model does not posit that attentional state is isomorphic to intentional structure. The model casts attentional state in discourse processing as a gradient phenomenon, and predicts a looser coupling of intentional structure and attentional state (407)[32]

In the cache model, the cache is the significant notion. Walker (1998: 405) states that 'a cache can be used to model attentional state when intentions are hierarchically structured, just as a cache can be used for processing the references and operations of a hierarchically structured program'. In the cache model, as Walker explains, 'there are two types of memory: main memory represents long term memory and the cache represents working memory. The cache has a limited capacity, almost instantaneously accessible memory store' (Ibid.). Thus, cache is defined by Walker (1998) as follows:

CACHE SIZE ASSUMPTION: The cache is limited to two or three sentences, or approximately seven propositions (405).

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[32] The differences between the stack model and the cache model are also discussed in Walker (1998).

This is supported by psychological evidence.[33] Then, how is the cache model integrated with the centering rules and constraints? Walker explains (1998:406):

In the cache model, centers are a subset of entities in the cache, and the contents of the cache change incrementally as discourse is processed utterance by utterance, so by default centers are carried over from one segment to another. The cache model is easily integrated with the centering rules and constraints by simply assuming that the Cf list for an utterance is a subset of the entities in the cache, and that the centering rules and constraints apply as usual, with the ordering of the Cf list providing an additional finer level of salience ordering for entities within the cache.

Thus, as far as the cache has a limited capacity of memory store, 'items in the cache can be preferentially retained and items in main memory can be retrieved to the cache' (Walker 1998: 405), which is illustrated in the contrastive examples below, where (7.6b) can mean more processing difficulties in interpreting the center than (7.6a):

(7.6a)

C: Ok Harry, I have a problem that uh my – with today's economy *my daughter is working*
H: I missed your name.
C: Hank
H: Go ahead Hank
C: *as well as her uh husband*
   They have a child
   and they bring the child to us every day for babysitting

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[33] The size of the cache is a working assumption based on the findings of previous work (Kintsch 1998; Miller 1956; Alshawi 1987, all of which are quoted from Walker 1998)

(7.6b)

C: Ok Harry, I have a problem that uh my – with today's economy *my daughter is working*

H: I missed your name.

C: Hank

H: I'm sorry, I can't hear you.

C: Hank.

H: Is that H-A-N-K?

C: Yes.

H: Go ahead Hank

C: *as well as her uh husband*

They have a child

and they bring the child to us every day for babysitting

In the middle of the utterance that starts the problem statement, *my daughter is working*, the talk show host H interrupts the caller C to ask for his name. The caller C, after this interruption, continues his statement with *as well as her uh husband*. So here, the interrupted segment does not affect the coherence of the utterance. These embedded utterances are called 'side-sequences' in conversational analyst's terms. Although (7.6a) and (7.6b) have an identical dialogue structure, they are different in the accessibility of centers with respect to returning from interruption. The crucial difference between (7.6a) and (7.6b) lies in the length and depth of interruption and the processing required: (7.6b) has longer and deeper interruption and the hearer may require more processing time to retrieve the referent of *her*. However, the stack model cannot correctly predict the length of interruption or the processing required in retrieving the previous center. However, it is predicted by the cache model that if the size of the interrupted segment happens to be longer than (7.6a), the anaphoric referring expressions *her husband* is more difficult to interpret in (7.6b) (Walker 1998). Thus, it may be true that the memory space is severely constrained to a certain

number of clauses and propositions.

This interruption, what is called 'referential distance' in other studies, is normally much larger than one clause in narratives. Givón (1983) explains that pronouns are still used to regain the preceding discourse entity after following a 'major juncture' (a chunk of break consisting of two or more clause) as illustrated below:

(7.7)
. . .   we had a sister born there too with the other three brothers and she died when she was a baby. That's the only sister we ever had, all the rest of us were boys. . .
But anyway, they moved to McClain and . . . (351)

In this example, the theme prior to the major juncture is the sister who died. The major juncture then moves the story back to the main line of description. Givón points out that the recovery segment from the digression is quite often contrastive, which is signaled by the contrastive connectives, *But anyway.* Larger breaks may need a linguistic marker to indicate the change of discourse segment, and this helps the addressee to return to the main line of the discourse segment.

This observation is also discussed in Passonneau (1996, 1998) and Walker (1998). According to the intentional structure based on linear and hierarchical recency, Walker (1998) categorise the combination of the discourse segment structures and the center accessibility (i.e. whether the Cb (U_{n-1}) is realised in U_n as a pronoun or as a full NP) into eight types of discourse situation (Walker 1998, 2000). Based on Grosz and Sidner's theory, Walker (1998) define all potential discourse segment structure configurations. Let us summarise this definition. The discourse structure configurations vary in terms of whether two utterances can be considered to

be linearly recent or hierarchically recent, as shown below (416):

```
SEGMENT A                          SEGMENT C
A1                                 C1
A2                                     SEGMENT D
                                       D1
    SEGMENT B                          D2
    B1                                 D3
    B2
    B3                                    Segment E
                                          E1
    A3                                    E2
    A4
```
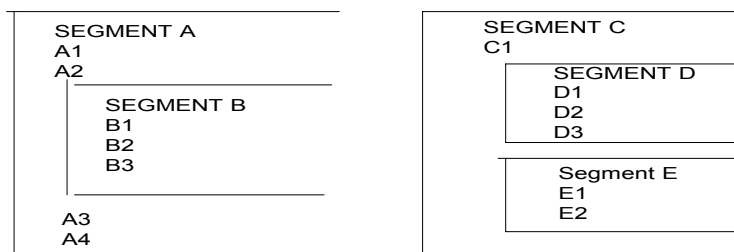
Fig.7.2. Two Abstract Hierarchical Discourse Structures

The first has two discourse segments A and B where B is embedded with A, and the second has three segments C, D, E where D and E are sister segments contributing to the purpose of segment C. Utterances are represented as A1, A2, etc.

Walker further explores the possibility of the combination of the types of discourse segment boundaries and center accessibility. The types of discourse segment boundaries are divided into four types in terms of the relation between two utterances U_{n-1} and U_n, whether two utterances can be considered to be linearly recent or hierarchically recent. For example, utterance A2 is hierarchically recent when A3 is interpreted, although it is not linearly recent. Utterance B3 is linearly recent when A3 is interpreted, but not hierarchically recent, etc. Then, center accessibility is associated with the realization of the Cb, i.e., whether the Cb (U_{n-1}) is realised in U_n as a pronoun or as a full NP. The combination of these two dimensions defines eight discourse situations. Here I am interested in determining the possibility of the choice of referential forms by which center accessibility is realised and the center is continued over discourse segment boundaries. Therefore, I will not discuss the determination of the relevant discourse structure configurations defined by linear

recency and hierarchical recency, but I discuss the relation between the type of discourse structures and the referential choice from the global view of discourse.

Let us start defining the terminology that Walker (1998) employs for her model. There are three central terms to be used: 'focus-pop', 'retrieval cues', and IRUs. I will start with 'focus pop'. Walker (1998) aims to accommodate 'focus pops' to the cache model. 'Focus pops' or 'return pops'[34] are the phenomena in a discourse where 'the conversants return to the discussion of a prior topic or continue an intention suspended in prior discourse' (Walker 1998: 411). The entities' related prior intention can be retained in the cache after the embedded segment called 'push', which is similar to the notion of Givón's 'major juncture' or the phenomenon of what is called 'side sequence', whereas 'return pop' is the subsequent discourse segment following 'push'. This is important because, depending on the size of the cache, the cache model enables us to explain the link between the last utterance prior to the push and the initial utterance in the return pop.

The notion of 'return pops' provides strong motivation for the role of hierarchical recency in Grosz and Sidner's (1986) stack model, and Walker especially focuses on the occurrence of a pronoun in return pops and its antecedent in the focus space representing the prior discourse. Walker emphasises that pronouns in return pops function as retrieval cues. This idea is not consistent with the established view that pronouns indicate entities that are currently salient in the hearer's consciousness. Walker (1998) further argues that 'return pops are **cued retrieval from main memory** (Walker's emphasis), that the cues reflect the context of the pop, that the cues are used to reinstantiate the relevant cache contents, and thus, that return pops are not problematic for the cache model'(412). Here is an example of a

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[34] I mainly use 'return pop' from now onward.

return pop:

(7.8)

(21)(1) Three boys came out.,

    (2) helped him$_i$ pick himself up

    (3) pick up his$_i$ bike,

    (4) pick up the pears,

    (5) one of them had a toy,

    (6) which was like a clapper.

(22)(1) And I don't know what you call it except a paddle with a ball suspended on a
      string.

(23)(1) So you could hear him$_i$ playing with that.

(24)(1) And then he$_i$ rode off.

          (Walker 1998:412 quoted from Passonneau and Litman 1994, fig.9)

In this dialogue, the sequence from (21.5) to (23.1) is an embedded segment, that is, a push. The utterances from (21.1) to (21.4) and utterance (24.1) are hierarchically recent. The pronoun *he* occurring in the segment-initial utterance in (24.1), 'return pop', refers to the antecedents of utterance (2) and (3) with the referring expressions *him* and *his*. However, how can the hearer recognise that the pronoun in (24.1) returns as a return pop in a segment-initial utterance and how can he or she retrieve the necessary information about the pronoun? In this case, the pronoun functions as a retrieval cue based on gender and number cues alone. In addition, the verb *ride* in the return pop serves to eliminate other antecedents (such as zero pronouns in 21.2 and 3) because only one of the male discourse entities under discussion has a bike to ride. The information of the matrix verb can be the possible retrieval cue in languages with zero pronouns such as Japanese (Walker 1998: 413).

Another possible hypothesis for the interpretation of pronouns in return pops is called 'Informationally Redundant Utterances (IRUs)'. Walker explains that the IRU

in a return pop can be realised as the same propositional content in the prior segment 'to re-create the relevant context' (Walker 1998: 414) Thus, as Walker defines, IRUs in a return pop can: (1) reinstantiate required information in the cache so that no retrieval is necessary; (2) function as excellent retrieval cues for information from main memory. Figure 7.3. shows the example quoted from Walker (1998):

Seg$_i$	U$_j$	
14	1	a-nd his bicycle hits a rock.
	2	Because he$_i$'s looking at the girl.
	3	ZERO-PRONOUN$_i$ falls over,
15	4	uh there's no conversation in this movie.
	5	There's sounds,
	6	you know,
	7	like the bird and stuff,
	8	but there … the human beings in it don't say anything.
16	9	He$_i$ falls over,
	10	and then these three other little kids about his same age come walking by

Figure 7.3. Excerpt from Walker (1998)

Here segment 15 is an interruption and segment 14 and segment 16 are hierarchically recent. The utterance 9 is an IRU, which re-realises the content of utterance 3, and reintroduces its content in the current context. Since the accessibility of the IRU is constructed from processing the lexical repetition of the content, the IRU can be an adequate retrieval cue that the hearer can retrieve the correct information to the cache. That is, the center is accessible insomuch as the cache is limited to a certain size. In that case, the center is carried over the discourse segment boundary by default as far as the center is in the cache.

Walker proposes two hypotheses about the possible retrieval cues that can be

accessible to the cache: pronouns and IRUs. However, as Walker (1998) points out, a full NP is also used to continue the current Cb over the discourse segment boundary. It should be noted that the return pop is a common phenomenon in naturally occurring discourse, and the center that is retained in the cache remains accessible as a salient entity in the current discourse. It is natural that the full NP also functions as a retrieval cue over the discourse segment boundary. I presume that the full NP may require explicit discourse factors such as *so*, *then*, and *next*, and these linguistic expressions enable the full NPs to continue the previous Cb between the hierarchically recent segments if the Cbs are distant from each other. This assumption will be explained in the following sections of this chapter.

7.4 Analysis and Results

This section presents data showing what type of referring expression is used at different stages in the discourse or sub-discourses. For the present chapter, I selected two Japanese Map Task dialogues (da. and dc.) and two English Map Task dialogues (Lleq4c4 and Lleq4c6), both of which were collected from the Map Task dialogues based on the same labelless maps described in Chapter 4. The number of first mentions in Japanese (da) and (dc) is 13 occurrences in both cases; the number of second mentions in Japanese (da) is 128 occurrences and that in Japanese (dc) is 152 occurrences. The number of first mentions in English (Lleq4c4) is 31 occurrences and that in English (Lleq4c6) is 21 occurrences; the number of second mentions in English (Lleq4c4) is 113 occurrences and that in English (Lleq4c6) is 61 occurrences.

The tables in the following sections show the correlation between the Cf ranking and the distribution of the four types of referring expressions: the types in Japanese

are bare nouns, demonstratives (i.e. either with determiner or with overt pronouns), and zero pronouns; those in English are definite and indefinite NPs (including NPs with no determiner), demonstratives (including the locative *there*)[35], possessive NPs, and (zero) pronouns. In addition to classifying each referring expression according to its type, I have also divided them according to whether they are the first or a subsequent mention of an entity.

The results from the Japanese data are shown in Tables 7.1 and 7.2 as first mentions, and in Tables 7.3 and 7.4 as subsequent mentions, and the results from the English data are shown in Tables 7.5 and 7.6 as first mentions, and Tables 7.7 and 7.8 as subsequent mentions.

In Japanese, referring expressions used for first mentions are mainly bare nouns, with only a small number of demonstrative determiners with nouns, while there are four types of referring expressions which are used in subsequent mentions, which include two types that are never used in first mentions, these being demonstrative pronouns and zero pronouns.

In English, on the other hand, referring expressions used for first mention are mainly indefinite NPs and a small number of definite NPs, while there are varied types of referring expressions which are used in subsequent mentions that include four types that are never used in first mentions, these being demonstratives, possessive NPs, pronouns and zero pronouns.

I wish to focus on how the reference of an entity develops throughout a discourse and so it is not important to me who made the utterance but rather what types of referring expressions were used at different stages in the discourse. Accessibility of discourse entities is reflected by the linguistic form (Gundel,

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[35] Spatial deictics are included in the analysis, as discussed in Chapter 3 (section3.3).

Hedberg, and Zacharschi 1993; Prince 1981b; Brennan 1995) and its use as a referential choice may be speaker or hearer-dependent in principle.   As defined in Chapter 5, all the utterances of the turn-taking between the giver and the follower are included as far as they contain discourse entities, but all the first and second personal pronouns are excluded. .

7.4.1 Result: First mentions in Japanese data

Here are the results of first mentions in the two Japanese dialogues, showing the form of referring expression and Cf ranking:

Table7.1 (da: Japanese) FIRST MENTIONS

form / Cf	Bare N (%)	Demonstrative Determiner +N *sono* N 'that N' (%)	Demonstrative Pronouns *sore* 'that' *soko* 'there' (%)	Zero Pro (%)	TOTAL (%)
Topic with *wa*	2 (100.0)	0	0	0	2 (100.0)
Subject with *ga*	5 (83.3)	1 (16.7)	0	0	6 (100.0)
Object with *wo*	0	0	0	0	0
Others	2 (66.7)	1 (33.3)	0	0	3 (100.0)
No case marker	2 (100.0)	0	0	0	2 (100.0)
TOTAL	11 (84.6)	2 (15.4)	0	0	13 (100.0)

Table7.2 (dc: Japanese) FIRST MENTIONS

form Cf	Bare N (%)	Demonstrative Determiner +N *sono* N 'that N' (%)	Demonstrative Pronouns *sore* 'that' *soko* 'there'(%)	Zero Pro (%)	TOTAL (%)
Topic with *wa*	0				0
Subject with *ga*	10 (90.9)	1 (9.1)			11 (100.0)
Object with *wo*	0	0	0	0	0
Others	1 (50.0)	1 (50.0)	0	0	2 (100.0)
No case marker	0	0	0	0	0
TOTAL	11 (84.6)	2 (15.4)	0	0	13 (100.0)

First mentioned references in Japanese are mostly bare nouns that are frequently introduced with the subject marker *ga*. In introducing the discourse entity into the discourse, the giver uses several ways of 'initiating reference' and the type of noun phrases that tend to be used are called 'elementary NPs' by Clark and Welkes-Gibbs (1986), for example, *doshakuzure mitaina e* 'a picture like a landslide' in the existential construction, *ga ari masu ka* 'Is there a picture of something that looks like a landslide below?' quoted in example (7.9) later in this chapter or, the first mention is more simply introduced as *koya* 'a hut', which is discussed in depth in Chapter 8.

7.4.2 Result: Subsequent mentions in Japanese data

Here are the results of subsequent mentions in the two Japanese dialogues:

Table 7.3 (da: Japanese) SUBSEQUENT MENTIONS

form Cf	Bare N (%)	Demonstrative Determiner +N *sono* N 'that N' (%)	Demonstrative Pronouns *sore* 'that' (%)	Zero Pro (%)	TOTAL (%)
Topic with *Wa*	7 (53.8)	1 (7.7)	1 (7.7)	4 (30.8)	13 (100.0)
Subject with *ga*	9 (60.0)	4 (26.7)	2 (13.3)	0	15 (100.0)
Object with *Wo*	2 (28.6)	1 (14.3)	4 (57.1)	0	7 (100.0)
Others	59 (80.8)	14 (19.2)	0	0	73 (100.0)
No particle	3 (15.8)	1 (5.3)	0	15 (78.9)	19 (100.0)
TOTAL	80 (62.5)	21 (16.4)	7 (5.5)	20 (15.6)	128 (100.0)

Table 7.4(dc: Japanese) SUBSEQUENT MENTIONS

form Cf	Bare N (%)	Demonstrative Determiner + N *sono* N 'that N' (%)	Demonstrative Pronouns *sore* 'that' (%)	Zero Pro (%)	TOTAL (%)
Topic with *wa*	2 (20.2)	1 (10.0)	2 (20.0)	5 (50.0)	10 (100.0)
Subject with *ga*	5 (83.3)	0	0	1 (16.7)	6 (100.0)
Object with *wo*	6 (16.2)	1 (2.7)	30 (81.1)	0	37 (100.0)
Others	57 (65.5)	16 (18.4)	2 (2.3)	12 (13.8)	87 (100.0)
No particle	10 (83.3)	0	0	2 (16.7)	12 (100.0)
TOTAL	80 (52.6)	18 (11.8)	34 (22.4)	20 (13.2)	152 (100.0)

In cases of subsequent mention, bare nouns are the major type of reference (62.5 % in Table 7.3 and 52.6 % in Table 7.4) and 57 occurrences out of 80 are used in PPs as Others, that is in the lowest Cf ranking. Demonstratives are the second major type of reference, as both determiners and pronouns (21.9% in Table 7.3 and 34.2% in Table 7.4). Zero pronouns have only a quarter of the frequency of bare nouns (15.6 % in Table 7.3 and 13.2 % in Table 7.4). 30.8% of zero pronouns in Table 7.3 and 50.0% of zero pronouns in Table 7.4 are exploited explicitly or implicitly in topic position, but it is often difficult to determine their Cf ranking if case markers are omitted with no particle after each form. In fact, 78.9 % of zero pronouns in Table 7.3 and 83.3 % of the types without any case marker are bare nouns in Table 7.4. The drop of case markers occurs with both full NPs and zero pronouns, but is quite rare with demonstratives (only one occurrence in Table 7.3).

7.4.3. Result: First mentions in English data

Here is the result of first mentions in the two English dialogues:

Table 7.5 (Lleq4c4)) FIRST MENTIONS

form ⟍ Cf	def. NP (%)	indef. NP (%)	NP with no det. (%)	TOTAL (%)
Subject	0	0	0	0
Object	0	9(100.0)	0	9 (100.0)
Others	5 (22.7)	16 (72.7)	1 (4.6)	22 (100.0)
TOTAL	5 (16.1)	25 (80.7)	1 (3.2)	31(100.0)

Table 7.6 (Lleq4c6) FIRST MENTIONS

form Cf	def. NP (%)	indef. NP (%)	NP with no det. (%)	TOTAL (%)
Subject	0	0	0	0
Object	2(25.0)	6(75.0)	0	8 (100.0)
Others	1(7.7)	12(92.3)	0	13 (100.0)
TOTAL	3(14.3)	18(85.7)	0	21(100.0)

Most of the first mentioned references are indefinite NPs (80.7% in Table 7.5 and 85.7% in Table 7.6) and they are introduced either in the position of Object or Others as PPs: 'are you anywhere near a sort of like a gorge, or a waterfall or something?' (lleq4c4.TA23); in the copula sentence, 'it's like a cliff face'. (lleq4c4. TB81); in the position of object as in 'And, have you got a like a palm tree, or a coconut tree, yeah?' (lleq4c6. TA181); and as a fragment as in 'A cave, or a pothole, or something.' (lleq4c4. TA80) Definite NPs are also used as a first mention: 'are you near the coast?' (lleq4c4. TA141) The nouns with no determiner are also introduced in the *there*-construction, as in 'There's sort of like sand' (lleq4c4 TB205). In contrast to the result in Miller and Weinert (1998), where first mentions are more likely to be definite (233), most of the first mentioned references in our data are indefinite NPs. It is clear that this difference is caused by the original Map Task Corpus that has the ready-made names on every landmark, i.e. 'labelled map task', while our map task has no name on the landmarks, i.e. 'labelless map task'. The difference in this task design may cause the difference in the type of the first and subsequent mentions of the entities, which is investigated in Chapter 8.

7.4.4 Subsequent Mentions in English data

Here is the result of subsequent mentions in the two English dialogues:

Table 7.7 (Lleq4c4)SUBSEQUENT MENTIONS

form \ Cf	def. NP (%)	indef. NP (%)	NP with no det. (%)	demon. (%)	poss. (%)	pronoun (%)	zero pronoun (%)	TOTAL (%)
Subject	2 (10.0)	0	0	0	2 (10.0)	15 (75.0)	1 (5.0)	20 (100.0)
Object	6 (30.0)	4 (20.0)	1(5.0)	2 (10.0)	0	7 (35.0)	0	20 (100.0)
Others	42 (57.6)	6 (8.2)	4 (5.5)	9 (12.3) (inc. 3 *there*)	0	9 (12.3)	3 (4.1)	73 (100.0)
TOTAL	50 (44.3)	10 (8.9)	5 (4.4)	11 (9.7)	2 (1.8)	31 (27.4)	4 (3.5)	113 (100.0)

Table 7.8 (Lleq4c6) SUBSEQUENT MENTIONS

form \ Cf	def. NP (%)	indef. NP (%)	NP with no det. (%)	demon. (%)	poss. (%)	pronoun (%)	zero pronoun (%)	TOTAL (%)
Subject	0	0	0	0	0	4 (100.0)	0	4(100.0)
Object	1 (14.3)	2 (28.6)	0	1 (14.3)	0	3 (42.8)	0	7 (100.0)
Others	34 (68.0)	4 (8.0)	2 (4.0)	5 (10.0) (inc. 5 *there*)	0	5 (10.0)	0	50 (100.0)
TOTAL	35 (57.4)	6 (9.8)	2 (3.3)	6 (9.8)	0	12 (19.7)	0	61 (100.0)

Note: demonstrative *there* is locative only

In subsequent mentions, 44.3% are definite NPs and 27.4% are pronouns in Table 7.7; 57.4% are definite NPs and 19.7% are pronouns in Table 7.8. 57.6% of definite NPs in Table 7 occur in Others, and 68.0 % of definite NPs in Table 8 occurs in Others. The fact that subsequent mentioned NPs still stays low in Cf ranking is similar to the Japanese data. By contrast, pronouns are more likely to occur in the subject position. 75.0 % in the subject position in Table 7.7 and 100 % in the subject position in Table 7.8 are occupied by a pronoun. Demonstratives are used as adjective and pronoun , but mainly as a pronoun, *that,* and the deictic locative *there* is also used to refer to the specific landmark.

7.5. Discussion

Here I examine three types of expression with respect to how they can significantly contribute to the local or global coherence of discourse. The types of expression to be examined are (zero) pronouns, full NPs, and demonstratives, respectively. I will then address how they are used both within the discourse segment and over discourse segment boundaries. Discourse segments are identified and defined as the utterances of discourse, fulfilling certain functions with respect to the overall discourse (Grosz and Sidner 1986). For identifying the segment boundaries between global segments, I follow the rules proposed in Walker (1989) as discussed in Chapter 5 (section 5.2.2). The definition of the utterance boundary follows Walker (1998) and Poesio *et al*. (2004), as discussed in Chapter 5 (section 5.4). In the figures, each segment is numbered as 1, 2, 3, etc, and each utterance is numbered as (1), (2), (3), etc.

7.5.1 (Zero) pronouns

Generally, pronouns in English and zero pronouns in Japanese are likely to encode the current center of attention once they are established as a topic in the discourse. In the Japanese dialogue data, as seen in Tables 7.3 and 7.4, the frequency of occurrence of zero pronouns is unexpectedly low, and tends to be discontinued without being established as a topic entity. Consider the dialogue below:

(7.9)

G:shita ni <360>kou _doshakuzuremitaina_ <260> _e_   ga   ari masu   ka
   under   this landslide looking like   picture SUBJ   is POL   Q

F: [ø] gake   mitai nan   ga   att te   doshakuzure ({tte   koto de*su   ka[?]})
     cliff   like   thing SUBJ   is and   landslide   ((REL thing is POL   Q   ))

G: *a <390> a watashi no e   niwa sono gake no
                   Uh   uh   my   picture TOP   that cliff GEN
    e   ga   nain   desu   ne
    picture SUBJ   is not   POL   PAT

F:({hai[?]})+
    yes

G:+ n

G:* ta

F:* [ø]   doukutu towa chigai masu   yone
    (it)   the cave from different is (POL)   isn't it (PAT)

G: hai[ø] doukutu towa chotto chigai   ma*su
   Yes, it the cave from   a bit different is POL

(English translation)
G: Is there a picture of something like a landslide below?
F: Does that mean there is something like a cliff and there is a landslide (below)?
G: Oh. There isn't a picture of cliff in my picture, isn't there?
F: Yes?
G: […]

G: […]

F: It's different from a cave, isn't it ?

G: Yes, it is a little different from the cave.

Here zero pronouns are used in the subject position of copula sentences: in the first utterance, the information follower is confirming the position of the signposts '[ø (*sore wa* 'it's'] *gake mitai nan ga attte doshakuzure ({tte koto de*su ka*[?]}) 'Does that mean there is something like a cliff and there is a landslide (below)?'; in the latter part, the information follower is comparing one entity with the other competing entity in his map of the interaction: '[ø] *doukutu towa chigaimasu yone* 'It's different from a cave, isn't it ?' and *hai*[ø] *doukutu towa chotto chigaima*su* 'Yes, it is a little different from the cave.' That is, the speaker is confirming whether 'A is B' in the utterance is correct or not. Most of the zero pronouns at the subject position are also considered as zero topics in the copula sentence, mostly in the exchange where the one asks questions and the other answers about the present location of the target entity on each map: [ø（*koya wa*）] *nai desu* 'there isn't [ø (hutch)]'. In these exchanges, the entities that the giver and the follower are dealing with are frequently not shared, so that they are only confirming their own specific entity in each map.

Thus, although the combination of the zero pronoun and the zero topic is the highest ranking of the Cfs, zero pronouns only tend to occur in the particular exchanges within the discourse segment in which the topic entity is shared. Obana (2003) points out that the chain of zero pronouns in Japanese narratives do not form a 'topic chain' in Givón's (1983) sense. Obana (2003) observes that 'a string of zero anaphors does occur in Japanese novels which may signify the centrality of the character in a given discourse. However, a string of zero pronouns itself does not

form a 'topic' chain, or prove 'topic continuity' (419: quotations are Obana's own).[36]

Therefore, zero pronouns occur only at a limited stage of a given discourse, where

the participants require the confirmation or checking of the entities that are notably

realised in the existential construction or in the copula construction, 'A is B'. Thus, it

appears unlikely that zero pronouns can carry a topic over the discourse segment

boundary.

In the English data, on the other hand, pronouns occur in various positions to

describe the location of the landmark. Let us consider the example below:

(7.10)

*TB 215: Have you got *a field*?
*TA 216: But ...>
*TA 217: < Yeah, but *it*'s/
*TB 218: Not as far.
*TA 219: doesn't follow my route, no. >
*TB 220: Is *it* above... Is *it* just directly below that, or is *it* nearer the
waterfall?
*TA 221: Sort of in between {n laugh}.
*TB 222: Right

(lleq4c4)

Here, the participants attempt to describe where *a field* is located on the map. Other

typical examples of pronouns are 'How far about *it*?' (Lleq4c4 TB231), 'In the

middle of *it*?' (Lleq4c4 TA250) as a complement, 'Maybe *it*'s not a cave'(Lleq4c4

TA99), and 'I don't know what *it* is' (Lleq4c4 TA109) as a subject. Pronouns can

continue to be used as far as there is no competing entity occurring in the discourse,

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[36] Obana's (2003) findings include that 'a zero chain in Japanese continues only when the
protagonist's consecutive or concurrent movements are recognised' (419).

as illustrated below:

(7.11)

*TB 98: I don't have *the caves*. >

*TA 99: {x oh} You don't have *it*, {x oh} right, okay. Well, {a is} maybe *it*'s not a cave, but /

*TB 100: I don't have anything like *a cave*.

*TA 101: *it*'s >

*TA 102: Right, right, okay, right. {n laugh} {m um} *It* might be a rock face, I don't know. But /

*TB 103: Whereabout is *it* on the page?

*TA 104: *it*'s sort of >

*TA 105: On the right hand side, in about the middle.   Well, no, on {a r} the middle of the right hand side. No?

*TB 106: Oh, I see what you mean.

*TA 107: Right, okay. I don't know what *it* is.

*TB 108: *It*'s got a black bit.

*TA 109: < Yeah, *it*'s got a /

*TB 110: Yeah, aha.

*TA 111: black couple of bits. >

*TB 112: < Right, /

*TA 113: Right, okay

(lleq4c4.)

Zero pronouns do occur in the examples like 'Below [ø (the waterfall)], sorry.' (TB 211 lleq4c4); 'Below [ø (the waterfall)], yeah, yeah' (TB 212 lleq4c4). Future research needs to look into the restrictions on zero pronouns in Japanese.

7.5.2 NPs (bare nouns)

As seen in Tables 7.3 and 7.4 in Japanese and Tables 7.7 and 7.8 in English, NPs are the type of referring expressions that are most frequently used in every Cf

ranking in both Japanese and English. In Japanese, once NPs are introduced as first mention, mainly with the Japanese subject marker *ga* in *taki ga* 'waterfall-SUBJ' as an initiating reference, they tend to be reiterated without case-marking in the subsequent discourse, as *taki* 'waterfall' in this case.

(7.12)

F: *taki*   ga   arimasu yone
   waterfall   SUBJ   there is isn't it (PAT)

G: a   makita ni
   INTJ   north   in

G: *taki* *
   waterfall

F: * *taki*   saisho   toottekita
        waterfall   beginning   passed PAST

G: [ø（taki wa）]na nai desu   ne
    ZERO TOP   not is POL   PAT

F:_*taki*   ja
   waterfall   ?

F:*ima iru sono nan (?) <320> mina*mi ni sansennchi   sagatta to*koro no
   now be that MED   south   in three centimeters down   place   of

G:* *taki*
   waterfall

G: *un

G: *unun

(English translation)
F: There is a waterfall, isn't there?
G: uh, to the north
G: (the) waterfall
F: the waterfall that I passed first
G: There isn't.
F: the waterfall
G: now there is, (?) three centimeters down to the place in the south
G: the waterfall

Subsequently, the bare noun *taki* 'waterfall', which is used once with the zero topic pronoun *wa* in the middle of the discourse, continues to be used as the center of attention to identify which *taki* is mentioned, as shown in Figure 7.4. The noun *taki wa* 'waterfall-TOP' continues to serve as a topic even across the segment boundary, after the 'push' of the discourse segment (Seg.2 and 3), and finally after the 'return pop' of the subsequent segment, Seg. 4 as shown in Figure 7.4.:

Seg.	U	Sp
1	(1)	F: *taki* wa
		[the waterfall TOP]
	(2)	'Is the waterfall,'
		G: *haha (back-channel)
		G: *un
		F:higashi ni arimasu ka nishi ni arimasu ka
		[the east in is POL Q the west in is POL Q]
	(1)	'In the east or in the west?'
2	(3)	G: e sono fune kara
		[that-DEM ship from]
		'from that ship'
	(4)	F: fune janakute ima *<210>
		ship not now
		'not the ship, now'
	(3)	sansennchi minami ni sagarimashita yone+
		three centimeters south in down POL PAT
		'three centimeters to the south down, you know'
	(4)	G: *a ima
		G:+ a hai hai hai
3	(5)	F: sore tte <240>*sono su
		that MED-PRO that MED-ADJ
		'that, that'
	(6)	G: *hai
		yes
		'Yes'

	(7)	G: hoko　　　　kara 　　there(?)　　from 　　'From there(?)'
	(5)	F: so<300>ko kara *makita ni agattte sen wo　hiite 　　there　　from　north　to up　　line OBJ draw 　　'From there up to the north, draw the line'
	(8)	G:　　　　　　　　　*un
	(9)	G: un
	(10)	G:*makita ni agatte 　　north to up 　　'up to the north'
4	(11)	F:*taki　　　　wa<250>higashi ni ari*masu ka 　[the waterfall TOP　　the east in is POL Q] 　'Is the waterfall in the east'
	(12)	G:　　　　　　　　　　　　*taki　　　wa 　　　　　　　　　　　　[the waterfall TOP] 　　　　　　　　　　　　'The waterfall'
	(13)	F:nishi　ni ari<200>masu ka 　[the west in is　　POL Q] 　'(or) in the west?'
	(12)	G: [ø（taki　　　wa）] higashi ni ari masu 　[ø（the waterfall TOP）] the east in is POL 　'is in the east.'

Figure 7.4. Example from Japanese MTC (da)

Here *taki* 'waterfall', which is introduced in discourse segment 1, reappears in the initial utterance of discourse segment 4 over the discourse segment boundary, after the digression of the 'push', in segment 2 and segment 3. Obana's (2003) argument that 'as Japanese zero anaphora breaks down readily, it is the NP which maintains the most focused topic' (419), in fact, corresponds to the case in the dialogic discourse. The center of attention, which is temporarily distracted by the push segment, returns as segment-initial utterance in the 'return pop' segment over the discourse segment

boundaries.

Similar observations can be applied to the English data in Figure 7.4:

Seg.	U	Sp
1	(1)	*TB 19: < {m erm} I can see one,
	(2)	but it's not, {m er} the closest.
	(3)	There's something in between *the gorge*.
	(4)	There's a, a cottage in between *the gorge* /
	(5)	*TA 20: A cottage?
	(6)	*TB 21: and the... >
2	(7)	*TB 22: < Yes. But tell me about it (??) anyway /
	(8)	*TA 23: Okay.
	(9)	*TB 24: from your/
	(10)	*TA 25: Right, from, from my map, Okay.
	(9)	*TB 26: map. From xxxxxxx >
3	(11)	*TA 27: {m em} Can you go ... easterly for about five {a cent}, no four centimetres, no five centimetres. Sorry.
	(12)	*TB 28: Okay, it's just rough anyway.
	(13)	*TA 29: Alright, okay.
4	(14)	*TA 29: And then, from where you've, like, put your pen last, can you go {m erm) {a s} north easterly for about four centimetres.
5	(15)	*TA 29: So, basically, you should be above *the sort of gorge, waterfall.*
	(16)	Are you? {n laugh}
	(17)	{a w} Will you be able . . .
	(18)	*TB 30: {m erm} Yeah, above *it*, and to the left.
	(19)	*TA 31: <Yeah, yeah, /

Figure 7.5. Example from English MTC(Lleq4c6)

The gorge in TB19's utterance (the instruction follower) is accessible for the TA 29 (the instruction giver) in segment 5, though, this time, the expression is more

expanded than the initial reference as *the sort of gorge, waterfall* after the interruption between TA20 and TB 28, the segment of which is considered to be a different set of utterances from the previous utterances, or an embedded segment.

7.5.3 Demonstratives

Demonstratives are more frequently used in the Japanese data than in the English data (21.9/34.2% in Japanese vs. 9.7/9.8 % in English). In English, as seen in the Tables 7 and 8, demonstrative pronouns *that* and the locative *there* are the main types of demonstratives, while the demonstrative NPs, especially *that* NP (Medial *sono*-N in Japanese) do not occur in the English data, but are frequently used in the Japanese data. In this section I focus on the use of the Japanese demonstrative *sono* NP as a significant marker contributing to discourse coherence.   First of all, *sono* NPs are used to identify the entity that has been introduced in the immediately preceding discourse. The example is partly the same as example (7.3), but I reproduce it here for convenience as (7.13):

  (7.13)

G:shita ni <360>kou *doshakuzuremitaina* <260> *e*   ga   arimasu   ka
   below   this landslide-like   picture SUBJ is (Pol)   Q
F: [ø] gake   mitai nan   ga   att te   doshakuzure ({tte   koto de*su   ka[?]})
      cliff   like   thing SUBJ is and   landslide   ((REL thing is (Pol) Q   ))
G: *a <390> a watashi no e   niwa *sono gake* no
                       Uh   uh   my   picture TOP   that cliff GEN

e   ga   naindesu   ne
picture SUBJ is not (Pol) Pat

(English translation)

G: Is there a picture of something that looks like a landslide below?

F: That means there is something like a cliff and there is a landslide (below) ?

G: Oh. There isn't a picture of *that cliff* on my map, is there?

Here the follower introduces *gakemitainan* 'something that looks like a cliff' to refer to the element in the follower's map, contrasting with the giver's preceding element *doshakuzure mitaina e* 'a picture of something that looks like a landslide'. Then the giver refers to the follower's entity as *sono gake* 'that cliff', which the giver does not have in his map. It is natural to assume that *sono* NP 'that NP' is used to refer to the element that is not likely to be the current center of the utterance, because bare nouns are not likely to be used in such context.

Another type of *sono* NP can be seen when the element introduced in the initial discourse segment, *mominoki no e* 'a picture of a fir tree', functions as the reference point of the new topic that is to be introduced to the subsequent discourse:

Seg.	U	Sp
1	(1)	G: sono 　[that] G: kakioeta　　　chitenn no 　[finished writing point　　of] G: migi　　ni *mominoki　no　　e*　　ga　ari masu ka 　[the right on the fir tree of-GEN picture SUBJ is POL　Q]
	(2)	F: hai 　[yes]
	(3)	G: hai 　[yes]
2	(4)	G: ja *mominoki no* 　[so the fir tree of-GEN] G: *e*　　　no 　[picture of-GEN]

		G: to<360> shita no hidarihashi
		[and(?) below of left end]
		G: komiki
		[?]
	(5)	F: hai
		[yes]
	(4)	G: yori issenchi mata minami
		[from one centimeter again south]
		G: no chiten made <320> naname ni sen wo hiite
		[of point until diagonally line OBJ draw]
	(6)	F: hai
		[yes]
3	(7)	F: hougaku wa
		[direction TOP]
	(8)	G: hougakku wa eto *sen wa
		[direction TOP INTJ line TOP]
		F: *n
		[?]
	(7)	F: nan *sei no nantou desu ka
		[southwest of southeast POL Q]
	(8)	G: *nansu<250>nanto desu ne hai
		[? southeast POL PAT yes]
	(9)	F: hai
		[yes]
	(10)	F: hai
		[yes]
4	(11)	G: de
		[then]
		G: kondowa
		[this time TOP]
		G: *sono mominiki* no_<220>
		[that fir tree of-GEN
		mamina maminami towa ika nain desu kedo
		[? the south TOP go not POL though]
	(12)	G: shitani <360> kou *doshakuzue mitaina* <260> *e* ga arimasu ka
		[below this landslide like picture SUBJ is (POL) Q

(English translation)

(1) G: 'At the right of that point you finished writing, is there a picture of a fir
    tree?'

(2) F: Yes.

(3) G: OK.

(4) G: Then, from below the left end of the picture of a fir tree,

(5) F: Yes.

(4) G: To the point of the south one centimeter again, draw a line diagonally?

(6) F: Yes.

(7) F: Is the direction,

(8) G: The direction, well, the line is

(7) F: to the southwest or to the southeast?

(8) G: to the southeast, yes.

(9) F: OK.

(10) F: Yes.

(11) G: Then, this time, although it's not to go to the south of that fir tree,

(12) G: is there a picture like this landslide below?

(Figure 7.6. Example from Japanese MTC (da))

After the embedded segment 3, *sono* NP appears in the initial utterance of the return

pop segment (11) as *sono mominoki* 'that fir tree', and this time it functions as a

reference point to introduce a new entity *doshakuzuremitaina e* 'a picture of

something that looks like a landslide' in the return pop segment.   Sakahara (2000)

notes that a demonstrative determiner has the focus function, and 'it gives the

referential object a kind of proximity, then its zoom-up effect enables us to pay

special attention to the identified object (227)'. Here *sono mominoki* 'that fir tree'

focuses attention on the initial utterance of the pop segment to introduce the

following element *doshakuzuremitaina e* 'a picture of something that looks like a

landslide'.

Furthermore, *sono* NP does not only focus on the NP but also plays a role in

controlling the flow of information of the discourse. Sakahara (2000: 240) also points out that the demonstrative determiner can search for a target entity within a small territory, and can pinpoint a single entity out of a number of candidates, as we can see below:

Seg.	U	Sp
1	(1)	F: sakki no mominoki ja nakute [recent fir tree be not]
	(2)	G: mominoki ja nakute [fir tree is instead of] happa no ookii chotto mi ga natteru youna ki ga [leaves of large a few fruits OBJ have like tree SUBJ]
	(3)	F: *kaiganse*n no chikaku ni su *ka [[Ø TOP] coastline of close to be Q]
	(4)	G: *a sou desu ne *kaigansen* no chikaku de ii desu [INTJ right is PAT coastline of close at good POL]
	(5)	F: *soko* <240> wa niwa ki wa nain desu *kedo [There TOP garde tree TOP/SUBJ not POL though]
2	(6)	G: *a <220>hai<370> ja *sono kaigansen* no [INTJ yes then that coastline of]
	(7)	F: hai [yes]
	(6)	G:eto migihashi arimasu yone [INTJ right end is POL PAT]
	(8)	G:*migihashi no [right end of]
	(9)	F:*hai [yes]
	(8)	G: migihashi [right end]
	(8)	G:**kaigansen no e no migihashi** [the coastline of-GEN picture of-GEN right end]
	(10)	F:*hai [yes]

	(11)	G: ***sen*** no migihashitte koto desu ka
		[(coast)line of right end thing POL Q]
		G: i
		[?]
	(12)	F:*kai
		[?]
		G:*a <230> suimasen
		[INTJ sorry]
3	(13)	G: eto
		[INTJ]
		G: ima ***sono kaigan no e*** ga ari masu yo*ne
		[now that seaside of-GEN picture SUBJ is POL PAR]
	(14)	F: *hai
		[yes]

(English translation)

(1) F: Not the recent fir tree.

(2) G: Not a fir tree, but a tree like of large leaves with a few fruits,

(3) F: Is it close to the coastline?

(4) G: Yeah, that's right, close to the coastline, it's good.

(5) F: there is no garden tree there, though.

(6) G: Oh, yes, then of that coastline,

(7) F: Yes.

(6) G: Well, there is the right end of it, isn't there?

(8) G: the right end of it.

(9) F: Yes.

(8) G: the right end.

(8) G: the right end of the picture of the coastline.

(10) F: Yes.

(11) G: Is it the right end of the (coast)line?

(12) G: Oh, sorry.

(13) G: Well, now there is the picture of that seaside, isn't there?

(14) F: Yes.

Figure 7.7. Example from Japanese MTC (da)

Here the participants start discussing over the place *kaigansen* 'coastline' in order to

introduce a new entity, a tree with some fruits in segment 1. The entity mentioned as *kaigansen* 'coastline' and place deixis *soko* 'there' at the topic position in segment 1 (U(3), (4), and (5)) is rementioned as *sono kaigansen* 'that coastline' in segment 2, and again realized as *sono* N: *sono kaigan no e* 'a picture of that seaside' this time in a slightly different word in segment 3 (U(13)). These three segments are linearly recent. The current center is highlighted by these demonstrative determiners and lexical forms and this continues over the discourse segment boundaries. Note that both segment-initial utterances in segment 2 and 3 have a similar type of existential construction *arimasu yon*e 'there is (demonstrative NP), isn't there?' with cue words *hai ja* 'OK, then' in segment 2 and *eto ima* 'well now' in segment 3, which is supportive evidence of the extended interpretation of Walker's IRUs.

In addition, of interest is the fact that Japanese Medial demonstratives, *sono* N as in *sono kaigansen* 'that coastline' and *sono kaigan no e* 'a picture of that seaside' are used only by the instruction giver in segment 2 and 3. This shows that the Medial demonstratives are strongly anchored in the addressee's domain. Furthermore, it has been observed by Sakahara (2000: 245) that *sono* N is the only demonstrative determiner with nouns that can serve to develop the function of focusing on a specific entity in discourse, while the *a-* and *ko-* type of demonstratives cannot have this function. This can clearly validate the claim that *sono* N is an important demonstrative NP functioning as a discourse anaphora in supporting the topic chain of the current center instead of indicating a topic shift.

Lastly, as I mentioned earlier in this section, English demonstratives *that* and *there* can also make a topic chain as illustrated below:

(7.14)

*TA 158   on my map I've come up next to a... What is it? Sort of like... *It's a sort of like big sort of house, it's got a big roof, and its got three big pools*.

*TB 159   Aha.

*TA 160   Have you... Have you got *that* on your map.

*TB 161   Yeah, I've got *that*, but *that*'s not where I am.

*TA 162   < Alright, /

*TB 163   I'm

*TA 164   well I need you to go *there* {n laugh} >

*TB 165   Okay.

Here demonstratives *that* and *there* are used as referential pronouns to refer to the specific landmark. Considering the patterns of these demonstratives, it is presumed that the introduced entity contains a combination of lexical information related by indirect anaphora, which is called information packaging in other studies (e.g. Valluduvi 1992): *big sort of house, a big roof, and three big pools*. This may motivate the participants to choose a demonstrative pronoun rather than normal pronouns such as *it* or *they* in processing information in a discourse, because *that* can be used for discourse deixis to refer to phrases and clauses in previous utterances. Thus, again some demonstratives do not only indicate a focus-shift but also a topic continuation in a given context of discourse. The notion of demonstrative as indicating focus-shift has been discussed in previous chapters, especially in Chapter 3 (3.7.1. and 3.7.2), and I will further explore the motivation of a topic continuation in section 7.6.3. Future research needs to examine demonstrative pronouns in Japanese in more detail.

7.5.4. Summary of Discussion

In the previous sections, applying the cache model to my data, I have investigated how three types of referring expressions, (zero) pronouns, full NPs, and demonstratives play a crucial role in different stages of processing discourse both within a discourse segment and over discourse segment boundaries. To sum up, the cache model can provide a plausible model to deal with centers that are continued over the discourse segment boundary. These centers include full NPs and demonstrative NPs in both English and Japanese data. The use of (zero) pronouns is restricted to the topic continuity of a given entity with no competing antecedents within a discourse segment. Full NPs, on the other hand, carry topic continuity over the discourse segment boundary, and demonstratives have a unique status in maintaining a current center of a given utterance. Japanese demonstrative NPs, especially, can indicate not only a focus-shift, but also continue over the discourse segment boundary controlling the flow of information as a focusing device.

7.6   Resolutions: The interpretation of NPs

This section further discusses how the cache model is consistent with my claims based on the findings with respect to the following research questions: Why are bare NP and *sono* NP immediately identified as a current topic across the discourse segment borders when they appear in the return pop segment after the push? How are definite nouns able to be used to define a topic chain in discourse? As I have already pointed out, the use of full NPs as a topic chain is cross-linguistically an unmarked anaphoric phenomenon in naturally occurring discourse. Cornish (1999), quoting Walker's term 'cache', explains the correlation between the type of anaphor and the topic continuity in discourse. The following remarks (Cornish 1999: 258) give us a

clue in understanding the behaviour of NPs as a topic chain in discourse: 'the default mode of integration is that of continuity with the existing state of the discourse model, and the preferred location for such attachment [a memory representation acting as context -- a point of attachment] is the 'cache' (or 'explicit focus' space) within working memory'.

Cornish appears to be positive about the hypothesis that functionally marked expressions such as definite NPs and demonstratives 'always convey something other than the default "continue the representation currently in explicit focus" (his quotation), even when their intended referent is in fact one of the discourse entities in current focus' (259). The evidence that Cornish (1999) presents in his analysis and his critical evaluation of the counter-result is that the researchers of psycholinguistics who challenges the predictions of centering theory do not invalidate centering theory predictions. Presumably, the rules and constraints in centering theory may be extended if the claim is supported by sufficient evidence as a general linguistic phenomenon.

Therefore, the cache model is designed to cover the ignored domain of anaphoric devices by capturing both global and local aspects of discourse understanding. There is no doubt that the use of NPs as topic chain is a natural tendency in discourse and represents the unmarked situation that if the discourse segment discontinues for a certain purpose, e.g. a side-sequence, then a formally more substantial expression type than the attenuated zero or unaccented pronoun will tend to be used, because the form of reference is immediately activated and the discourse context is immediately recovered by the participant's cognitive interaction between working memory and main memory. However, the behaviour of the non-pronominal expressions that are connected with topic continuity by means of

memory representation is another difficult issue to handle.

Why is a full NP so frequently used to continue the Cb within and across the discourse segment? Walker (1998, 2000) also questioned: 'why does this occur?' Then she poses two possibilities to resolve this issue. 'One possibility is that the use of the full NP is one of a number of potentially redundant cues that the speaker has available for signaling intentional structure, so that the choice of a full NP or a pronoun is not determined solely by the current attentional state' (19). This signifies that the choice of a full NP contributes to how the speaker deals with the discourse entity and how the participants interact in the dialogue by organizing the topic to meet their mutual aims.

A second possibility is that the full NP is used to signal the rhetorical relation of contrast. A contrastive relation between utterances, according to Walker (1998), is indicated by discourse connectives, such as *but*, and left dislocation as in 'Anyway, *my oldest son*, he plays baseball right now.' Walker suggests investigating what constitutes an adequate retrieval cue for focus pops and how a speaker's choices about the form of referring expressions interacts with other retrieval cues. Here two issues are presented. By 'an adequate retrieval cue for focus pops', she means several linguistic representations: a specific form of referring expressions such as pronoun, definite NP, or demonstratives, discourse connectives such as *but, and*, *so*, *then* (Webber *et al*. 2003). So-called cue phrases such as *now*, *anyway*; syntactically marked structure, such as left dislocation are also included, as the example shows above.

Although these two possibilities are associated with a number of discourse factors, the current discussion for solving the implication of full NPs starts investigating what kind of linguistic representation serves to play a role as an

adequate retrieval cue for return pops in the data. In the following sub-sections, I propose three resolutions based on the improved hypothesis of the cache model and my findings in the previous sections: Extended interpretation of IRUs, cue words, and the role of Japanese demonstratives with respect to the return pop segment. As discussed, the referential choice of NPs are motivated by the interaction between topic entities and the intentional structure in global coherence of discourse: what kind of retrieval cues are involved in the choice of referring expressions, and more significantly, to what extent, and in what stage of discourse organization, these factors are involved in the choice of referring expressions in discourse.

7.6.1 Resolution 1: Extended Interpretation of IRUs

This section is devoted to the discussion of the possible solution concerning the use of the noun phrases in the return pop segment. That is, the first heuristic for resolving the reference of noun phrases in these segments can be obtained from the extended interpretation of Walker's INFORMATIONALLY REDUNDANT UTTERANCES (IRUs). As Walker's (2000) proposal for how the reference of pronoun in English is resolved suggests, there are two possibilities for how the context is created so that pronouns in focus pops (i.e. return pops) can be interpreted:

1. The pronoun alone functions as a retrieval cue (e.g. gender, number, and matrix verbs)
2. The content of the return utterance indicates the occurrence of INFORMATIONALLY REDUNDANT UTTERANCES (IRUs)

The possible resolution [1] does not apply to Japanese. Since Japanese zero pronouns are invisible, they do not carry any information such as gender, number, and matrix

verbs about a previous centered entity. Thus, this rule cannot be extended to Japanese.

As Walker also predicts, the possible resolution [2] can be extended to the interpretation of NPs in both English and Japanese. That is, the full NP continues the Cb in IRUs as 'one of a number of potentially redundant cues that the speaker has available for signalling intentional structure' (Walker 1998: 427). Based on the results, as I observed in Chapter 6 (6.3 and 6.4), the CONTINUE transition is most frequent in both English (47%) and Japanese (53 %). While both of the CONTINUE transitions show comparatively similar tendencies, Japanese noun phrases are 1.5 times more frequent than their English counterparts. What does this result mean?

I assume that in Japanese the use of NPs to define a topic chain is more predominant than in English. This topic chain can be maintained over discourse segment boundaries, as we have seen in the previous section. However, from the centering framework, the center realisation of the bare noun in an initial utterence of a return pop segment is analysed as NULL transition, because centering theory predicts that the entity in the Null transition has no prior center in the immediately previous utterances unless the global focus of discourse is concerned (see Chapter 6.3).   Instead, if the possible solution 2 is applied to the segment identification of the return pop, the lost topic chain can be retrieved. Let us pay attention to the segment-initial utterance in the focus pop segment in example (7.15), in which the expression *taki* in the last utterance of Segment 1 is reiterated in the similar construction in the initial utterance in Segment 4 :

(7.15) [from Figure 7.3]

Seg.1

F: . . . *taki*   wa

    [the waterfall TOP]

     'Is the waterfall'

G: *haha (back-channel)

G: *un

F: higashi ni arimasu ka nishi   ni arimasu ka

  [the east in   is POL Q the west in is POL   Q]

'in the east or in the west?'   the waterfall CON

Seg. 4 (<--- return pop)

F:*taki*   wa<250>higashi ni ari *masu ka

    [the waterfall TOP   the east in is   POL Q]

    'Is the waterfall in the east ?'   the waterfall CON

F:nishi   ni ari<200>masu ka

  [the west in is   POL Q]

  '(or) in the west?

Here, the Follower's utterances in Segments 1 and 4 are extracted from Figure 7.3. Note that the expression *taki* in the last utterance of Segment 1 is reiterated in the same clause construction as the initial utterance in Segment 4: 'Is the waterfall in the east or in the west?' These parallel clause constructions function as IRUs and can implicitly indicate that there is a discourse segment between the utterances. The full noun functioning as the Cb within these IRUs is helpful in activating the specific topic chain, which is interrupted shortly, but the Cb is carried over by accessing the speaker's short-term memory. Future research needs to look into the condition of IRUs in more detail.

7.6.2 Resolution 2: Cue Words

In this section, I focus on the cue word appearing in the segment-initial utterances.

This discourse factor is a significant marker to identify the discourse segment boundaries (Passonneau and Litman 1996, Walker 1998). The cue word may be any word or phrase signaling a pragmatic clue as to how the discourse develops at the specific stage of utterances. At the same time, previously mentioned full nouns recur at the initial utterance of the return pop, which indicates that the Cb is carried over across the discourse segment boundaries. Let us consider the segment 1 and 5 in Figure 7.8. here:

Seg.	U	Sp
1	(1)	*TB 19: < {m erm} I can see one,
	(2)	but it's not, {m er} the closest.
	(3)	There's something in between *the gorge*.
	(4)	There's a, a cottage in between *the gorge* /
	(5)	*TA 20: A cottage?
	(6)	*TB 21: and the... >
5	(15)	*TA 29: So, basically, you should be above *the sort of gorge, waterfall*.
	(16)	Are you? {n laugh}
	(17)	{a w} Will you be able . . .
	(18)	*TB 30: {m erm} Yeah, above *it*, and to the left.
	(19)	*TA 31: <Yeah, yeah, /

Figure 7.8. Example from English MTC (Lleq4c6)

Discourse connectives *So, basically* functions as cue words in the initial utterance of the return focus segment 4. Here, again, whether we are concerned or not about the clear specification of the interaction of centering with discourse segment does affect the different analyses of the utterances. The center transition is shown below:

(7.16)

Seg.1

(3) There's something in between *the gorge.*

Cb: [?]   NO CB

Cf: [SOMETHING, GORGE]

(4) There's a cottage in between *the gorge*.

Cb: SOMETHING

Cf: [COTTAGE, GORGE]   **CONTINUE**

(Segment 2,3,and 4 are the embeded segments, which are omitted here for a space restriction.)

--- → 'discourse boundary'

Seg.5

(15) So, basically, you should be above *the sort of gorge,*

waterfall.

Cb$_1$:   [?]   NO CB

Cf$_1$:   [GORGE]

Cb$_2$:   COTTAGE

Cf$_2$:   [GORGE]   **SMOOTH-SHIFT**

(18) Yeah, above *it*, and to the left.

Cb: THE GORGE

Cf: [THE GORGE]   **CONTINUE**

Even though the new entity *cottage* is introduced in segment 1 and established as a center in the CONTINUE segment, the topic chain of *cottage* cannot be maintained over the discourse segment boundaries. Instead, the focus of attention is shifted to *the sort of gorge, waterfall* in segment 5.

There are two options with respect to centering management. One option is based on the view from the local focus of discourse. The utterance (15) initiates a new discourse segment, which assumes that the Cb is not carried over from the previous segment, then analysed as No Cb shown as Cb1. This signifies that there is

no center candidate in the immediately previous utterance. The other option shows that the segment-initial utterance in (15) is analysed as a return pop segment, which means that the previous center can be considered despite the interrupted embedded segments between two segments S1 and S5. This treatment results in the fact that the previous center *cottage* is not in the current list of entities in utterance (15) but the previous member of Cf *gorge* returns to utterance (15) as a only member of Cf. Therefore, the center can be shifted from *cottage* to *gorge*, and the centering transition is classified as SMOOTH-SHIFT, which specifies that the focus of attention has just shifted, not that the current center is a brand-new entity. This difference is significant in considering the global coherence of discourse. It is clearly shown that signifying cue words is a useful clue to signal the discourse segment boundary and the hypothesis of the cache model can correctly treat the centering transitions over the discourse segment boundaries. However, future research needs to examine whether the cue words always lead to nouns being used.

7.6.3 Resolution 3: the Role of Japanese Demonstratives as Topic Continuity

I propose that Japanese *sono*-N 'that NP' can function as another retrieval cue signaling the return pop segment. Let us focus on Segment 4 in Figure 7.5, which is reproduced as (7.17) below:

(7.17) [from Figure 7.5]
Segment 4 (focus pop)
G: de
G: kondowa
G: *sono mominiki* no <220> mamina maminamito wa ikannain desu kedo
  [that fir tree of-GEN   the south to]

Here *de kondowa,* 'then this time' is a cue word signaling the focus pop segment and the center *sono mominoki* 'that fir tree' is carried over the discourse segment boundary. Again in Figure 7.4, which is reproduced as (7.18) below, :

(7.18) [from Figure 7.4]

Segment 3 (focus pop)

G: eto
G: ima *sono kaigan   no   e   ga   ari masu yo*ne
   [now that coastline of-GEN picture SUBJ is POL   PAR]
F: *hai

The center *sono kaigansen* 'that coastline' in the previous segment is followed by *sono kaigan no e* ('a picture of that seaside') in the subsequent focus pop segment. As I said earlier, *sono* demonstratives is the only determiner with nouns that can serve to anaphorically focus on a specific entity in a given discourse, which indicates that a new discourse segment is initiated.

Furthermore, as I have shown in section 7.5.3, Japanese demonstrative *that* NP also contributes to the topic continuity by focusing the specific entity locally and globally. Local focus is represented as an immediate second mention of the initial mention of full NPs, and global focus is signified by the focusing device in pinpointing the previously mentioned center. This shows that not only the use of the full NP but also demonstratives can be one of a number of potentially redudndat cues that the speakers are able to access to the correct understanding of the discourse coherence.

7.6.4 Further Discussion of Resolutions 1 and 3

In this section, I summarise the discussion in the previous sub-sections and present some remaining issues with respect to the use of a full NP and its role as a potentially redundant cue. To account for discourse phenomena such as the relational distinction between the pronominal / non-pronominal referring expressions, shifting of centers, and the role of demonstratives, the rules of centering need to be extended to a more flexible framework by integrating the distinction between the local and global focus with discourse segment boundaries. It is obvious that centering has ignored the referential phenomena that the center can be realised by full NPs and is maintained across the discourse segment boundary. To solve the use of full NPs in the return pop segment, three resolutions based on the cache model, but in a modified interpretation, are proposed: (1) the role of NPs as a retrieval cue and the extended interpretation of IRUs, (2) the role of cue words, and (3) the role of demonstratives as another possible retrieval cue.

These possible solutions are based on the empirical observation of the two sets of contrastive language data and can be applied to both. The discussion on what underlies Resolution 1 is the crucial issue and also the central concern. Resolution 1 is associated with the fact that a full NP is used to continue the Cb over discourse segment boundaries. The choice and the distribution of NPs can reflect the way the topic is established in a coherent context of situation in discourse. I presume that the cognitive status of the NPs are addressee-oriented, that is, the speaker is expected to provide the salient forms of reference in a specific context so that the hearer can have access to the specific topic with less effort. Thus, the center continuation over the discourse segment boundary can be properly established as far as the lexical forms of reference and the cue words can provide the plausible information of the entity that

can function as an adequate retrieval cue from the main memory.

Given that the cue is the trigger of the main memory, the entity focused in a specific context can be accessible in an undoubtedly salient context for both of the participants in the context of task-oriented discourse. Walker (2000:19) insists:

Thus, while more evidence is needed, it is plausible that the cache model can handle focus pops, by positing that a focus pop is a **cued retrieval from main memory** (Walker's emphasis) and that focus pops never occur without an adequate retrieval cue for reinstantiating the required entities, properties and relations in the cache.

The possibility that the use of a full NP is one of a number of potentially redundant cues may suggest that the full NPs can behave like proper nouns in the process of establishing entities as topic in relevant contexts, which will be explored in Chapter 8. Compared to the NPs, pronouns in return pop, referring to the entities in the previous utterances over the discourse segment boundary, have a grammatical constraint such as gender and number as a retrieval cue. Since salience may be perceived by any expressions that are most accessible to the context with respect to the participant's common ground, the advantage of NPs used for discourse anaphora is to provide the most accessible lexical information. This is why NPs can stand as accessible cue markers in specific contexts, and the anaphoric device of NPs can support the claim that the use of the full NPs is 'one of a number of potentially redundant cues that the speaker has available for signaling intentional structure (Walker 2000: 19).

In relation to Resolution 1, let us briefly return to the discussion by Grosz, Joshi, and Weinstein (1983), who start their comments on the fundamental relations between local and global coherence of discourse: 'Global coherence and focusing are major factors in the generation and interpretation of non-pronominal definite

referring expressions. Local coherence and centering have greater effect on the processing of pronominal expressions' (222). This explains that global coherence is associated with the use of non-pronominal forms of reference, whereas local coherence is associated with pronominal forms of reference. More importantly, they focus on the counter examples of the rule above and aim to interpret them in questioning why additional processing by the hearer (by using additional inferences) is involved when pronominal expressions are used to refer to globally focused entities or non-pronominal expressions are used to refer to centered entities. This claim is utterly contrary to the previous observation: global coherence is associated with the use of pronominal forms of reference, whereas local coherence is associated with non-pronominal forms of reference. The former (i.e., the interaction between global coherence and non-pronominal forms; the interaction between local coherence and pronominal forms) has been taken into account for decades by Givon (1981), Passonneau and Litman (1996), Passonneau (1998), Walker and Prince (1996), and Walker (1998, 2000), whereas the latter problem (i.e., the interaction between global coherence and pronominal forms; the interaction between local coherence and non-pronominal forms) has not been treated properly. I claim that the behaviour of definite noun phrases within and across the discourse segment borders are universally common in dialogues. That is, non-pronominal forms of reference interact with both local and global coherence. It is also claimed that some cases of definite nouns are not interpreted as focus-shift (Grosz Joshi, and Weinstein: 1983). Specifically, once the definite NPs are established in a discourse, their behaviour is similar to proper nouns as topic chains in the sense that they are uniquely identified, which will be discussed in Chapter 8.

Furthermore, regarding Resolution 3, demonstratives, whose function differs

from language to language, may not only provide a supportive focus on the current center in searching for a new entity in subsequent discourse segments, but also contribute to topic continuity. It is obvious that the evidence from dialogue supports this claim. Therefore, as Grosz Joshi, and Weinstein (1983) emphasise that 'the relationship among focusing, coherence and referring expressions are essential and must be explicitly provided for' (45), the account of the referential choice depends on the interaction between the local and global focusing process with respect to competing center management.

7.7 Conclusion

In this chapter, I have made several observations concerning zero pronouns, NPs and demonstratives in English and Japanese and their interaction with global discourse coherence. How are bare nouns and demonstratives immediately identified as current topics across discourse segment borders when they appear in the return pop after the push? Focusing on the functions of these expressions in discourse in correlation with center transition both within the discourse segment and across the borders of discourse segments, I have investigated how the context is created so that NPs in pop segments can be interpreted as a topic chain.

It is still difficult to evaluate the results as reliable, but the findings themselves are interesting. They suggest that the center of attention is maintained by the chain of NPs rather than zero pronouns in both English and Japanese. Contrary to the limited chain of (zero) pronouns as the local focus of discourse, the chain of NPs is correlated with the global focus of discourse coherence. In Japanese, especially, there is no doubt that bare nouns are the main conduit for the center of topic, and continue to be used both within and across discourse segment boundaries, while the zero

pronoun can carry the center of topic only in limited stretches of discourse (e.g. between the speaker boundaries) and is likely to be discontinued at the end of the discourse segment.

Demonstratives not only provide a supportive focus on the current center in searching for a new entity in subsequent discourse segments, but also contribute to topic continuity in both English and Japanese. Especially, Japanese *sono* NP 'that NP' are distinct form from English counterpart '*that* NP' in that contrary to English deictic feature, Japanese demonstrative determiner *sono* are originally anaphoric rather than deictic. This anaphoric device directly links with the topic entity and serves to contribute to the discourse coherence mainly in bridging between the global focus of discourse structure and the hearer's inference with respect to the accessible discourse entities.

Furthermore, the possible resolution of the noun phrases in the 'focus pop' segment is discussed. Three interpretations are useful in resolving the reference of noun phrases in the 'focus pop' segment: (1) Extended interpretation of IRUs [2] to the NPs, (2) Recognition of cue phrases, (3) The role of demonstratives as focus-shift and focus-continue. This observation is not fully explained by existing theories of anaphora resolution and it is difficult to predict typical patterns of referential transitions in naturally occurring discourse. Two alternative perspectives appear to be particularly promising. First, it is worth noting that repeated NPs tend to function as proper names in the Map Task discourse; second, the speaker's short-term memory is repeatedly activated by the combination of these expressions. Both phenomena call out for further research.

Chapter 8

Collaborative Nature of Referring and Structuring in Discourse

8.1 Introduction

In Chapter 6, I examined types of referring expressions with respect to the local coherence of discourse. In both English and Japanese, it is clear that full NPs are significantly used as subsequent mentions in the CONTINUE transition as well as in first mentions in the NULL and SHIFT transitions. In particular, full NPs in Japanese, are predominantly used to express a topic chain within a discourse segment. In Chapter 7, I examined the type of expressions that act as first-mentions and subsequent-mentions. The results suggest that the center of attention is maintained by the chain of NPs rather than (zero) pronouns in both sets of data. In contrast to the limited chains of (zero) pronouns as the local focus of discourse coherence, the chain of NPs is correlated with the global focus of discourse coherence. Especially, in Japanese, as discussed in Obana (2003) and Sunakawa (2005), the predominant use of NPs as topic chains is also demonstrated in the written mode of Japanese discourse. However, the type of NPs in introducing as first mentions and the process of establishing a discourse entity in a more interactive type of discourse is different from the written narratives and even from spoken narratives, because the type of discourse we are now dealing with is a dialogue where speakers and addressees work together in the making of a definite reference: the speaker initiates the process by introducing a NP and the participants are ready to repair, expand, or replace the noun phrase until they can mutually understand each other in the later stage of the discourse.

This observation is highlighted in Clark and Wilkes-Gibbs (1986: 2)'s view of 'referring as a collaborative process requiring actions by both speakers and interlocutors'. In this chapter, I explore the types and lexical features of NPs that are employed in the dialogic discourse, especially in the stages that occur as first mentions as initial presentation in section 2, and as subsequent mentions as an established topic in section 3. In the terminology of Clark and Wilkes-Gibbs (1986), both 'initiating a reference' and 'refashioning a noun phrase' are investigated in both English and Japanese data. Section 4 compares the type of NPs in the MTC with the referential choice in narratives in *The Pear Stories* in Chafe (1980). I will then extend the investigation to the reference type employed with respect to the specific sentence construction 'conditional clauses' as a case study on how the discourse entities can link with the current and subsequent utterances in the English data in section 5. I argue that *if*-clauses functioning as directives should be seen as the speaker's strategic initiation to introduce a new discourse entity in the subsequent move. This construction type frequently triggers the interlocutor's brief response of acknowledgement or refusal as an illocutionary force, and serves to negotiate the speaker's intention to reach its target of the current direction. The chapter concludes in section 6.

What is referring as collaborative process in Wilkes and Gibbs's sense ? Let us consider the example below:

(8.1)

*TA 18: Are you anywhere near *a sort of, a gorge, or a waterfall type thing*. *It's got two birds in the sky*.
*TB 19: < {m erm} I can see *one*, but *it*'s not, {m er} the closest. There's *something* in between *the gorge*. There's a, a cottage in between *the gorge* /   (Lleq4c6)

Since, in starting the exchange between the instruction giver and the instruction follower, the landmarks on their maps have no names, the first task of the participants, especially the instruction giver, is to name the landmarks in distinguishing one from another so that they can directly or indirectly have access to the route of the maps in reaching the follower's goal. Here the giver mainly attempts to describe a specific landmark he chooses: *a sort of, a gorge, or a waterfall type. It's got two birds in the sky.* Fortunately, the follower can immediately identify the landmark on his map, in referring as *one*, and then he reidentifies it in a reduced definite form of expression *the gorge*. The follower, this time, already introduces a new entity in an existential construction initially as *something*, then as *a cottage*. Here the giver and the follower seem to share the same entity on their maps and negotiate with each other in the way the landmark is established in the discourse with respect to their common ground. Therefore, naming the landmarks is the first task to be tackled by the participants who are expected to collaborate together for the purpose of reaching the same goal. My interest in this chapter is how the salience with respect to the common ground in a given discourse is created in the process of referring as a collaborative process for the success of the task. More specifically, I will discuss how the specific types of noun phrases can reflect the process of referring as a collaborative process and how they contribute to the coherent development of the discourse.

8.2 NPs as First Mentions in an Initial Presentation

In this section, I will explore the type of noun phrases as first mention in an initial presentation in discourse. As I have shown in Chapter 7, major types of noun phrases

as first mention are introduced as indefinite full NPs. However, the description of NPs may be varied depending on the contextual information such as types of landmarks, types of maps, familiarity between the participants, and the knowledge and skill of the participants to cope with the task, and so on. I pose a question here: What types of discourse entities are introduced and established as the most salient entities in a given discourse? According to Clark and Wilkes-Gibbs (1986), the first full noun phrase introduced into the discourse is called the 'initial presentation', which is divided into at least six distinct types:

Type 1 Elementary Noun Phrase: a noun phrase in a single tone group (e.g. *the guy leaning against the tree*)

Type 2. Episodic Noun Phrase: a noun phrase in two or more episodes or tone groups (e.g. *Number 7's the goofy guy that's falling over, with his leg kicked up*)

Type 3. Installment Noun Phrase: a noun phrase, with the interlocutor's back-channels in between (e.g. A: And the next one is *the one with the triangle to the right … B. Okay. A: With the square connected to it.*)

Type 4. Provisional Noun Phrase: a noun phrase, with a clause expanding immediately (e.g. And the next one is also *the one that doesn't look like anything. It's kind of like the tree?*)

Type 5. Dummy Noun Phrase: a noun phrase as a stand-in until any participant can produce a more complete noun phrase (e.g. *whatchamacallit*)

Type 6. Proxy Noun Phrase: a noun phrase presented by the interlocutor's turn following the speaker's longer pause (e.g. A: *And number 12 is, uh, …*
B: *Chair*.)

<div align="right">(123-124)</div>

Considering example (8.1), the initially introduced noun phrase *a sort of, a gorge, or a waterfall type* is immediately expanded to a clause: *'It's got two birds in the sky'*. This is classified as Type 4, a provisional noun phrase. The following indefinite pronoun, *something* is a new entity introduced in the existential construction, which

is immediately repaired with *a cottage* as Type 1, an elementary noun phrase. These examples show that some landmarks are easier to describe than others. That is, the first new landmark (Type 4) requires more descriptive devices than the second new landmark (Type 1). The landmark of Type 4 is characterized with a particular use of vague languages *a sort of* and the immediate replacement with vague expressions *or a waterfall type thing*. It seems that the speaker feels that the descriptive expansion is needed to convey the correct information to the interlocutor: *It's got two birds in the sky*. On the other hand, the landmark of Type 1 appears to be easier only to remention *something* as *a cottage* with no modifier.

Type 3, installment noun phrase, and Type 6, proxy noun phrase, are more collaborative types of noun phrases, both of which frequently occur in the English Map Task dialogues. Here is a typical example of Type 3:

(8.2)
*TB 79: < *Those funny objects, sort of buildings*, /
*TA 80: Yeah, up over the top of it.
*TB 81: *ruins, things*. >
*TA 82: Right.

(Lleq4c2)

The instructor follower's initial NPs contains vague languages such as *Those, sort of,* and *things*. Among these, demonstrative *those* is deictically anchored in the interlocutor's previous experience where the targeted entity may be shared with the participants so that this entity can be recoverable from his or her memory. This is used as an initial presentation, as the entity has not been established previously in the discourse. It is important to note that this description is not interrupted by the giver

(TA 80: Yeah, up over the top of it) but is supported by his or her back-channels, which can encourage the speaker to produce additional description: *ruins, thing*. Example of Type 6 is quoted from the Japanese MTC:

(8.3)

G: *nanika chotto*
   [something a bit]
G: *nan daro*
   [What can be]
F:*gake *mitaina yatsu*
  [cliff   like   thing]
G: *so *gake mitaina*
 [cliff like]
F:*ga a
   [is]
G:* chotto hai ari masu ka
   [a bit   yes there is Q]
F: hai
 [yes]
G: hai
 [yes]

<div align="right">(dc, p.8)</div>

(English translation)
G: A bit of something
G: What can be
F: A thing like a cliff
G: Like a cliff
F: Is
G: Yes, a bit, is there?
F: Yes.
G: Yes.

In example (8.3), the instruction giver cannot describe the landmark properly. In turn,

the follower presents the new entity *gake mitaina yatsu,* 'a thing that looks like a cliff', the instruction giver takes turns to reiterate *gake mitaina* 'looks like a cliff', and he or she finally completes the utterance in an existential construction: *ari masu ka,* 'is there?' Here again the initial description of the entity is vague: *nanika chotto,* 'something a bit' (Giver) and *mitaina* 'like' and *yatsu* 'stuff' (Follower). In terms of the construction that the new entity is introduced, an existential construction is common in the Japanese MTC, whereas the most typical clause construction in the English MTC is a question such as 'Do you have a van?' or 'Have you got anything like a cliff?' (Miller and Weinert 1998). I will return to discuss the relationship between the forms of introduction and the patterns of the clause structures in section 8.5.7.

In both sets of data, it is common that NPs as first mention tend to be readily established in the form of definite NPs including the reduced NPs and bare noun in Japanese. In example (8.1) the initial noun phrase is immediately established as definite, *the gorge* and this definite form recurs in the later stage of discourse segments. It is important to note that a definite noun phrase like this can be treated as a proper name rather than a common name in this task domain. As discussed in Chapter 2, proper names are uniquely identified as a semantic feature in its discourse context as well as definite noun phrases. Semantically, proper names are distinct from normal definite nouns in the sense that they are independent of context. In other words, as generally defined by Huddleston and Pullum (2002), 'by virtue of its use to a particular entity or collections of entities that bears the name, a proper name is inherently definite' (517). Yet, Miller and Weinert (1998) points out: 'Where participants use a singular count noun with no article, it is clear that they are using the labels as proper names, as in *have you got level crossing, do you have anything*

underneath pine grove' (Miller and Weinert 1998: 233). Definiteness of proper names in this context may be slightly in conflict with the traditional semantic category, because the sentence constructions like questions above typically introduce a given entity as discourse-new. Despite the assumption, *level crossing* and *pine grove* are treated like proper names rather than common names in the sense that they are to be established as inherently definite in the domain. In a similar vein, it is safe to claim that the semantic capacity of proper names is extended to that of the definite nouns and bare nouns appearing in this specific context.

Furthermore, Miller and Weinert (1998) obviously distinguish the definiteness of a noun phrase as first mentions from definiteness of a noun phrase as second mentions. That is, if the difference between the two can be explained by Prince's terminology, the former may be 'unused' whereas the latter may be 'inferrable'. The established noun phrase 'the gorge' is doubtlessly considered to be definite, behaving like a proper name in this study. The reason that most of the first-mentioned references are indefinite can be related to the fact that the maps that the participants use have no labelled landmarks. In contrast to our Map Task data, since the label of the landmark in Miller and Weinert (1998)'s Map Task data is already established on the map, the initial task of the participants is to identify the landmark with its ready-name in order to successfully establish it in discourse. In this context, the definiteness of the noun phrase in the Map Task game can depend on the way the participants use definite noun phrases as their first mentions as 'recoverable' on the assumption that their maps were identical until proven otherwise (Miller and Weinert 1998: 232). I assume that this phenomenon can be extended to the use of English definite noun phrases and Japanese bare nouns as subsequent mentions when they are uniquely identified in the discourse in the Map Task Corpus. Thus, definite

noun phrase such as *the gorge* as an established discourse entity can function as a proper name.

In addition, the results in Clark and Wilkes-Gibbs (1986) indicate that every time the main speaker experienced a trial of a game, the number of episodic and provisional noun phrases (Type 2 and 4) declined and by the sixth trial they had mostly disappeared. In contrast, the number of elementary noun phrases (Type 1) increased significantly over trials. This result suggests that the main speaker not only prefers uttering the initial noun phrase himself, but also prefers it to be elementary in the initial stage. If elementary noun phrases are impossible, episodic and provisional noun phrases are employed only when necessary. However, the type of noun phrases such as an installment, dummy, or proxy noun phrase (Type 3, 5, and 6 respectively), are dispreferred. This finding is particularly interesting if it can be compared with the Map Task Dialogue data. In the Map Task Dialogue, as explained in Chapter 4, the giver plays his or her role twice on the same map with different followers. This condition may affect his or her way of using the types of noun phrases as first mention: the use of elementary noun phrases in his or her second trial can be more smooth and frequent than in his or her initial trial. It is not the current focus to compare this result with the dialogues in our giver's first and second trials with different followers in this section, but this would be an interesting issue for further research.

8.3 NPs as Subsequent Mentions in an Established Topic

This section explores the type of noun phrases used as subsequent mentions in an established topic in discourse. Once the initial noun phrases are introduced as initial presentation, the participants may need to negotiate in 'refashioning' the description

until the entity is successfully established as a topic. When the entity is not properly accepted by either of the participants, it must be repaired, expanded, or replaced in the way of first mentions. Based on Clark and Wilkes-Gibbs (1986), three ways of refashioning a noun phrase can be mainly provided, if the speaker's initial noun phrase is not accepted by the interlocutor or not satisfactory for either:

Type 1 Repair: Repairs can be self-repairs or can also be initiated by the interlocutor.

Type 2. Expansion: If the initial noun phrase is provisional, the speaker will expand a phrase, clause, or sentence. The expanded description is normally not part of the initial noun phrase, but is improved by self-expansion or the interlocutor's own expansion in the form of a request for confirmation in a side sequence. Clark (1992) comments that some episodic noun phrases might be considered to be refashioning noun phrases plus self-expansion (128).

Type 3. Replacement: If the speaker's noun phrase is still unacceptable, the interlocutor can reject it and present a noun phrase of his or her own. Replacement is different from expansion in the sense that the interlocutor is not merely supplying additional description but using a different description

(Ibid: 129).

Let us return to the utterances in example (8.1), *It's got two birds in the sky*, which is classified as Type 4 as first mention. This can also be interpreted as an expansion (Type 2) of the first elementary noun phrase, in this case, as self-expansion. Repair (Type 1) is also represented here: *a cottage*, which is introduced, as *something* as first mention is a repair. Once the description is established as *the gorge*, the giver introduces *the gorge* again but this time with full NPs. The following example shows that the giver uses a definite full NP again.

(8.4)

*TA 29: Alright, okay. And then, from where you've, like, put your pen last,
 can you go {m erm} {a s} north easterly for about four centimetres.

 So, basically, you should be above *the sort of gorge*, *waterfall.*
 Are you? {n laugh} {a w} Will you be able...

(Lleq4c6)

The definite full NP *the sort of gorge, waterfall* returns as a repair of the initial noun

phrase. Note that cue phrases, *so, basically*, serve to recognise that the instruction

giver returns to mention the previous entity by a slightly reduced form of NP.

Another example of Type 1 repair is shown in (8.5), where the form of mentions

shifts from a indefinite NP to a pronoun shown below:

(8.5)

*TA 65: anywhere near *a coniferous forest*? >
*TB 66: < Yeah, I can see *one*, /

(Lleq4c6)

In the meantime, the competing entity *a cave* is introduced to the discourse by the

instruction giver:

(8.6)

*TA 76: And, are you anywhere near *like a cave*? Or like... *It*'s... *It*'s
like...
*TB 77 : Yeah, I can see *a cave*.

(Lleq4c6)

Then the giver continues to use the full noun phrase *the coniferous forest* as well as

the competing entity *the cave*, while the follower uses the reduced form of the expression *the forest* shown below:

(8.7)

*TA 86: So you're basically about... So when you lift your pen, you're about, more than half way between *the coniferous forest* and *the cave*. {n laugh}
*TB 91: {m erm} half way, and I end up between *the forest* /
*TA 92: Yeah, yeah,
*TB 93: and *the cave*. Right, /
*TA 94: {i bout} half way in between.
*TB 95: so, put a point to prepare for it? Between *the forest* and *cave* /
*TA 96: Yeah,... Right, then, and just draw,

(Lleq4c6)

In the initial presentation, *a coniferous forest* is established as *the forest* as definite nouns in a reduced form and *like a cave* is established as *the cave*. Likewise, in the Japanese MTC some initial noun phrases are reduced in the subsequent mentions:

(8.8)

G: *sabaku mitaina sunachi mitaina* ue   wo
  [desert   like   sand   like   above OBJ]
G: mannaka made
  [middle   to]
G: chokusen de tootte morae masu ka
  [straight   by go   give   POL Q]
F:hai
  [yes]
G:de *soko*   kara +
  [Then there from]
F:+*sabaku* no   ue
  [desert   GEN above]

G: *sabaku* no   ue   made

  [desert   GEN above to]

G: ki   mashita *sabaku* no   ue   made

  [came   POL   desert   GEN above to] +

F:+hai

  [yes]

(English translation)

G: Can you go straight above like the desert or like the sand to the middle of it?

F: Yes.

G: Then from there

F: above the desert

G: to above the desert

G: I came to above the desert.

F: Yes.

<div align="right">(dc, p.22)</div>

Here the giver's introductory NP as initial presentation *sabaku mitaina sunachi mitaina* 'like the desert or like the sand' is replaced by the follower's with a bare noun as *sabaku* 'desert', then both the giver and the follower repeats *sabaku* three times. This shows that the participants collaborate to search for the type of mentions that they can easily handle. In both sets of data, once the introduced NP as first mention is established in the initial stage, the participants tend to keep using the established form of NPs, which are mainly represented as a reduced NP (with respect to the first mention NP) in English and bare nouns in Japanese.

More frequently, in Japanese, once the NPs are established as bare nouns in Japanese, they tend to be used with demonstratives such as *sono sabaku* 'that desert' as follows:

(8.9)

G: de *

  [then]

F: * *sono sabaku* no hidari   toore ba   ii

  [that desert   of the left go   if   can]

(English translation)

G: then

F: You can go on the left of that desert.

<div align="right">(dc, p.11)</div>

As I discussed in Chapter 7, demonstratives focus on the landmark to link between the previous segment and the subsequent segment. We have seen that the participants continue to use the established NPs rather than 'explicit' repairs or expansions. In both sets of data, it is common that the initial NPs are introduced by the giver who may lead to repair and expand the NPs until they are established in a given discourse.

However, if the initial presentation is not acceptable for the follower, who may be capable of replacing it with a more appropriate one, the follower can change it and establish it as a form of topic entity in the subsequent discourse as follows:

(8.10)

G: *nanika   ookii tani no   youna e*   ga ari masu ka

  [Something big   valley GEN like   picture SUBJ is POL Q]

F: *taki   taki   *mitaina   ta- taki   taki*

  [waterfall waterfall like   waterfall waterfall]

G: *ta-taki* mi- a- sou desu ne *taki   mitaina*

           [Waterfall   it   is   PAT waterfall like]

F: hai

  [Yes]

<div align="right">(dc, p.2)</div>

(English translation)

G: Is there picture of something like a big valley?

F: like the waterfall, waterfall, waterfall, waterfall

G: waterfall, it is, like a waterfall

F: yes

Here the follower replaces the initially introduced NP *nanika ookii tani* 'something like a big valley' by the giver with *taki* 'the waterfall'. Then, the giver accepts its replacement immediately.

8.4 Discussion: a Comparison with a Narrative Discourse *Pear Stories*

In this section, I summarise the findings in sections 2 and 3. These findings are compared with the similar patterns of NPs used in a narrative discourse *Pear Stories* studied in Clancy (1980). In section 2, first of all, I examined what type of noun phrases are used as first mention in an initial presentation. According to Clark and Wilkes-Gibbes (1986)'s six distinct types of NPs as first mention, type 3, 4, and 6 are focused on. In both sets of data, it is common that initial description is characterised by the indefinite NPs that contain the use of vague language. Whereas Type 4 is represented by the speaker's self expansion of the description, type 3 and 6 are represented by the collaborative efforts between the participants: back-channels in Type 3 and the interlocutor's spontaneous turn in Type 6 play an important role in initiating new discourse entities.

Then, in section 3, I examined what types of noun phrases are used as subsequent mention in an established topic. Again, according to Clark and Wilkes-Gibbes (1986)'s three types of NPs as subsequent mention, each type of NP is collected from the MTC. Despite the limited illustration, our findings are that,

apart from the replacement of an initial NP (Type 3) by the interlocutor, repairs and expansions are not explicitly represented by the interlocutor, but rather they are employed at the initial stage of the establishing process by the instruction giver. A common type of repair is an immediate alternation of the initial vague description by self-repair, and this repair is usually initiated by the giver. The expansion is usually completed by the giver's self-expansion, and the giver's initiating noun phrase plus self-expansion is the most frequent type as I observed in example (8.1). This may be because the giver is the one who is ready to take the initiative in moving the dialogue forward in most stages of the task, as far as the participants successfully identify a particular landmark and agree on its description. The established NPs are the definite reduced NPs in English and bare nouns in Japanese.

These findings give us a significant insight on understanding nominal reference in the initial stages of discourse in both English and Japanese. However, are these patterns of NPs domain specific or task specific, or do they present a similar tendency in the initial stages of other types of spoken discourse? To provide a clue to answer these issues, let us consider the findings in Clancy (1981)'s studies on referential choices in English and Japanese narrative discourse. The data Clancy used is the collected spoken narratives compiled in Chafe (1980), in which a single narrator tells a story about the pear film to the interviewer. The speech is spontaneous and delivered in an informal setting. At the initial stage of discourse, the noun phrases are used to refer to newly introduced characters and these are repeated after their first mentions in both English and Japanese. Let us consider the excerpt from Clancy (1980) in both English (8.11) and Japanese (8.12):

(8.11)

… Then you see another … younger, more

…this man is … the first man I described is rather .. portly.

  …/this/ … You see a younger Chicano man

… coming acrosst … um -- … from the back of th … of the …

  picture frame,

 … and – um-- … he's .. leading a … brown and white goat.

… And this man -- .. is -- … um – dressed in a sort of a faded,

  navy blue, … denim top, and jeans.

(155)

(8.12)

Soide .. sorede moo shuukaku no jiki de,

otoko no hito ga,

.. futotta otokono hitoga,

hitoride ne?

.. sono … seiyoo nashi no … ko mi o totteru no ne.

Then … then it's already the harvest season,

and a man

.. a fat man,

by himself, you know?

.. is picking the fruit … uh of those … western pears.

(152)

The Japanese narrator repeats the subject and changes the initial categorisation with a modifier (*otoko no hito ga, .. futotta otokono hitoga*, 'a man .. a fat man') before producing the rest of the sentence. The English narrator, in comparison, also repeats nominal reference (*this man, the first man)*, and syntactically adds descriptive information to a head noun *a younger Chicano man* by continuing the clauses and modifying the phrases. Here the English narrator uses more than one noun phrase after the initial introduction to present a new character at the main stage of the

discourse, which is notably represented by the use of indefinite noun *this man* (Prince 1981a). It is common that the speakers repeatedly use nominal references in introducing a new character into narratives in both English and Japanese.[37] However, regarding the recurrent nominal description in English narratives (*another ... younger, this man, the first man I described*, *a younger Chicano man*, and *this man*), Clancy (1980) comments that 'in English repeated nominal reference is generally felt to be unnecessary in establishing a new character as "old information" (Clancy's emphasis) eligible for pronominalization, whereas in Japanese a single nominal mention is often insufficient to establish a new character as eligible for ellipsis '(155). Presumably, this remark suggests that the different referential systems of the two languages can reflect the different function of NPs between the two languages.

In Japanese, it is natural that the narrator tends to use more than a single noun phrase reference before continuing the story line using ellipsis. Clancy assumes that the repeated noun phrases may be motivated by the fact that 'immediate referential switch by ellipsis, which preserves no information about a newly introduced referent, is radical to establish a new character in the listener's mind' (153). In view of the cases above, compared with our findings in dialogues, it seems safe to conclude that introducing the extra nominal description in a given discourse is a common cognitive phenomenon in the sense that the use of NPs is essentially collaborative and addressee-oriented. That is, the speaker, especially the instruction giver, is sensitive to the shared knowledge of the listener, especially the follower, on a task, so that the

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[37] Clancy (1980) also reported that there were a variety of reasons for the use of pronouns or ellipsis in introducing a new referent. The use of pronouns in English is usually caused by the momentary distraction or confusion of the speaker who forget briefly about the needs of the listener. On the other hand, he points out that 'Japanese introductions using ellipsis seemed to be based on the speaker's presupposition that the listener was familiar with the character in question' (145).

reduction from long indefinite descriptions to short definite nouns is based on the assumptions of the different contextual knowledge between the participants who are in the process of collaborating with each other.

Despite the various language-specific factors, furthermore, the behaviour of nominal references in both languages in different genres of spoken discourse tends to be related to the speaker's preference for explicit forms used for a specific purpose in a different stage of discourse development: for example, to avoid ambiguity, to mark discourse/episode boundaries, to indicate a shift of points of view, and so on. Therefore, further investigation may be a valuable challenge to test this cross-linguistic research so that this view can be supported by other languages. In addition, the speaker's referential behaviour will also be influenced by the forms of instruction based on the different communicative context. Discussing the flexibility of speakers in their choices among different introductory forms, Anderson and Boyle (1994), for instance, report that 'the choices speakers make are not random but are determined in part by individual speakers' interactive style' (117). In the following section, I will illustrate the way of interaction among sentence/utterance types, first mentions of reference, and discourse development.

8.5 Discussion : discourse entities and sentence constructions in English and Japanese MTC

8.5.1. General view: sentences as interaction

This section aims to investigate the correlation between types of discourse entities and patterns of sentence construction in discourse. Sentences in dialogic discourse tend to be interrupted by the interlocutor before they are completed. Incomplete sentences are not an unusual phenomenon in dialogue, and the traditional notion of

the sentence in written mode does not automatically apply to utterance units in spontaneous speech. Focusing on the clause constructions observed in exchanges between two participants, I firstly define the utterance unit, and describe types of discourse entities in dialogic discourse. Subsequently, I examine how these discourse entities interact with patterns of sentence construction and how the topics of these entities are established in discourse development. The findings presented here suggest that discourse entities can be realized by explicit referring expressions rather than by implicit referring expressions in a set of utterance units. Finally, I clarify that sentences in dialogues are not always constructed by an individual speaker but are constructed as a product of collaborative effort involving more than one participant.

8.5.2. General issues and specific questions

Given that sentences in dialogic discourse tend to be interrupted with such frequency that incomplete sentences may be considered a normal phenomenon, I concur with the conclusion of Miller and Weinert (1998) that the sentence should be abandoned as a unit of analysis for spontaneous spoken language.[38] This basic view of the collaborative character in dialogue gives rise to the following research question: How are clauses and utterances combined and interconnected with each other? This question may be extended into the issue of discourse development, by highlighting a particular sentence construction in a particular context, 'conditional clause': how are conditional clauses used in spontaneous spoken language? I will show that when 'conditional clause', which may be an incomplete sentence, is used independently, it is performed as a request or instruction. This function may require a feedback from

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[38] Miller and Weinert (1998) include a number of reasons for abandoning the sentence as unit for spoken language.

the interlocutor, and the main topic will be introduced in the subsequent utterances, which is combined and interconnected with the previous utterances.

8.5.3. Clause constructions in naturally occurring dialogues

What is the basic unit for the spoken texts? I have already raised this issue and defined the basic unit as an utterance in Chapter 5. An utterance unit is defined as a finite or non-finite clause, but let us briefly survey the definition of sentences in spoken discourse. 'Sentence' is a controversial unit in the analysis of spoken language. A number of scholars attempt to redefine the traditional concept of sentences in different wordings: For example, Halliday (1985)'s 'clause and clause-complex' in written mode and 'information units and tone groups' in spoken mode. In speech, the plausible unit of structure can be defined by intonational or paralinguistic information, such as Quirk *et al*.(1985)'s 'tone unit', Chafe and Danielwicz (1987)'s 'intonation units', and Brown and Yule (1983)'s 'utterance units by pauses'. In computational linguistics, Grosz and Sidner (1986) introduce the notion that an 'utterance unit' is a minimum unit of discourse structure and one utterance unit contains 'a center of attention'. Miller and Weinert (1998) finally end up with commenting '…the notion of the sentence should be abandoned as a unit of analysis for spontaneous spoken language'. Furthermore, Biber *et al*. (1999) illustrate a variety of different functions of linguistic category in spoken English from those in written modes in their corpus findings. This treatment may distinguish the formally irregular sentences from functionally natural utterance in a particular speech event, to be handled by the discourse or pragmatic component of the language description. As I clearly discussed in Chapter 5, describing utterance units with the information provided by pauses and overlaps can help to make the data more reliable. What are

called incomplete utterances or elliptical sentences are not straightforwardly defined

as a type of fragmentary sentence or discontinuous speech with missing elements.

Then, importantly, the types of discourse entities can depend on the way

participants collaborate to judge the most salient entity in particular patterns of

sentence construction. For example, in the following extract from English MTC,

utterances TA3 and TA5 by the same speaker are two utterances rather than one

single sentence broken by the speaker TB4:

(8.13)

*TA 3: if you go down to the bottom left hand corner of your page,
*TB 4: Aha.
*TA 5: do you have a van?

(Lleq4c8)

TA3's utterance is syntactically a conditional clause followed by TA5's

non-subordinate interrogative, but functionally, TA3 is performed as a request/

instruction implying the follower's acceptance *Aha*, which serves to introduce a new

entity *a van* in discourse. Here is another example:

(8.14)

*TA 61 : If you go {a t} between the mountain and the trees.
*TB 62: Right.
*TA 63: And then you go down below the trees towards the right hand side,

(Lleq4c9)

The problem arises as to whether this is the same type of exchange as the previous

example: Are these two clauses (or two utterances) or one sentence interrupted by the

interlocutor? Stirling (1998) discusses the grammatical status of this type of isolated *if*-clauses functioning as directives. He analysed this directive isolated *if*-clauses as a minor sentence type rather than 'incomplete' or 'elliptical', and concluded that 'in many respects they behave like independent clauses, and crosslinguistic evidence supports the hypothesis that they may be in the process of conventionalization as main clause usages' (292).[39] I focus now on the function of these conditional clauses in the dialogue data, and explore how they are combined and interconnected with discourse and pragmatic factors.

8.5.4. A case study: types of conditional clauses

Three types of conditional clauses were chosen for this study:

Type 1. conditional clause + main clause
Type 2. Main clause + conditional clause
Type 3. Standing conditional clause only

Here is a typical example of Type 1:

(8.15)

*TA 63: < If you go round the right hand side of that, so that you can then draw a line straight up on the right hand side of the derelict /
*TB 64: Right, okay.
*TA 65: building. >

(Lleq4c8)

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[39] Stirling (1998) considers these *if*-constructions to be minor clauses based on mainly three reasons: the isolated *if*-clauses (1) are prosodically complete, (2) cannot be analysed as elliptical, and, most importantly, (3) have the effective illocutionary force of an indirect request. The meaning of directives about (3) will lead to the explanation that these directive conditionals 'may belong to a chain of formulations of the same directive, involving more direct commands as well as the indirect *if*-clause directive' (290) , which is relevant to the common features in Map Task Dialogues.

The conditional clause is followed by the main clause *so that* construction. The whole sentence construction is completed before the interlocutor's back-channels, *Right, okay*. The following appears to be a typical example of Type 2, but the conditional clause is not semantically linked to the main clause:

(8.16)

*TA 267: {n laugh} Only not climb over it, but sort of draw a line {n laugh}
    along the west side of it, if you understand what I mean.

<div align="right">(Lleq4c1)</div>

The conditional clause, *if you understand what I mean*, can be categorised as an example of Type 3. Here, the examples of Type 3 are the cases where the conditional clause has no main clause, so it stands alone:

(8.17)

*TA 78: Well, are you able {a t}... If you bring your line up the right hand side, and bring it round and over.
*TB 79: < Those funny objects, sort of buildings, /
*TA 80: Yeah, up over the top of it.
*TB 81: ruins, things. >

<div align="right">(Lleq4c2)</div>

Here new entities are readily introduced by the instruction follower's turn-taking in TB 79 without completing the clause construction. Another example of Type 3 is given below.

(8.18)

*TA 126: And from there do another loop round, downwards to the bottom of the page, so it loops down below the {a bla} … below the giraffes, and stop that loop at the end of the third giraffe.
*TB 93: {m mmm} Okay.
*TA 94: *If that seems remotely clear*.

(Lleq4c3)

The conditional clause here seems to be added with the new information supplemented after the TA 126's previous utterance that explains the specific direction, and the main clause *stop that loop at the end of the third giraffe* are briefly confirmed by the interlocutor's back-channels in TB 93, so this type is considered as Type 3.

8.5.5. Results

In this section, the three types of conditional clauses used in the English Map Task dialogue are counted, and the result is compared with the result from Miller and Weinert (1998)'s original Map Task dialogues, which is presented as follows: Out of 83 *if*-clauses, 59 examples are classified as Type 3[40].

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[40] Miller and Weinert's (1998) cases do not exactly follow the same definition as the one in the thesis, but my cases are readily categorised according to the three types of conditional clauses.

**Types of conditional clauses
(Miller and Weinert 1998)**

☐ T1 <conditional-
main>

☐ T2 <main-
conditional>

☐ T3 <conditional
only>

12 (14%)

12 (14%)

59 (72%)

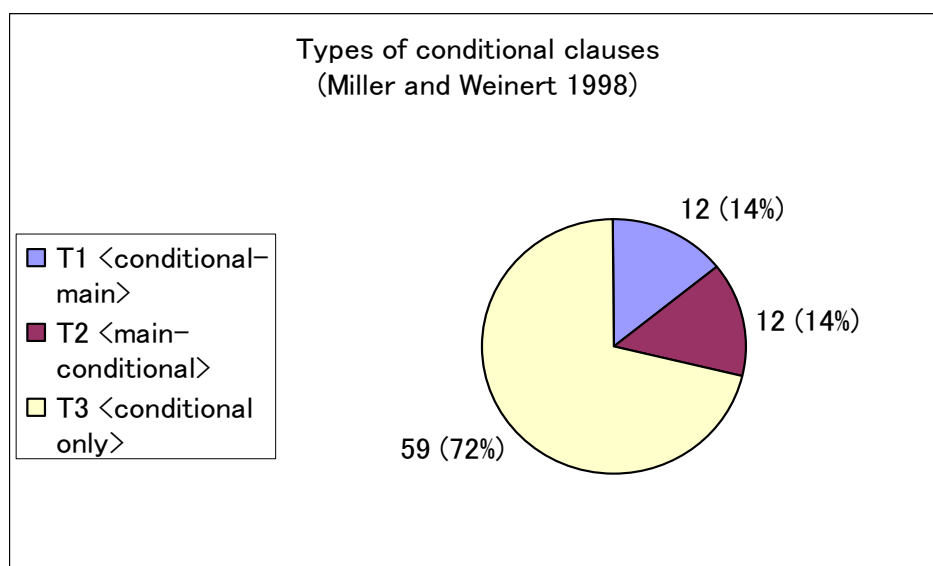Figure 8.1. Types of Conditional Clauses in English MTC (Miller and Weinert 1998)

Then, our own results are the following: Out of 64 *if* clauses, 40 examples are T3.
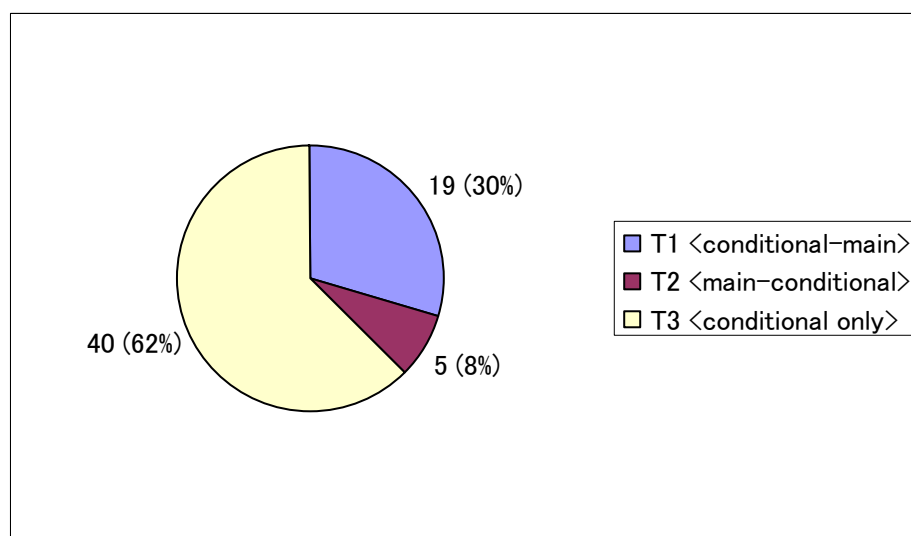
19 (30%)

☐ T1 <conditional-main>
☐ T2 <main-conditional>
☐ T3 <conditional only>

40 (62%)

5 (8%)

Figure 8.2 Types of Conditional Clauses in 8 English Labelless MTC

In both sets of data, examples of Type 3 are the most frequent in number.

8.5.6. Functions of conditional clauses

Based on the result of the dominant frequency of Type 3, it can be valid to mainly focus on the function of this type. As shown below, there appear to be three functions of conditional clauses in the dialogues: (1) Collaborative instruction, (2) The introduction of new entities by the interlocutor, and (3) Checking and instruction. Let us consider these respectively.

One of the main functions of Type 3 conditional clauses that stand alone is to give instructions as a mild order in the way the participants collaboratively describe landmarks and directions:

(8.19)

*TA 49: {m erm} If you just draw a line along the bottom
*TB 50: Of the page?
*TA 51: < Yes. Until you're level with where /
*TB 52: right
*TA 53: the diagram is. >
*TB 54: Okey dokey.

(Lleq4c2)

Here the instruction follower (TB50) also takes turns from the instruction giver (TA49) with *Of the page* before completing the giver's utterances, and gives back-channels in a collaborative way in *right* (TB52), *Okey dokey* (TB54). So, given that the instruction is collaborative, new entities are smoothly introduced by the interlocutor as follows:

(8.20)

*TA 78: Well, are you able {a t}... If you bring your line up the right hand side, and bring it round and over.
*TB 79: < Those funny objects, sort of buildings, /
*TA 80: Yeah, up over the top of it.
*TB 81: ruins, things. >
*TA 82: Right.

(Lleq4c2)

Here new entities are introduced by the instruction follower, as in *Those funny objects, sort of buildings* (TB 79), *ruins things* (TB 81). Instructions are frequently combined with a checking function, as shown below:

(8.21)

    *TA 32: If you're
    *TB 33: yeah.
    *TA 34: level with the left hand side of that.
    *TB 35: Right, okay, right.
    *TA 36: And then if you go up and round the top of that... of the farm, so
        that... And stop just at the end of the farm on the right.
    *TB 37: Right, okay. Right.

(Lleq4c8)

The checking function in TA 32 and TA 34 preceding the instruction in TA 36 serves to confirm that the participants can share the direction and that they are doing the right thing. Incidentally, in (8.22) the instruction giver starts checking, but immediately changes the construction into a direct question:

(8.22)

*TA 157 : Right. *If you...* Do you have a cross with a {c finish}?

*TB 158 : No.

*TA 159 : Right. Do you have a... a... I don't really know what it is, it looks
  like a...

*TB 160 : Got a level crossing or something, like a fence.

<div align="right">(Lleq4c2)</div>

The false-start shifts to the question of introducing a new landmark in *If you...Do you have* … (TA157), which is negated by the follower (TB158) in *No* (TB158), and then the giver attempts to introduce another landmark in the same direct question in *Do you have* … (TA159). This shift may indicate the giver's confirmation about the search for manageable entities.

So far, the findings may be summarized as follows:

1. Conditional clauses that stand alone can function as instructions or mild orders.
2. This type of instruction implicitly requires back-channels from the interlocutor.
3. Conditional clauses serve to set up a background for introducing new entities into the discourse.

Here arises a question: Are Type 3 conditional clauses genre-specific? The answers may be yes for the function of Type 3, but this type of clause is not uncommon in spoken language in general. Miller and Weinert (1998) propose that the function of this type can play an important role as 'a link to the preceding text or to the immediate context of utterance and is given' or as a 'scene-setting' function (102). The example is quoted below:

(8.23)

A1: what what sort of thing do you get disciplinewise in your family

B1: it's not bad my dad he doesn't say a lot but you know ***if I say something*** it's
always my Dad that'll come and give me a row but he's not that strict really
you know I can predict what he's going to say it doesn't bother me that much

(102)

The conditional clause in B1's utterance sets the scene for the subsequent narratives
about the father's attitude. It may be possible to generalize the role of conditional
clauses in discourse in the process of discourse development. That is, when
conditional clauses precede, they can indicate a topic shift to a new stage of segment
or episode and play an important role in bridging between the preceding discourse
and the subsequent discourse development. Biber *et al*. (1999) correctly comments it
as 'cohesive function'. Thus, Type 3 functioning as an instruction can be directly
related to the immediately subsequent discourse, which provides a background for
introducing a new entity as first mention.

It is true that Type 3 conditional clauses are more frequent than other types in
English MTC, but it is difficult to assert that Type 3 is 'typical' in the MTC. Let us
return to the frequency of the three types of conditional clauses, where this time I
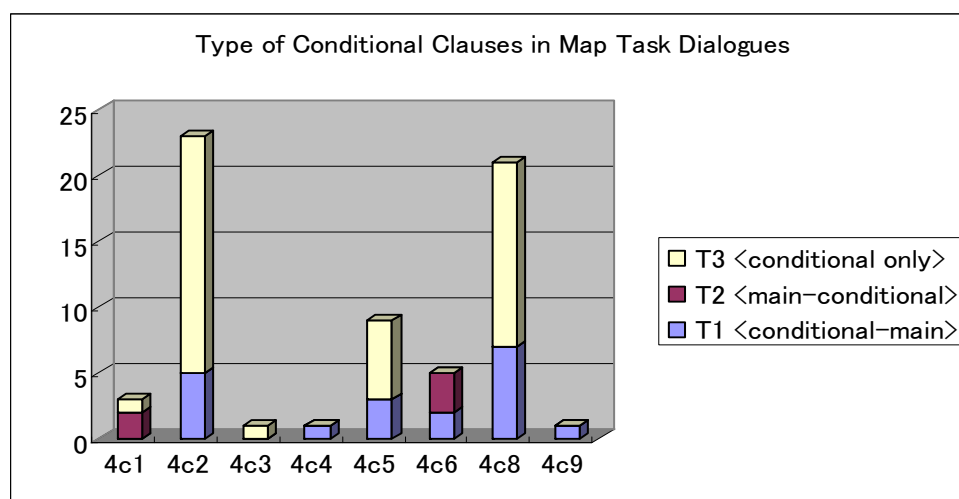present the frequency of the individual eight dialogues, respectively:

Figure 8.3. Types of Conditional Clauses
in 8 English Labelless MTC (individual)

There are dialogues that contain a small number of conditional clauses: In five dialogues, 4c1, 4c3, 4c4, 4c6, and 4c9, out of eight, the number of conditional clauses is less than five examples in each dialogue. Thus, it is obvious that Type3 conditional clauses are not exclusively available in introducing new entities in discourse. Instead, the use of conditional clauses can depend on the speaker's condition whether the pair is familiar or not familiar each other. This is because Type 3 conditional clauses functioning as a mild order or instruction are strongly connected with politeness.[41] This consideration is also discussed with evidential support in Stirling (1998) as follows:

Moreover, usage of isolated *if*-directives in the HCRC corpus correlates with familiarity of speakers, with directive *if*-clauses occurring more frequently in dialogues where the speakers were unfamiliar with one another. The average over the 64 familiar speaker dialogues of the number of directive *if*-clauses per 100 turns gave a mean normalized frequency for familiar speakers of 0.87 directive *if*-clauses per 100 turns. This compared to a mean normalized frequency for unfamiliar speakers of 2.04 directive *if*-clauses per 100 turns (283).

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[41] This point is indicated by James Hurford (personal communication).

That is, the unfamiliar participants, especially the instruction givers, are likely to instruct the interlocutor in a more polite way. There are only 40 conditionals in the data, so presumably even unfamiliar participants rely on other forms such as questions as well. Therefore, as is already shown, the main constructions used for initiating a new entity between the familiar participants are likely to be realized by questions and imperatives. Incidentally, these constructions may be combined with conditional clauses, but are not always. Here is a typical introduction of new entities with a non-conditional clause:

(8.24)

> TA 139: Right. From there, can you go about three centimetres west. Have you come to sort of, sort of like a {a c} canoe shed or something. It's got like a boat shed or something. I don't know what it's like a
> TB 140: Yeah, but I'm nowhere near that.
> TA 141: {n laugh} Are you near the coast? Have you got a coastline?

> (Lleq4c4)

By a series of interrogatives such as *can you go …* , *Have you come to …*, *Are you near …*, and *Have you got …*, the giver's instruction may sound more like direct requests to the followers without any preconditional introduction to the new direction and new discourse entity. These preconditional introductions may be more helpful for the follower, but they are not necessary as bridging or contextually supplied with the main interrogative clause. According to Anderson and Boyle (1994), these question introductions from the start of the task can have considerable impact on the overall communicative success the participants achieve on the task. They observed that since question forms are virtually always followed by informative responses by the

interlocutor, 'the more frequently the instruction giver selects question forms of introduction, the more effective the overall communication is likely to be' (116). The relationship between the forms of introduction and the process of establishing a new discourse entity reflects the different roles of interaction for discourse development. In the following section, I will compare the collaborative sequences in English with those in Japanese.

8.5.7. Preliminary discussion: the interaction of utterance types, first mentions, and discourse development

It is the case that incomplete sentences generally occur in exchanges produced in a collaborative way: chains of clauses that belong to more than one utterances of speakers. In English, as seen in example (8.13), clause constructions, whether they are *if*-clauses or question forms, can precede the introduction to a new discourse entity (i.e. not all *do* questions often also contain the new entity). Functionally, *if*-clauses stand as initiation by the giver, which is followed by the follower's acknowledgement, then the giver's introduction to a new discourse entity, *a van*. As also seen in section 8.2, the NPs as first mentions are not only indefinite, 'elementary', type of NP like *a van*, but are premature or collaborative types like example (8.17) as in *Those funny objects, sort of building*, (TB 79) *ruins, things* (TB81). In both cases, a new discourse entity is successfully introduced in the preconditioned environment of initiation of the structural sequence: (8.13) 'if you go down to the bottom left hand corner of your page'; (8.17) 'If you bring your line up the right side, and bring it round over'

In introducing a new discourse entity in Japanese, on the other hand, incomplete sentences are connected to each other by particles such as topic marker *wa*, which

can indicate an anchor for an initiation of a subsequent utterance. Introductory NPs are followed by the particle, mainly with topic marker *wa* or subject marker *ga*. Let us see the example:

(8.25)

G: *kuruma_i* no   tokoro made   nankashite   kudasai
   van   GEN   place   to   go down south   please
   '(You) go down south to the place of a van, please.'

F: eto *kuruma_i*
   eh van
   'eh, the van.'

G: [Ø] _i   wa   minami ni miemasu   ka
   SUBJ TOP   south   in see POL   Q
   'Do you see the van in the south?'

F: [Ø]_i   wa   arima sen
   SUBJ TOP   is   NEG
   'There is no van.'

F: [Ø] _j   kita   ni   arimasu kedo
   SUBJ/TOP   north   in   is   though
   'There is a van in the north, though.'.

F: [Ø] _j   daibu hanarete   imasu
   SUBJ/TOP   quite   far away   is POL
   'It is quite far away.'

(ab, p1)

Here, when the discourse entity *kuruma* 'the van' is introduced, the giver picks up the word *kuruma* from the follower's incomplete utterance and produces the clause by adding topic marker *wa*: '[kuruma (FOLLOWER)]   [wa minami ni miemasu ka (GIVER)]' The topic is maintained as subject position with topic marker *wa*. In the subsequent utterances, the topic still remains as zero topics at the subject position by the follower. Although the entity the giver refers to by 'the van in the south' is not in

the follower's map, the follower continue to refer to the entity that has shifted from 'the van in the south' as [Ø]$_i$ to 'the van in the north' as [Ø]$_j$. As seen in Japanese, the topic that is established at the initial stage is followed by the clause structure to move the discourse forward. This phenomenon may be explained as two activities of discourse processes. According to Hayashi (2005), the speakers are involved in two collaborative processes: introducing new entities to discourse and establishing them in the chains of clauses, which is summarized as follows:

- There are two activities: [Side activity + Main activity] in collaborative processes of introducing new entities.
- Side activity is represented as a process of establishing NPs as a discourse entity.
- Main activity is represented as a bridging interaction between phrasal structure and clause structure.

This pattern is illustrated in example (8.25) and schematized below:

'*kuruma* [NP]   *wa   minami ni miemasu ka*'   [Clause]
Side activity (F)   +   Main activity (G)
Ø   *wa   arima sen*   [Clause]
          +Main activity (F)
Ø   *kita   ni   arimasu kedo*   [Clause]
          +Main activity (F)
Ø   *daibu hanarete   imasu*   [Clause]
          +Main activity (F)

Let us see another example (8.3), which is reproduced here:

(8.3)

G: *nanika chotto*

[something a bit]

G: *nan daro*

   [What can be]

F:*gake *mitaina yatsu*

[cliff   like   thing]

G: *so *gake mitaina*

                 [cliff like]

F:*ga a

 [is]

G:* chotto hai ari masu ka

   [a bit   yes there is Q]

F: hai

 [yes]

G: hai

 [yes]

                                      (dc, p.8)

(English translation)

G: A bit of something

G: What can be

F: A thing like a cliff

G: Like a cliff

F: Is

G: Yes, a bit, is there?

F: Yes.

G: Yes.

The giver cannot describe the landmark properly. In turn, the follower introduces the new entity *gake mitaina yatsu* 'cliff like thing', then the giver takes turns to reiterate the NP *gake mitaina* 'cliff like'. The follower starts the particle *ga*, which triggers the giver's subsequent clause, *arimasuka* 'is there'. Likewise, example (8. 3) is analysed as follows:

*gake *mitaina yatsu*   [NP]
Side activity (F)
 gake mitaina   [NP]
Side activity (G)
ga   chotto hai ari masu ka   [Clause]
+Main activity (F + G)

The combination of the clause structure and NPs in introductory discourse also occurs in English, but the patterns of these activities happen in the opposite way:

(8.13)'

G: *if you go down to the bottom left hand corner of your page*, [Clause]
    Main activity
F: [Aha]   (back-channel)
G: *do you have* [Clause] *a van*? [NP]
    Main activity   +   Side activity

Here two clause structures (main activity) precede the first mention entity (side activity). In Japanese, the established entity is followed by the clause structure in question or non-question, whereas in English the introductory clause, whether it is *if*-conditionals, question or non-question, precedes the established entity. In both data, sentences are frequently incomplete, and collaborative incomplete sentences are used by more than one speaker. In Japanese, incomplete sentences are connected with each other by particles such as topic marker *wa* or subject marker *ga*. In establishing a discourse topic, the pattern of side activity (phrasal) and main activity (clausal) may be interrelated in collaborative interaction, but the research into the interaction of utterance types, first mentions, and discourse development in different languages will be conducted in further study.

8.5.8. Summary

In section 8.5, I investigated the hypothesis that sentences in dialogues are not always represented by an individual speaker but are constructed as a product of collaborative effort involving more than one participant. Clause constructions function differently from genre to genre, and there is a significant difference between written and spoken languages. Conditional clauses are not the exception. Instead, it is illustrated that there are three functions of conditional clauses in the dialogues: (1) collaborative instruction, (2) the introduction of new entities by the interlocutor, and (3) combination of checking and instruction, and these can be directly related to the immediately subsequent discourse development. That is, when conditional clauses precede, they relate to entities that are topical or given, and play an important role in bridging between the preceding discourse and the subsequent discourse development. Despite the context dependency or the speaker's preference in the use of the clause construction, it is possible to extend its interpretation as the fundamental role of conditional clauses in discourse in the process of discourse development. Finally, I clarify that sentences in dialogues are not always completed by an individual speaker but are constructed as a product of collaborative effort involving more than one participant. As seen, clauses and phrases are combined and interconnected with each other as the collaborative pattern called 'main activity' and 'side activity' in the initial stage of establishing discourse topic. This observation, as well as implications of earlier discussions, suggests the need for a sound model of discourse processes in collaborative interaction.

8.6 Conclusion

I have investigated the way of referring as a collaborative process and its implication

in discourse development, and have clarified how the different forms of referring expression are exploited in the different stages of discourse, as 'initiating reference' and as 'refashioning a noun phrase'. It is obvious that the choice and the distribution of referring expressions in the MTC depends on the way the participants collaborate to judge the most salient entity in the current discourse against their common ground. In both sets of data, it is common that initial description is characterised by the indefinite NPs that contain the use of vague language, and the established reference are represented by the definite reduced NPs in English and by bare nouns in Japanese.

These findings are compared with the similar patterns of NPs used in a narrative discourse *Pear Stories* studied in Clancy (1980). Based on the examination, it seems safe to conclude that the extra nominal references are the common cognitive phenomena in introducing and establishing a new entity in a given discourse in the sense that the use of NPs is essentially collaborative and addressee-oriented. Despite the various language-specific factors, the behaviour of nominal references in both languages in different genre of spoken discourse tends to be related with the speaker's preference to explicit forms for a specific purpose in a different stage of discourse development:

Finally, I focused on the function of conditional clauses and its implication in discourse development. Despite the context dependency or the speaker's preference in the use of the clause construction, it is possible to extend its interpretation as the fundamental role of conditional clauses in discourse in the process of discourse development. When conditional clauses precede, they relate to entities that are topical or given and play an important role in bridging between the preceding discourse and the subsequent discourse development.

The pragmatic implications of NPs in initial and subsequent mentions largely depend on the collaborative process of the participants in dialogues. I assume that the phenomena cannot be genre specific to Map Task dialogues but recur in various types of spoken discourse. Further work could usefully consider whether these processes are elucidated by the empirical study and likely to underlie other uses of language as well. In establishing a discourse topic, especially, the pattern of side activity (phrasal) and main activity (clausal) may be interrelated in collaborative interaction, but the research into the interaction of utterance types, first mentions, and discourse development in different languages will be conducted in further study.

Chapter 9

Conclusion

The purpose of this final chapter is to consider the conclusions which can be drawn from our findings for understanding the patterns of use of referring expressions and to suggest directions for further research.

It is a widely made assumption that the use of referring expressions in discourse has an unmarked configuration: an indefinite noun phrase introduces a new entity which is maintained as a topic by the use of pronouns. Once another new entity has been introduced, the previous one tends to be referred to by a pronoun or a definite noun phrase. Much of our attention in this thesis has been concerned with modifying this established perspective.

In Chapter 2, I emphasised the point that referential choice in naturally occurring environment is addressee-oriented and depends crucially on discourse constraints rather than sentential constraints. I critically reviewed a number of works devoted to discussion of the correlation between the choice of referring expressions and discourse structure, but concluded that a unified account of these phenomena still remains to be developed. I hypothesized that the choice of referential forms tends to be related to the cognitive status of discourse entities and the non-pronominal forms of referring expressions are likely to be continuous in interactive discourse. I have briefly shown the evidence that the interactive discourse is highly structured in the way that the participants organize and segment the discourse according to topics that are introduced, maintained, and shifted from one to another in the on-going flow of discourse.

In Chapter 3, three aspects of deictic expressions were considered: spatial deixis, anaphoric demonstratives, and discourse deixis in English and Japanese. Based on a small corpus-based analysis, I have found that the use of anaphoric demonstratives in both languages is dominant and plays an important role in searching for a specific referent in the previous discourse, where the referent has been activated but not focused. That is, anaphoric demonstratives can behave as pointers suggesting the direction in which the discourse is to move forward by acting as an immediate anaphor or a focus-shift device signaling the beginning of the discourse segment. I have shown that the Japanese Medial *so*-series demonstratives and English *that* are linguistic forms that can be employed to access to the memory or knowledge in the addressee's domain, and this evidence can support the assumption that the deictic centre may be shifted from the speaker to the addressee.

In Chapter 4, comparing the original Map Task Corpus of English and Japanese, I explained the aims and the task design of the parallel corpus of English and Japanese 'labelless' Map Task dialogues that are investigated in the thesis. I discussed the advantage of the labelless corpus in examining the patterns of use of referring expressions in both languages. I also discussed the fact that using naturally occurring dialogue data as reliable cross-linguistic evidence has a great deal of research value. Based on the empirical data of naturally occurring discourse, further research is required for the study on anaphora resolution and discourse structure in dialogues in cross-linguistic research as well as computational linguistics, natural language processing, and experimental psychology, and so on.

In Chapter 5, I introduced the rules and constraints of the centering framework. I raised the problematic issues in applying centering theory to dialogue data. Specific questions to solve the problems were proposed and a preliminary base line was

established to analyse the dialogue data. The issues related to dialogue data in applying centering theory have not been completely solved yet. However, it was shown that defining the notions of the center, the utterance unit, and the discourse segments in interactional mode of discourse directly affects the centering rules and constraints. I demonstrated the initial result of the distribution of centering transition through a corpus-based analysis of the distribution of discourse entities. I found out that a large percentage of transitions are CONTINUEs and No Cbs in both English and Japanese, and RETAIN and SMOOTH- or ROUGH-SHIFT centering transitions are rather infrequent in both sets of data. Considering the large number of No Cbs (Null transitions) suggests that the transition states of utterances tend to be affected by intentional states of the participants and global discourse structure rather than purely grammatical Cf-ranking realized as a local focus.

In Chapter 6, despite the grammatical differences in the form of reference between the two languages, the ways of discourse development in both datasets were shown to have distinctive similarities in the process by which speakers introduced a discourse entity, establish it as the focus of attention, and then shift that focus away to new entities as discourse develops. Comparing and contrasting the choice and the distribution of referring expressions of the four different transition patterns of centers, I argued that the crucial factors of their correspondent relations between English and Japanese referring expressions are shown in the findings that the topic chains of noun phrases are constructed and are treated like proper names in discourse. This suggests that full noun phrases play a major role when the topic entity is established in the course of discourse. Since the existing centering model cannot handle the topic chain of noun phrases in the anaphoric relations in terms of the local focus of discourse, centering must be integrated with a model of global focus to account for both

pronouns and full noun phrases that can be used for continuations across segment boundaries.

In Chapter 7, based on Walker's cache model, I argued that the forms of anaphors are not always shorter, and the focus of attention is maintained by the chain of noun phrases rather than by (zero) pronouns both within a discourse segment and over discourse segment boundaries. These processes are elucidated by the empirical study and likely to underlie other uses of language as well such as spoken narratives and expository writings. Yet, of course, there are different patterns of use generated from the essential, idiosyncratic properties of individual languages. In Japanese, especially, there is no doubt that bare nouns are the main conduit for the centering topics, and continue to be used both within and across discourse segment boundaries, while the zero pronoun can carry the center of the topic only in limited stretches of discourse (e.g. between the speaker boundaries) and is likely to be discontinued at the end of the discourse segment. Demonstratives in both languages not only provide a supportive focus on the current center in searching for a new entity in preceding discourse segments, but also contribute to topic continuity. The results modify the existing view that the focus of attention is normally represented by attenuated forms of reference, and full noun phrases always show focus-shift. In addition, necessary extension to the global coherence of discourse can link these anaphoric relations with deictic expressions over discourse segment boundaries.

At this stage, Walker's (1998, 2000) question in her conclusion of the studies returns: Why is a full NP so frequently used to continue the Cb within and across the discourse segment? To answer this question, three possible ways in which the reference of NPs is resloved in 'return pop' segments are proposed:

Resolution 1: Extended interpretation of IRUs [2] to the NPs

Resolution 2: Recognition of cue words

Resolution 3: The role of Japanese demonstratives as topic continuity

These observations are not fully explained by existing theories of anaphora resolution and it is difficult to predict typical patterns of referential transitions in naturally occurring discourse. Two alternative perspectives appear to be particularly promising. First, it is worth noting that such repeated NPs tend to function as proper names in the discourse; second, the speaker's short-term memory is repeatedly activated by the combination of these expressions. Both phenomena call out for further research.

In Chapter 8, I have investigated the way of referring as a collaborative process and its implication in discourse development, and have clarified how the different form of referring expression are exploited in the different stages of discourse, as 'initiating reference' and as 'refashioning a noun phrase'. Similarly, I investigated the possibility that sentences in dialogues are not always represented by an individual speaker but are constructed as a product of collaborative effort involving more than one participant. Despite the context dependency or the speaker's preference or politeness in the use of the clause construction, it is possible to extend the function of conditional clauses as the fundamental role of communication in the process of discourse development. That is, when conditional clauses precede, they relate to entities that are topical or given, and play an important role in bridging between the preceding discourse and the subsequent discourse development.

As I suggested in the previous chapters, centering might be extended to the more general discourse model to predict the topic chain of noun phrases in the anaphoric relations in terms of the local focus of discourse. In Chapters 6 and 7, I also proposed

the possible resolution to interpret the specific nominal references in the framework that can deal with global coherence. To unify these claims, a modification of the original centering framework concerns Rule 1. This is a topic for future work, but I wish to suggest the way it might work. Rule 1 is the rule concerning the constraint about pronominalisation: if some element of Cf in an utterance is pronominalised or deleted, that pronoun or zero pronouns must be the Cb. If no pronouns are used, then Rule 1 is not applicable. This means that the realisation of the Cb by a non-pronominal expression instantly causes trouble, except in the case that the full definite NPs induce a special implication for the hearer or reader, as seen in examples (6.3) and (6.4). At this stage, I have to abandon this rule in order to insist that the NPs as well as pronouns are maintained as a topic chain within the discourse segment.

However, there may be more constructive exposition for a possible solution. In fact, our findings show that when NPs occur in the lower Cf ranking, these NPs cannot be pronominalised except as part of a short topic chain. I propose that when these NPs are Cbs (U_n) and they are the only members of Cf in the current utterance, they must realise Cb (U_{n-1}) regardless of the Cf ranking. That is, when there is no other candidate in a higher Cf ranking, that element of a NP will be a Cb and make a topic chain. If this is the case, NPs are able to contribute to the local focus of discourse.

At the same time, anaphoric demonstratives can be more properly taken into account in future research. If Rule 1 is extended to anaphoric demonstratives as well as NPs, it is possible to predict that they can be linked with Cb (U_n) as an immediate anaphor. The inclusion of these definite descriptions as a plausible account of centering is still an open question. Yet, considering their great deal of impact on local

discourse coherence, lexical information provided by the definite description is a vital factor for incorporating this impact into a model of local discourse coherence that is able to control the inference load on the hearer in discourse processing. As I stated, hearer's inference is greatly supported by the lexical representation of NPs, which can function like proper names rather than common nouns. Based on this claim, centering theory might be extended to a more plausible discourse processing theory, but this issue must be reserved as a topic for future research.

Appendix A:

The Samples of English and Japanese Map Task Dialogues

1. English Map Task Dialogue
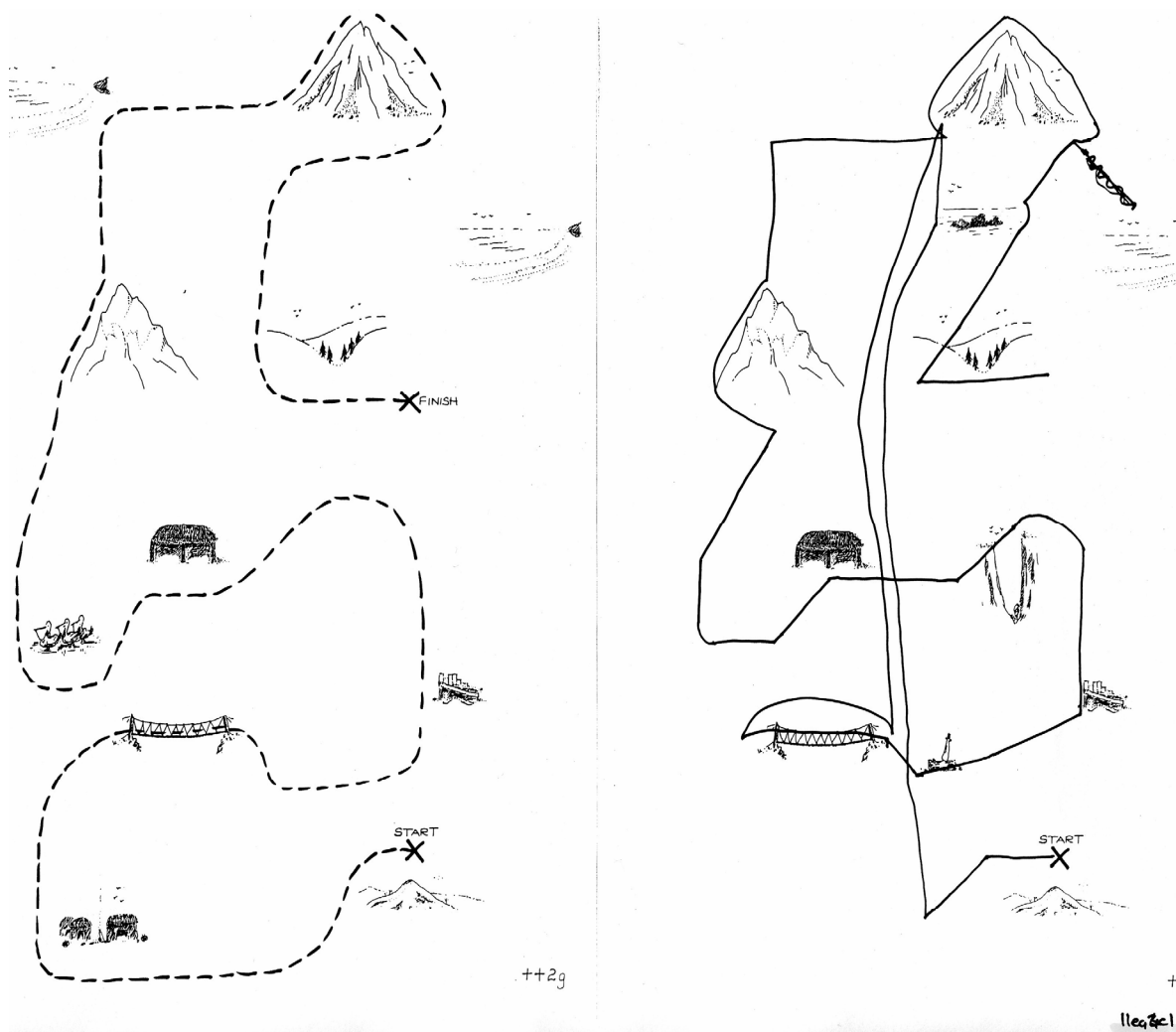
Instruction Giver's Map   Instruction Follower's Map

English : LLEQ4C1 (Dialogue transcript divided into turns)
GIVER: Michael Church
FOLLOWER: Gordon Jones
MAP: ++2
----

*TA 1

{m um} Can you go west.

*TB 2

Okay. How far west?

*TA 3

About three centimetres {n laugh}

*TB 4

Three centimetres.

*TA 5

Yeah.

*TB 6

< To the west,/

*TA 7

Yeah.

*TB 8

Right. >

*TA 9

< And then, sort of, go diagonally {n laugh} sort of {n laugh} from

right to left /

*TB 10

Okay

*TA 11

diagonally /

*TB 12

from right /

*TA 13

Yeah, yeah.

*TB 14

to left diagonally. Okay, so that's kind of {m er} north west.>

*TA 15

No, sorry, {n laugh}, sorry. South west, sorry.

*TB 16

South

*TA 17

Sorry {n laugh}

*TB 18

You're sure, yeah?

*TA 19

Yeah.

*TB 20

How far?

*TA 21

For about ... five centimetres {n laugh}

*TB 22

Right, I think that's about five centimetres.

*TA 23

Right, great. And then can you go west.

*TB 24

West. For how far?

*TA 25

Well, have you got this tiny little... Have you got this sort of

village thing on your map. A village. You know. Somewhere.

*TB 26

{m um}

*TA 27

< {n laugh} It's sort of /

*TB 28

*TA 29

*TA 30

I think... I think it's a village sort of like a couple of sort of

makeshift buildings with sort of like a fire or something.

*TB 31

< {m erm} {a Th} There's a few different things but it's difficult to

actually /

*TA 32

Right (??)

*TB 33
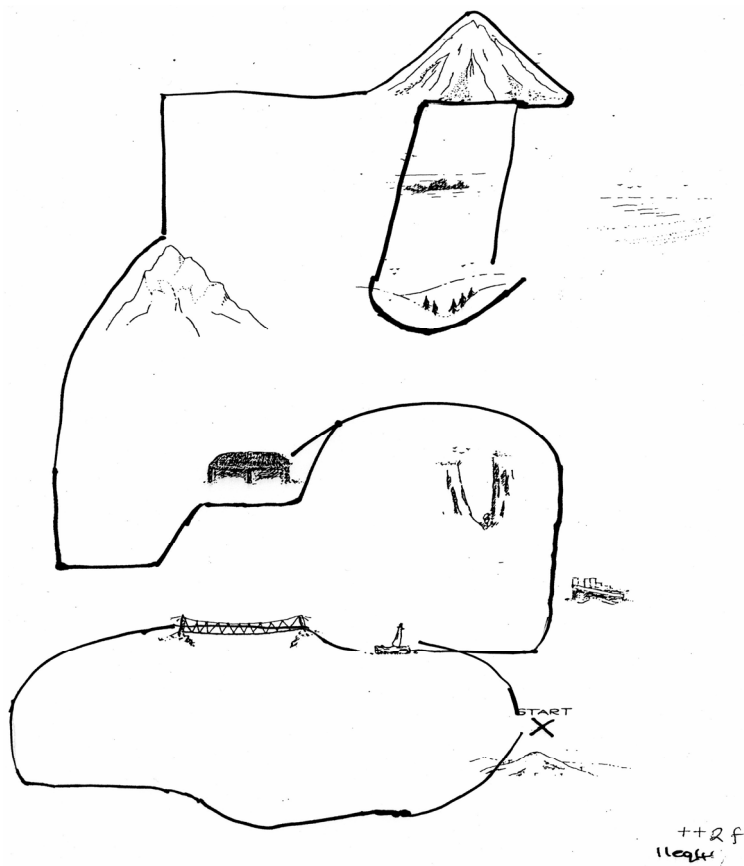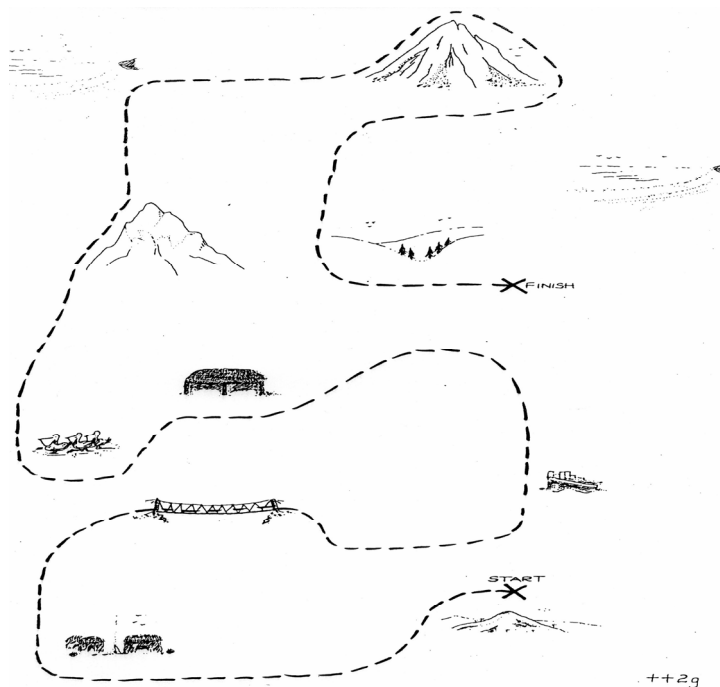
see (??) the map some of the pictures are difficult/

*TA 34

Give up >. There's three buildings, well {a se} three makeshift houses

and there's sort of like a fire or something in the middle, and

there's three little birds in the sky {n laugh}.

*TB 35

< Oh right yeah, I do see that /

2. Japanese Map Task Dialogue
Instruction Giver's Map (Upper)
Instruction Follower's Map (Lower)

Japanese: cd (Dialogue transcript divided into turns)
Speech File Name: cd.ses
Sampling Rate (kHz): 16
Window Width (ms): 20
Slide Width (ms): 10
Noise Level (dB): 63
Pause Duration (ms): 400
Semi Pause Duration (ms): 200
Latching Duration (ms): 100

map number: ++2
giver: C
follower: D
transcriber: Nagata(Mie Univ.)
date: 2001.6
comment:

00:01:160-00:04:530 G:まずう<230>でぃーさんの*<350>すたーとちてんは
00:02:990-00:03:070 F:　　　　　　　　　　*ん
00:04:720-00:04:830 F:ん
00:07:550-00:08:010 G:どこ
00:09:100-00:09:960 G:になってますか
00:12:560-00:12:770 F:んっと
00:13:550-00:14:870 F:んっ<210>いちばんしたに
00:15:280-00:15:510 G:はい
00:15:920-00:16:370 F:やま
00:17:470-00:17:640 G:の
00:17:690-00:18:110 F:{いくんや[?]};ひくいやま？
00:18:610-00:19:210 G:はい*の
00:18:880-00:19:410 F:　　*のうえで
00:19:880-00:20:470 G:はいうえ
00:20:580-00:20:830 F:ん
00:23:990-00:25:020 G:じゃそこからあ
00:31:350-00:32:230 G:そのやま
00:32:790-00:33:230 G:のお
00:35:380-00:36:140 G:ひだっりかわ

00:37:080-00:37:200 F:({*みぎ[?]})

00:37:080-00:38:260 G:　*にくるように

00:41:250-00:41:490 G:こ

00:42:510-00:44:280 G:こをえがくようなかん*じで

00:44:000-00:44:380 F:　　　　　　　　　　*あっはい

00:44:860-00:45:100 G:ひだ

00:45:870-00:47:250 G:やまの*ひだりっかわ

00:46:600-00:46:850 F:　　　　*({みぎ[?]})

00:47:820-00:48:800 G:まできてください

00:50:830-00:51:800 F:やまの<220>ひだりっかわ;前に咳あり

00:53:790-00:54:600 G:やまの

00:56:330-00:57:200 G:いちばんした

00:57:640-00:58:540 G:のひだりっかわ

00:59:070-01:00:190 G:やまのいちばんし<200>た

01:01:610-01:03:680 F:ひだりっかわにこをえがくようにいちばん

01:05:540-01:07:950 F:ちかってちかくあるあのたいしょうぶつに

01:08:380-01:09:830 F:かけばいいんですかなんかちっちゃい

01:11:440-01:11:540 F:おっ

01:12:640-01:12:900 F:ん

01:14:620-01:14:900 F:ん

01:17:510-01:17:720 G:*で

01:17:620-01:18:340 F:*おっ<280>はい

01:20:420-01:21:050 G:ここからあ

01:38:210-01:38:500 G:ん

01:41:240-01:43:300 G:もうすこしまだしたにいくんですけどお+

01:43:300-01:43:510 F:+はい

01:43:950-01:46:390 G:まっすぐう<230>じゃなくて

01:46:990-01:50:500　G:ちょっとだ<290>けかーぶするようなさっ*きからつずいていくと

01:49:280-01:49:590 F:　　　　　　　　　　　　　　　　*ん

01:50:700-01:50:840 F:ん

01:51:270-01:53:540 G:ゆるやかなえすじ*みたいになるぐらい

01:52:550-01:52:750 F:　　　　　　　　*んっ

01:54:370-01:56:400 G:*えすまではいかないですけど+

01:54:450-01:54:700 F:*はい

01:56:400-01:56:620 F:+はい

Appendix B:

Conventions in transcripts

1. English Map Task Dialogue

…	Silent pauses
{ }	Filled pauses and other noises made by the speaker: noise, laugh, and indecipherable speech
< / >	Incomplete utterances

2. Japanese Map Task Dialogue

< >	End of pause unit (numbers indicate pause length in milliseconds)
* *	Overlap
{ }	Filled pauses and other noises made by the speaker: noise, laugh, and indecipherable speech

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