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Text and Boundary: A Sideways Glance at Textual Phenomena in Japanese

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A Sideways Glance at Textual Phenomena in Japanese

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CONTENTS

INTRODUCTION: BOUNDARY – A SIDEWAYS GLANCE AT LANGUAGE

What do the function of the thematic particle *wa* in Japanese and the shape of Chinese characters have in common? At first glance, nothing. Nonetheless, in the present research study I will attempt to argue the importance of their common denominator: the phenomenon of boundary.

The role of syntax in communication has been conceived as helping the hearer/reader to predict to some extent the incoming discourse (cf. "distant early warning", De Beaugrande and Dressler 1981) and to restrict the range of possible interpretation (cf. "disambiguation", Durie 1995). This view of syntax highlights the processual aspect of related phenomena as opposed to the structural aspect. One recent contribution in this direction is "Linear unit grammar", Sinclair and Mauranen (2006), a new approach to the analysis of spoken language taking into account the hearer's point of view.

In general, the concept of language as a process also resonates well with the concept of syntax as a secondary phenomenon emerging from the communication process (cf. Hopper 1988, Hopper and Traugott 1993 et al.). Further, the processual view of language also highlights another aspect of structure in language that has not received much attention until now, namely, the role of explicitly signaled boundaries between various types of structural units in language communication.

The phenomenon of boundary is in a way secondary to the primary issue of description and analysis of units at all levels, and relations between them. In both structural and functional approaches to language boundary-related phenomena thus tend to be overlooked, the structure in itself being more interesting and thus a more urgent object of research. One of the few, and early references to the boundary issue in the context of writing systems is to be found in Haas (1976) mentioning the explicit delimitation of linguistic units. Yet phenomena involving the boundary of structural units, especially the way boundary is signaled and various pragmatic motivations for it, offer many interesting observations. To enumerate just a few:

1. Boundary related phenomena cut through all levels of spoken and written language;
2. Boundary signaling conforms to Zipf's law (see Chapter 1. section 7.1);

3. The way boundary signaling has developed is in many instances documented in our historical time;
4. Behind explicit boundary signaling there are pragmatic motivations, disambiguation being the most obvious motivation but not the only one. Disambiguation helps the hearer /reader to reduce processing load;
5. Boundary is related to the concept of language as a process.

The following topics, related to the aspects of boundary as mentioned above, will be discussed in this study:

In Chapter 1., I will introduce the notion of boundary, giving different examples from artificial symbolic systems, writing systems and natural language, i.e. Japanese.

Then, each of the ensuing chapters will discuss a specific problem.

In Chapter 2., I will attempt to shed light on the sentence formation of complex sentences from the point of view of relatedness of content and of content boundaries.

In Chapter 3., I will discuss the selection between Japanese demonstratives in the context and the role of paragraph boundary.

In Chapter 4., I will discuss the nature of topic seen from the context. This will serve as a basis for the latter half where content boundary is examined as a possible pragmatic motivation for explicit signaling of topic in the middle of the coreferential chain.

In Chapter 5., I will discuss the role of the modality-based bracket structure in speaker-hearer interaction. This chapter will attempt to reveal the processual aspect of language through an analysis of the hearer's perception and prediction of modal adverb - clause-final modality form co-occurrences.

Finally, in Chapter 6., I will summarize the results of the whole study from the point of view of discourse research.

However, the problem with a processual view of language is that the related phenomena are not easily observed in real-time communication processes. This is particularly true when working with written data. The most natural way would be to use spontaneous conversation data and to focus on the various aspects of speaker-hearer interaction. Research in syntactic projectability, in particular Szatrowski (2002), is very illuminating in this respect. Another possibility, suitable for written data, would be to devise various tasks for the readers, i.e. simple judgments about the target text. The analysis presented in Chapter 5., for example, is based on spoken Japanese corpora. On the other hand, the analyses in Chapters 2., 3. and 4. are based on written Japanese texts and elicited tasks by volunteer participants. As regards data proper, for the purpose of the present study, two corpora of spoken Japanese (Oikawa 1998) and NUJCC (Ohso 2003) were used, and for Chapters 2., 3. and 4. Akutagawa's *Rashômon*, newspaper and radio news texts, together with various elicited tasks were used.

In the past twenty years, the empirical approach to language has advanced tremendously in methodology and scope. At one end of the spectrum there is a minute analysis of

conversation dealing with a small number of texts in great detail; at the other end there is Natural Language Processing with a rough, but because of the large scale of data also revealing, analysis of enormous corpora of written, and recently also, spoken language. Thus, what once seemed an aberration in the world of formal linguistics is now becoming mainstream research.

The present study is based on part of my more extensive Japanese language research carried out after joining the Department of Asian and African Studies at the Faculty of Arts of the University of Ljubljana, but at the same time it reaches all the way back to work done over the past two decades. As it turns out, it would seem that in one aspect or another over the course of research, I have been dealing with the notion of boundary. In presenting the results in a unified form under the aegis of boundary, I hope, not only to make this research more easily accessible, but more especially to demonstrate the usefulness of boundary as a unifying concept for a variety of phenomena at all linguistic levels.

Finally, I would like to add that this study would not have been possible without the many people who, in one way or another, contributed to its materialization. I am gratefully indebted to them all.

I would specifically like to express my heartfelt thanks to my mentors and colleagues Professors Mayumi Sakuma, Irène Tamba, Polly Szatrowski, Yuriko Sunakawa, Fumio Watanabe and Fumihiro Aoyama, who contributed valuable comments on earlier versions of all or some of the chapters of this study. Any remaining incongruities or deficiencies are my responsibility alone.

My very special thanks go to all the University of Tsukuba students who participated in the research presented in Chapter 2. Without them this study would never have materialized.

The research for Chapter 5. was supported by a grant for the research program Languages and Cultures of Asia and Africa (grant No. P6-0243-0581-04 accorded by the Ministry of Higher Education Science and Technology of Slovenia). Parts of the study were completed during my stay as a JSPS visiting research fellow at the University of Tsukuba (June-July 2005) and as a visiting research fellow at the Nagoya University Graduate School of International Development (November 2005-March 2006). To all these institutions and to Professors Yuriko Sunakawa and Itsuko Fujimura, who were my hosts at Tsukuba and Nagoya respectively, I would like to express my deepest gratitude.

My sincere thanks are also due to Professor Mieko Ohso and her research team for providing their unpublished corpus for analysis and to Professor Akifumi Oikawa for allowing me to use his data as a corpus. And last but not least, my profound gratitude goes to Vivian Nobes, who patiently struggled with my English and somehow managed to put it into more readable form.

CHAPTER 1
THE NOTION OF BOUNDARY

1. INTRODUCTION

In this chapter I will introduce the notion of boundary. As I have argued elsewhere (Bekeš 2003, 2007, 2008), boundaries become relevant when viewing language as a dynamic process. Typical examples of boundaries can be found in artificial symbolic systems, such as for example: algebra, programming languages (LISP, Prolog), HTML, etc. Nonetheless, explicit signaling of boundaries between various units also evolved spontaneously at different levels in natural symbolic systems such as natural languages. One of the most recently attested such developments can be seen in the conventions of punctuation which evolved more or less independently in the different writing systems just a few hundred years ago (cf. Bruthiaux 1993).

In order to become familiarized with the notion of boundary, I will, over sections 2.–6., introduce some examples of boundary phenomena ranging from various symbolic systems to syntax.

2. ABSTRACT NOTION OF BOUNDARY

Boundary in its most general sense can be understood as the gap dividing two different, internally homogeneous, phenomena:

Diagram 1.

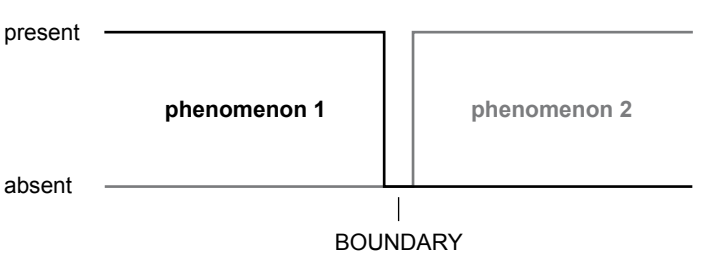
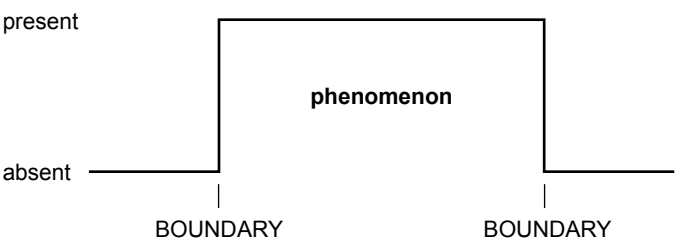


Diagram 1. shows a schematic one-dimensional view of two bordering phenomena. At first, phenomenon 1 is present and phenomenon 2 is absent. After crossing the boundary between the two, phenomenon 1 becomes absent and phenomenon 2 becomes present.

Examples of such one-dimensional phenomena can be seen in sequences of different signals (sequence of two sounds of a different pitch, sequence of two light signals of different color, etc.). Two-dimensional examples would be countries and the borders in between.

Similarly, absence and presence of a single phenomenon can be envisioned. A one-dimensional schematic view of this is shown in Diagram 2. below.

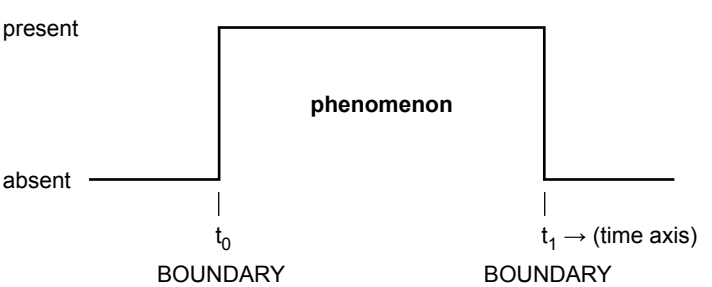
Diagram 2.



An example would be silence followed by a sound signal, followed by silence again; or a wire with just a section of it being in a different color; or again a TV screen, displaying white noise before the morning emission begins, then followed by various programs after the emissions start, and turning again to white noise at the end of the day.

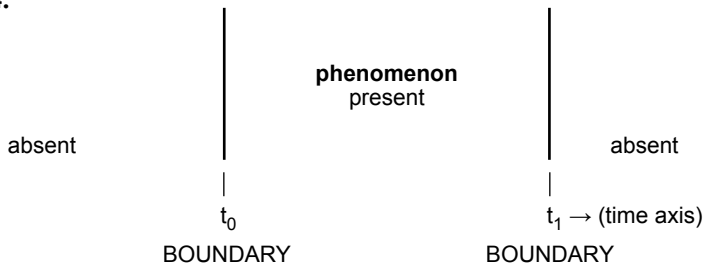
This by itself is not very interesting. It is only an abstract way of indicating that something is there or that it is not. Yet instead of the static view, a dynamic view of the situation can also be taken; for example in the one-dimensional case, the dimension can be envisioned as time. In this case, a phenomenon is at first absent, then appears at the moment t_0, lasts until the moment t_1, and then vanishes again.

Diagram 3.



If the situation, before t_0 when the phenomenon is absent and during the presence of phenomena between t_0 and t_1, and after t_1 is envisioned as static, then what remains as perceived is just the change; from absence to presence at the moment t_0, and from presence to absence at the moment t_1. This is shown schematically in Diagram 4. below.

Diagram 4.



This perception of change is what is actually perceived as a boundary. This simple observation has an equivalent in mathematics where such discontinuity between absence and presence at the phenomenon boundary is often expressed by Dirac's *delta* function (cf. Bracewell 2000: 74–104), and provides an important link between continuous and discrete views of phenomena.

Perception of the beginning and the end of some phenomena is also like opening and closing brackets which actually are a discrete way of explicitly showing the extent of a certain expression.

To elucidate the notion of boundary, I will present some examples, first in artificial symbolic systems and then also in natural language.

3. BOUNDARY IN ARTIFICIAL SYMBOLIC SYSTEMS

3.1 BRACKETS

Artificial symbolic systems, such as algebra, set theory, logical calculus, programming languages etc., use brackets extensively to signal the boundaries of elements.

For example, algebra uses alphabet letters as basic symbols for numbers and special symbols such as **+** (addition), **–** (subtraction), **x** (multiplication) and **÷** (division) as basic symbols for operations.

Convention regarding the order of operations (i.e. multiplication and division precede addition and subtraction) also signals, in a way, the boundary between the elements (numbers) on which a particular operation is to be performed. Thus in the expression **a x b + c x d** the symbol **+** is also indirectly a signal for the boundary between the compound elements **a x b** and **c x d**. This works in simple cases, but for more complex calculations, the expressive power of the convention of precedence is not sufficient and brackets must be introduced to achieve economical and unambiguous calculation. Thus, if we want to add **a** and **b** and then multiply the result with the sum of **c** and **d**, the notation **a + b x c + d** will not give the desired result. We could specify the result as **a x c + b x c + a x d + b x d**. However, this is cumbersome and uneconomic. Brackets, showing an unconventional boundary between elements, provide a straightforward solution: **(a + b) x (c + d)**. The advantage of brackets is that they show explicitly the beginning and the end of the string of symbols denoting an element in an algebraic formula.

Essentially, the same usage of brackets can also be seen as for example: in programming languages such as LISP, PROLOG, etc.; in logical calculus; in set theory; etc. An example, using HTML, the language of internet pages, is given below.

Figure 1.

a. <P>TEXT <B>BOLD_TEXT</B> TEXT</P>
b. TEXT **BOLD_TEXT** TEXT

In Figure 1a. above, an HTML expression specifying bold typeface of a segment of text "BOLD_TEXT" is shown. The first pair of complex symbols <P> and </P> function as brackets and in Figure 1a. signal the beginning and the end of a paragraph. In the same way, the complex symbols <B> and </B> signal the beginning and the end of the bold typeface.

The expression in Figure 1a. is actually an instruction for displaying characters on a screen. The interpreted result of which, i.e. what is actually displayed on the screen, is shown in Figure 1b. Since the program for displaying characters needs unambiguous instructions to work properly, the beginnings and the ends of relevant segments all have to be shown explicitly; in the case of HTML with complex symbols such as <X> (beginning) and </X> (end). Letter X stands for a particular characteristic of the string of text character, such as "bold" (expressed by B), or "paragraph" (denoted by P), etc.

To summarize, in all the cases mentioned above, we can say that explicit boundary signaling was invented and introduced expressly: to increase expressive power; for economy and transparency of notation; and to prevent ambiguity. Bracket-like boundary signals consist of pairs of signals, the first one signaling the beginning and the second one the end of a given expression. It is also important to note that in artificial symbolic systems, pairing between the beginning signal and the ending signal is **compulsory**. Absence of either would result in a formally incorrect and thus uninterpretable expression. In natural systems on the other hand, as will be made clear later, the relation between the beginning signal and the ending signal is **probabilistic** (cf. modal adverbs and clause-final modality form pairing in Chapter 5).

3.2 DELIMITERS

The most common boundary markers are **delimiters**, explicit signs marking the boundary between individual elements in a series, for example in an algebraic progression or in a database.

Figure 2.

a. $\mathbf{a_1, a_2, a_3, a_4,}$ …
b. $\mathbf{a_1a_2a_3a_4}$
c. $\mathbf{ab, a_2b, a_3b,}$ …

Here, $\mathbf{a_1, a_2, a_3,}$ etc. are elements of a progression or a list, and the commas "**,**" explicitly marking the boundary between the elements are delimiters. They serve to distinguish explicitly the case of a list of elements or a progression such as can be seen in Figure 2a., from a different expression involving the same elements as shown in Figure 2b. Also,

the basic elements can combine in a more complex way and delimiters again signal what should be understood as a complex element in a list as is shown in Figure 2c.

As will be mentioned in the following section, we have an identical situation in written language, as in written Slovene and most other languages using alphabetic scripts, where punctuation marks, such as periods, commas and blanks between words, are employed as delimiters.

Delimiters serve as disambiguators. Once a delimiter is encountered in a string of symbols we know that what continues after the delimiter is part of a different element distinct from that appearing before the delimiter. In principle, delimiters do not include anything that would help anticipate the next delimiter. Thus, they can only serve to disambiguate *ex post facto*, i.e. once they are encountered.

4. SEMI-ARTIFICIAL SYMBOLIC SYSTEMS: WRITING SYSTEMS

Another example, where the development of explicit boundary signaling is historically attested is in writing systems. I will give just two examples. One is the development of punctuation conventions, such as the use of punctuation marks or boundaries between words in alphabetic writing systems. The other is the development of modular size in Chinese characters.

4.1 PUNCTUATION

Traditionally, in Latin and before it in Greek alphabet writing, boundaries between words were not signaled, the text was written as a continuous string of alphabet characters. In its early stages Greek writing even used to be bidirectional (cf. Pulgram 1976), as can be seen in the so called *boustrophedon* way of writing. Picture 1. below shows a detail from an inscription of a Gortyn Law Code written in *boustrophedon*, Crete, 5th Century BC.

Picture 1. *(Wikipedia, http://de.wikipedia.org/wiki/Stadtrecht_von_Gortys, GPL license)*

Chinese, Japanese and Korean orthographies do not signal boundaries between words either. The reason for this, besides entrenched tradition, seems to be typological, with polyfunctionality of many morphemes in the case of Chinese and strong agglutination of inflected words such as verbs and adjectives in Japanese and Korean.

The introduction of blanks between words in the more modern form of European languages also, was as recent as the end of the 15th century (Bruthiaux 1993: 28). By introducing blanks between words, alphabets as primarily cenemic (sound oriented) systems also became secondarily pleremic (meaning oriented, cf. Haas 1976) systems, thus surprisingly, in this respect, becoming similar to logographic systems such as Chinese or Japanese. The reason for it to be necessary to delimit words was of course for disambiguation, as is shown in the following figure:

Figure 3.

a. INSTITUTEOFLITERATURESANDLANGUAGES
b. INSTITUTE OF LITERATUR**E S**AND LANGUAGES
c. INSTITUTE OF LITERATUR**ES** AND LANGUAGES

In Figure 3a. there are at least two possible readings: reading 3b. is rejected because of the knowledge of the real world while 3c. is accepted as correct. Disambiguation, in such cases when the words are not delimited, is usually possible but it imposes an additional processing burden on the reader, whereas explicit signaling of word boundaries diminishes this burden. The same is true also for punctuation marks. The importance of these marks can be seen, for example, in the frequent struggling over the position of commas in negotiating legal contracts.

Further elaboration is provided by punctuation marks, such as periods, commas, colons, semicolons, exclamation marks and question marks. These all serve as delimiters, signaling the end of some otherwise homogeneous segment of a text. There are also brackets or bracket-like punctuation marks, such as quotation marks.

Figure 4.

「 」, 『 』, “ ”, 〝 〟, ‘ ’, “ ”, etc.

Figure 4. shows various types of quotation marks used in Japanese and Latin-alphabet based orthographies. It is interesting to note that in Spanish orthography, question marks and exclamation marks which usually appear as single marks in other orthographies (i.e. used as delimiters), appear in pairs, so they actually function as brackets.

Figure 5.

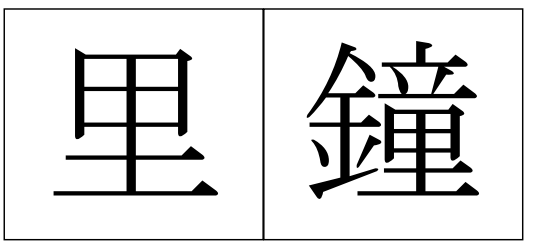
¡ !, ¿ ?

4.2 TWO-DIMENSIONAL BOUNDARY: MODULAR SIZE OF CHINESE CHARACTERS

Another development within the area of writing systems is the development of the modular size of a Chinese character regardless of the number of its graphical components. For

example, the Chinese characters 里 (*li* – village, mile), and 鐘 (*zhong* – bell) share the same graphical component 里. In the case of 里 (*li*), this component corresponds to the whole character.

Figure 6.



Yet, as can be seen in Figure 6., the much more complex character 鐘 (*zhong*) occupies the same module of planar space as the simpler character 里 (*li*). The appearance of graphical components regardless of their number within the same spatial module signals the unity of the sign. In other words, graphical components, though they could often individually also function as characters, are thus presented not as independent units of writing but as constituent parts of a unit of writing, a character. A different solution, such as for example *zhong* written as 金立里 and without any signaling of unit boundaries, would always be ambiguous as to the nature of each individual graphical component. The reader would always have to check whether a given component is used to represent an independent character or as a component of a complex character. The modular size of each character therefore provides the necessary cue for disambiguation and thus reduces the processing load.

5. EXAMPLES OF BOUNDARY IN SPOKEN LANGUAGE

Spoken language has a much richer repertory of means to signal "information packaging", accent and intonation being perhaps the most prominent among them. They provide the hearer with cues on positioning the boundaries between the various linguistic units within the flow of speech. In this section, word accent in Japanese and Chafe's analysis of intonation in discourse units will be introduced as two examples.

5.1 WORD ACCENT IN JAPANESE

Accent in modern Japanese is realized as a high tone. Without going into detail, I will simply sketch the properties of accent deemed relevant to the issue of boundary.

According to Takeuchi (1999: 46–47), in the majority of Japanese indigenous nouns, accent is an unpredictable lexical feature. For loan-word nouns, the general accent placement rule states that the high tone is placed on the third mora counted from the end of the word. If the mora is non-syllabic (e.g. the nasal phoneme N, etc.), the accent moves one mora backwards. Verbs on the other hand fall into two classes: accented verbs and unaccented verbs.

Yet, as far as the issue of boundary is concerned, it is not the individual word accent but the accent of words in their context that is relevant.

5.1.1 Compound words

In compound words, the unity of the whole is signaled by a change in accent, which is not the sum of individual components, and by *rendaku* (voicing of the unvoiced first consonant in the second component), which though, is not automatic. The general trend being that the compound word has only one accent, usually in a position different from the accents of the component words (cf. Takeuchi 1999: 48–49). To cite an example from Takeuchi (ibid.), *rendaku* being shown in bold:

Example 1.

onna' (woman) + *koko'ro* (heart) → *onna**g**o'koro (*woman's heart)

Neither means of showing unity of the compound employ bracket-type boundary signaling. One accent per compound word makes it explicit that the components are not to be understood as independent lexemes. *Rendaku*, when applicable, functions in a way similar to algebraic operation signs, such as '**+**', '**–**', '**x**' and '**÷**', showing the preferred order of aggregation. It draws attention to the boundary between the constituent parts of a lexeme, but in a special way. What it does, is not to signal the boundary itself, but to signal the fact that the constituent parts are joined, i.e. that they should be understood as parts of a single whole.

5.1.2 Phrasal accent and intonation

Word accent serves to distinguish different lexemes. This is why compound words also have only one accent. However, in actual speech, it is not individual words but phonological phrases, i.e. a single noun with or without adnominal and/or enclitic particles (cf. Takeuchi ibid.: 50–51) that matter. Experimental phonetic research reported in Takeuchi (ibid.) shows that phonological phrases are delimited by a 'phonological phrase boundary Low tone'. In the example below taken from her work, the slash shows the phonological phrase boundary.

Example 2.

uma'i / nomi'mono

Thus, we have passive signaling of the phrases (when they are accented) by the accent, and in addition, explicit signaling by a phonological phrase boundary realized as a more or less deep valley in pitch (Takeuchi, ibid.).

5.2 INTONATION IN DISCOURSE UNITS

According to Chafe (1980:13–15), the information in spontaneous discourse is packed into units called idea units, corresponding roughly to clauses (see Note 1). The gist of Chafe's argument is that these idea units are typically delimited by a rising intonation contour and optional pauses. Chafe (ibid.: 29) also observes that in spontaneous discourse there are larger

structures, cognitive entities called centers of interest. Centers of interest are intonational equivalents of syntactic sentences. They are realized in speech as a series of idea units with the final closure typically being shown by falling intonation and by an optional pause. Indeed, the boundary of the center of interest and the syntactic closure also frequently coincide. Schematically, a center of interest composed of N idea units may be shown as follows:

Figure 7.

idea unit 1 ↑ idea unit 2 ↑ .... idea unit N↓
(↑ : rising intonation; ↓ : falling intonation)

Thus, in the case of idea units, we have boundaries shown by simple delimitation similar to the orthographic convention of putting blanks between words. On the other hand, in the case of a more complex and larger structure, such as a center of interest, its boundaries are signaled by a bracket-like structure. Bracket-like structures differ from simple delimiters. In such structures, as in the case of actual brackets, the marker for the beginning and the marker for the end of the structure are different. In the case of the center of interest, the beginning (and continuation) marker is rising intonation and the closing marker is falling intonation. Putatively, the evolvement of a bracket-like structure has to do with the processing load involved, as will be argued in section 7.2. at the end of this chapter.

6. BOUNDARY IN SYNTAX

In this section, I will take a closer look at a subset of syntactic phenomena in Japanese which can be interpreted from the point of view of boundary, i.e. the layered structure of Japanese sentences. This concept of layered sentence was first systematically proposed by Minami (1964, 1974, and 1993). Minami's model inspired a great deal of further research, for example Nitta and Masuoka (eds.) (1989), Nitta (1991), Masuoka (1991), also Noda (1995) and many others (see Narrog 2009 for a detailed summary of the field). Kudoo (2000), a major work on the treatment of modal adverbs in Japanese and in many ways a refinement of Minami's work in this particular area, will be discussed separately in Chapter 5.

6.1 LAYERED STRUCTURE OF JAPANESE SENTENCES

Minami, elaborating on previous research (Mikami 1953, Hayasi 1960, 1982 et al.), was the first to demonstrate the layered structure of Japanese sentences in a systematic and explicit way. He did so by using rigorous argumentation and by taking into consideration whole sentences, including the structure of dependent clauses, instead of only the structure of the predicate and the sentence-final modality. Like Hayasi (1960, 1982), Minami also postulated four layers for a sentence. The layered structure became apparent from a thorough examination of the possibilities of co-occurrence of the various constituent elements within the sentence, e.g. complements, thematized elements or elements given prominence or extrapolated (*toritaterareta*) in some other way, conjunctive particles, etc., against constituent elements belonging to the compound structure of the predicate including modality, final particles, etc. For a global picture of the possibilities of co-occurrence see

Table 1. below based on the English version by Szatrowski (2002, Table 1.) of Minami (1993, Tables 5–1, 5–2).

Table 1. *Layered structure of Japanese sentence according to Minami*

	CLAUSE TYPES / SYNTACTIC ELEMENTS	-*nagara* 'while'	-*tutu* 'while'	-*te*$_1$ GERUND (manner)	Repetition of V-stem	-*te*$_2$ 'and' (sequence)	*to* 'when'	- *nagara* 'although'	*node* 'because'	*noni* 'although'	- *ba* 'if'	- *tara* 'if'	*nara* 'if'	- *te*$_3$ 'and' (reason)	V-stem	-*zuni* 'without'	- *naide* 'without'	*ga* 'but'	*kara* 'because'	*keredo* 'but'	*si* 'and'	-*te*$_4$ GERUND
		A				B												C				
PREDICATE COMPONENTS	-*mai, daroo* (TENT), -*u/-yoo* (COHORT)	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	+	+	+	+	-
	-*ta/da* tense/aspect	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	+	+	+	+	-
	-*nai* (NEG)	-	-	-	-	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	+	+
	-*masu* (DISTAL)	-	-	-	-	+	+	( )	+	+	+	+	+	+	-	(+)	-	+	+	+	+	+
	Polite form	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
	Giving/receiving verb	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	-*(r)areru* (PASSIVE)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	-*(s)aseru* (CAUSATIVE)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	verb	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
NON-PREDICATE COMPONENTS	NP *o* (DO)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	NP *ni* (IO)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	NP + case particle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	State adverb	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	Degree adverb	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	A level clause	+	+	+	(+)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	NP *ga* (SUBJECT)	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	Place modifier	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	Time modifier	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	tonikaku 'anyway', *yahari* 'after all'	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	Evaluative modifier	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	B level clause	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	NP *wa* (TOPIC)	-	-	-	-	-	-	-	(+)	-	-	-	-	-	-	-	-	+	+	+	+	+
	tabun 'probably', *masaka* 'no way'	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
	C level clause	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+

A - level
B - level
C - level

Co-occurences of 'non-predicate components' and 'predicate components' with types of dependent clauses. 3 levels (A, B, C) are indicated following Szatrowski (2002). Each level was determined by Minami according to the possibilitiy of co-occurrence of predicate and non-predicate elements in the types of clauses given above. A '+' sign indicates that co-occurrence is possible, and a '-' that it is not; (+) marks a problematic possibility of co-occurence.

Minami (1964, 1974, 1993), though giving his levels a semantic and pragmatic interpretation, chose to name them neutrally as A, B, C and D. Table 1. above, shows dependent clause levels A, B and C emerging from the possibilities of co-occurrence of non-predicate syntactic elements and predicate syntactic elements within clause types. As level D belongs to the fully completed sentence it does not figure in the table (see Note 2). To get a better understanding of how the lower levels are embedded in the higher levels see Example 3 below which shows a layered structure comprising levels A, B and C.

Example 3.

...{ ***dooyara*** [*kono mati ni mo gonin gurai wa* (*i*)$_A$*-ru*]$_B$ ***rasii***}$_C$ ...
somehow this town at too five-persons about *WA* are *-RU* it_seems

WA: CONTRAST; *-RU*: NON-PAST-AFFIRMATIVE

... somehow, it seems as if there should be about five [of them] in this town, too...

In Example 3. Minami's levels are shown by brackets: "()" denotes level A, "[]" level B and "{}" level C. Higher levels contain the inner levels in the manner of Russian matryoshka dolls. At each level several constituents are possible. It is interesting to note that in the example above, level A comprises only the verb stem *i-* of *iru* (to be, exist). Bold letters mark the modal adverb *dooyara* (somehow) and the sentence-final modal form *rasii* (apparently); connected at level C. Underlined, are the constituents *kono mati ni mo* ("in this town too", with particle *mo* marking homogeneous additivity) and *gonin gurai wa* ("about five persons", with particle *wa* marking contrast) and the predicate final morpheme *-ru* (nonpast-affirmative); connected at level B (see Noda 1995:33, mentioned in the next section). These co-occurring elements are each connected by a kind of semantic agreement. *Dooyara* and *rasii* share the same tentative modality while *kono mati ni mo* and *gonin gurai wa* are connected by the affirmative-negative polarity. It is this kind of agreement that unites the co-occurring constituents into a bracket structure.

Minami (1993: 21~) also gave a strong pragmatic interpretation to his levels. Namely, the innermost level A is interpreted as *byoozyo* (description), level B as *handan* (judgment), level C as *teisyutu* (presentation) and level D as *hyoosyutu* (expression) (see Note 3). As we move from level A to level D, the orientation towards the verbalized state decreases while the orientation towards the hearer increases. It is clear from Minami's argument that, similarly to Hayasi (ibid.) and also later to typological research by Foley and Van Valin (1984), each layer is also supposed to play a specific role in discourse.

In this study, I will give closer consideration to the two bracket-like structures belonging to Minami's sentence level C. The first being the co-occurrence of *wa*-topic with sentence-final modal forms in narrative (treated in Chapter 4.) and the second being the co-occurrence of modal adverbs and sentence-final modal forms in spontaneous conversation (treated in Chapter 5.).

6.2 EXTRAPOLATED (*TORITATE*) EXPRESSIONS AND SENTENCE-FINAL MODALITY AGREEMENT

Noda (1995) represents a further refinement on Minami's work with regards the correspondence between extrapolated elements, given prominence by extrapolating *(toritate)* particles, and sentence-final modal forms. His summarized results are presented in Table 2. below, (Table 131 in Noda 1995:33; for a Japanese version see Appendix I., translated by Bekeš).

Table 2. ***Toritate*** *expressions and sentence-final modality agreement*

		Sentence-final modality type					
		Word-base	**Aspect**	**Negation-assertion**	**Realis**	**Situation oriented mood**	**Hearer oriented mood**
Comparison	**oppositional**			*wa* (contrast)			
	coordinate			*mo* (sameness)			
Restriction	**oppositional**	*dake*	*bakari*	*sik*a *ga* (exclusion)	*nara* (condition) *dewa*	*wa* (topic)	*koso* (prominence) *nara* (topic)
	coordinate					*demo* (example)	*mo* (softening) *nado* (example)
Extreme	**oppositional**			*nado* (stressed negation) *gurai* (minimum)			
	coordinate			*made* (unexpected) *mo* (unexpected)	*demo* (un-expected)	*sae* (unexpected)	
Dependent clauses only	**oppositional**					*koso* (concession)	
	coordinate				*sae* (minimum)		

The major property of extrapolating *(toritate)* particles is that they are strongly associated with layers (which can essentially be interpreted in Minami's sense) to which the sentence-final predicate forms belong. For example, the difference between *nara* and *wa,* when used as thematization particles, is in the layer of the associated modality. In the table above, while *wa* is associated with the layer related to the described state of affairs, i.e. **situation oriented mood**, *nara* is associated with the layer related to the hearer/reader, i.e. **hearer oriented mood**. An example of such extrapolated (*toritate*) expressions and sentence-final modality agreement is shown below (Noda ibid.).

Example 4.

Anata ***koso***	*ki-o*	*tuke*	***-te-kudasai.***
You just	care	take	please.
<			>

This very close relationship between *toritate* particles and sentence-final predicate forms can be reinterpreted as a bracket structure. In the example above, this is shown by the brackets "<.... >" beneath the relevant elements in bold type.

The extrapolated *(toritate)* expression serves as the opening bracket and the associated sentence-final predicate form as the closing bracket. This structure explicitly marks the segment of discourse that was extrapolated, i.e. given prominence by the use of a particular *toritate* particle, and coincides with the scope of modality expressed by the sentence-final predicate form. Such interpretation coincides well, particularly with the role of particle *wa* used to mark a topic.

This role seems to be relatively recent. According to Kinsui (1995), the particle *wa* emerged in conjunction with the tense marker *-ta* (PAST) as *katari no wa* (*wa* in narration) in narratives, just a few hundred years ago.

Indeed, on the basis of this association of *wa* with sentence-final predicate forms, it has been argued that one of the important roles performed by *wa*-topics in discourse is presentation and organization of information (cf. Maynard 1987, Bekeš 2000, 1995a, 1993). These issues will be further discussed in Chapter 2. and, more particularly, in Chapter 4.

It has to be added though, that *toritate* particles such as *wa* can extend their scope beyond the limit of a single sentence and that it can, therefore, be conjectured that their association with particular predicate forms would result in bracket structures which could be helpful in identifying their scope. In Chapter 4., the above conjecture will be re-examined and applied to the role of NP+*wa* in narrative as a marker of content boundary.

7. PRAGMATIC ASPECTS OF BOUNDARY SIGNALING

7.1 BOUNDARY SIGNALING AND ZIPF'S LAW

In the previous sections, a variety of phenomena involving signaling of boundary and belonging to various levels of language have been introduced.

The reason why the boundary between various units tends to be signaled less explicitly at local levels and more explicitly the higher we go up towards more macro levels of discourse can be found in Zipf's law (see Note 4). One of the consequences of Zipf's law is related to economy of coding. To achieve the highest possible throughput of information, the more frequently recurring elements need less coding than less frequent elements. There are numerous examples. For instance, the shape of letters (e.g. the shape of characters in the Japanese *hiragana* syllabary and letter signs in Morse code) seems

to be less complex the more frequently the letter appears. The same is also true of highly frequent lexical items, such as functional words, which generally tend to be shorter than substantial words (as can be seen from a comparison of the average length of pronouns and nouns in general). According to Zipf's law, basic units that are permanent in a given sign system, for example graphemes, characters or lexemes, should need and actually do display less explicit coding of their boundaries. Indeed, vague signaling of the intonational centers of (phonetic) words, delimitation of phonetic phrases or idea-units by specific intonation contours in spoken language and lexemes by blanks in written language etc., as observed in the previous sections, are in accordance with this trend.

On the other hand, larger structures of more ephemeral character, such as centers of interest in Chafe's sense in spoken language and segments of discourse appearing as scopes of discourse particles or modality, tend to be delimited more often by bracket-like structures, or at least by delimiters. The same is true of the boundaries between content units delimited by NP+*wa,* as we shall see in Chapter 4. The advantage of bracket-like structures is that they show the beginning and the end of a unit, and that they can – by inclusion – show a hierarchical relationship, though this is rarely the case in language.

7.2 HOW EXPLICIT BOUNDARY SIGNALING CONTRIBUTES TOWARDS EFFICIENT DISAMBIGUATION

Explicit boundary signaling is efficient because it contributes towards the disambiguation of incoming structures thus reducing the processing load of the hearer/reader. In the case of delimiters, this is easily seen from the example of Figure 3. above, given here again for ease of reference.

Figure 3. *(repeat)*

a. INSTITUTEOFLITERATURESANDLANGUAGES
b. FACULTY OF LITERATUR**E S**AND LANGUAGES
c. FACULTY OF LITERATUR**ES** AND LANGUAGES

Successful reading of 3a. requires: i.) parsing into words; and ii.) choosing the result fitting best into the overall context. Parsing into words requires a comparison of one's vocabulary with the spectrum of hypotheses as to the correct reading, narrowing down as the process goes on. Plausible results of parsing, i.e. 3b. and 3c. then have to be compared with the immediate context, the wider context and also with one's knowledge of the world to arrive at the most plausible solution. Both procedures are time-consuming. The minimum estimate of the processing load reduction, based only on the number of found potential solutions and excluding the load of the parsing process itself, can be conceived as the fraction 1/N:

Figure 8.

$$\frac{\text{1 (= unambiguously signaled expression)}}{\text{N (= number of possible ambiguities)}}$$

Thus, explicit signaling of word boundaries in Figure 3a. above, with one unambiguous expression and two possible ambiguities, would reduce the processing load at least twofold. Even in the simplest case, the reduction of the load is considerable.

In the case of bracket-like structures, the gain is potentially even bigger because both the beginning and the end of a unit are unambiguously signaled. Bracket-like structures such as an intonation contour defining a center of interest (see section 5.2.) function as a single set of brackets. On the other hand, bracket-like structures based on emerging agreement relations, such as modal adverbs (see Chapter 5.), are like so many sets of different brackets. Upon identifying the opening of some such bracket-like structures, the hearer is able to predict the closure. With a variety of agreement relations available, the hearer is able to keep track of several such relations simultaneously. This is an advantage in embedded structures, such as the layers of sentences, where most of such structures actually appear.

As for the efficiency of bracket-like structures, I will avoid technicalities and present a simple consideration. Since bracket-like structures have all the functionality of delimiters, they are at least as efficient. In addition, they reduce ambiguity arising from the connections between units in embedded structures. Thus, bracket like structures are even more efficient disambiguators than delimiters (see Note 5).

Finally, implicit signaling of boundaries, such as (phonological) word accent, further contributes by limiting the search scope in parsing to the immediate neighborhood, thus achieving almost the same effect as the use of a delimiter.

8. CONCLUSION

Boundary phenomena at different levels of language were considered in this chapter. The study was based mainly on data from the Japanese language but similar developments can be seen in other languages as well.

If the role of syntactic structures is to contribute towards disambiguation in general (Durie 1995) then the same can also be said of the function of boundary signaling in areas outside syntax. From the vantage point of boundary signaling, various emergent phenomena bordering between text and sentence became apparent over the course of this study.

One such phenomenon introduced in this chapter was the framework of the layered structure of sentences, as provided by Minami (1993), emerging from a statistical correlation among the various constituent elements. Then, each being a particular aspect of Minami's global findings, were two further phenomena: firstly, the issue of NP+*wa* topic emerging, as I will argue in Chapter 4., in its function of content paragraph delimiter; and, secondly, the emergent agreement of modal adverbs and sentence-final modality, as so deftly presented in Kudoo (2000). Its role in speaker-hearer interaction will be discussed in Chapter 5. Chapter 3. will also discuss the related topic of demonstratives in relation to content boundary.

NOTES

[1] See another view of the same phenomena in Chafe (1994). Similar ideas were also advanced by others, cf. Halliday (1967) and his notion of information units, and even earlier, Daneš' (1965) treatment of sentence intonation in Czech.

[2] The outermost level D, that of the completed utterance, is not shown here as the example is a fragment of an actual conversation (Oikawa 1998), slightly "retouched" by adding *kono* (this) to modify *mati* (town) to sound more natural, taken out of actual context.

[3] The translation is mine.

[4] The so-called Zipf's law, discovered by J. B. Estoup and G. K. Zipf, states that the frequency distribution in any large corpus of words is approximately such that the frequency*f* of every individual word multiplied by its rank *r* is constant: $f \times r = C$. (cf. Nöth 1990). Related to this is the principle of economy which states that forms which, statistically speaking, are more frequent, are coded in a simpler way.

[5] In Bekeš (1998) I arrived at the following result. If there are N potentially ambiguous elements competing to be recognized in some binary relationship, the number of possible combinations is proportional to N^2. Delimiters reduce this number of possible combinations to be considered for disambiguation to a number proportional to $N^{1.5}$. The reduction of processing load is then given as a number proportional to $N^{1.5}/N^2 = 1/\sqrt{N}$. With a small number of competing elements, the gain is not so big. In the case of 2 elements, the estimated gain is even smaller than the one given in Figure 8. (i.e. $1/\sqrt{2} = 0.71$ as compared to 0.5). But with nine competing elements the reduction is quite considerable: $1/\sqrt{9} = 0.33$.

CHAPTER 2.
CONTENT BOUNDARY AND SENTENCE FORMATION IN JAPANESE

1. INTRODUCTION

Leech (1983: 63–70) distinguishes two kinds of pragmatics, interpersonal pragmatics and textual pragmatics. This study is concerned with textual pragmatics, specifically with the textual motivations behind a format such as a sentence in Japanese.

Studying spontaneous spoken discourse, Chafe (1980) proposed, on the basis of phonetical and intonational criteria, two units of spoken discourse, i.e. the "idea unit" and the "intonation sentence". His justification for both units as cognitive processes is as follows. Idea units, most often verbalized as clauses, are the linguistic expression of cognitive units that Chafe calls "foci of consciousness". A focus of consciousness is a chunk of information small enough to be processed and verbalized in one step. An intonation sentence then, consisting usually of several idea units (or sometimes even just one), is the verbal expression of a larger cognitive unit, the "center of interest"; a chunk of information too large to be verbalized in one step. Concerning the center of interest, Chafe puts forward the following hypothesis.

> Spontaneous spoken language then suggests the existence of some sort of cognitive entity which I am calling a center of interest and which corresponds roughly to what is expressed in a linguistic sentence.
>
> (Chafe 1980: 29)

Applying the above hypothesis to written language, I tried to measure content relatedness between clauses (Bekeš 1987). It follows from Chafe's hypothesis that clauses coinciding inside an intonational sentence belong to the same hypothetical cognitive unit, the center of interest, and should therefore be more closely connected in regard to their cognitive content than clauses not appearing in intonation sentences. Because of the close connection that is supposed to exist between centers of interest and linguistic sentences, the above could be expected to hold for sentences of the written language as well. On the basis of such reasoning, I introduced an empirical measure of content relatedness (*yuuensei*). I defined

content relatedness on the basis of paraphrases of texts, written in what Givón (1979) calls pragmatic mode, where each sentence corresponds roughly to a clause. The frequency of any two clauses from the original coinciding within the same sentence in paraphrases was taken as the quantitative measure of their content relatedness.

Chafe (1987), admitting difficulties encountered when attempting to define precisely the concept of sentence, offers a revision of his first hypothesis, supporting it by an analysis of new spoken discourse material. The new hypothesis considers a sentence to belong more to the realm of rhetoric than to have a clear-cut cognitive basis.

> The function of sentences in spoken languages is intriguing and problematic ... There is a useful distinction to be made between those linguistic units which are determined by basic cognitive phenomena such as memory and consciousness and those which result from passing decisions regarding coherence and rhetorical effect. In the former, cognitively determined category, belong to intonation units, extended clauses and paragraphs. Sentences on the other hand seem to belong to the category of phenomena which are under more rhetorical control, and are more independent of cognitive constraints.
>
> (Chafe 1987: 46)

In his latter hypothesis he relativizes and complements his first hypothesis. That is, the cognitive basis of a sentence is a matter of degree while the consideration of rhetoric may actually be more important.

Chafe bases his hypotheses on a qualitative analysis of spoken discourse. In this study I will attempt a quantitative verification of Chafe's propositions. I will analyze written paraphrases elicited from Japanese native speakers. In the following section 2., I will describe the survey based on written paraphrases of a short text written in pragmatic mode. In section 3, I will examine content relatedness between clauses of the input text as reflected in intuitions of people who participated in the paraphrase survey. Then in section 4., Iwill analyze the co-occurrence of clauses within the same sentence in paraphrases. In section5. I will examine the connection between content relatedness and the co-occurrence of clauses within the same sentence. And finally, in section 6., I will discuss the results.

2. THE SURVEY

In order to find out how clauses are combined into sentences I basically used the same paraphrase method as in Bekeš (1985, 1987), except the method and emphasis of analysis, as well as the lines of interpretation, were to some extent different. The paraphrase survey was carried out with 45 first-year students of the University of Tsukuba, College of Physical Education.

Clauses would seem to be the written language counterparts of Chafe's idea units (Chafe 1980). Therefore, the input text used in paraphrases was subject to the restriction that one sentence should consist of one clause. To observe how clauses were combined into

sentences, participants in the survey had to complete three tasks.

The first task, **Task A** (**paraphrase survey** below) was to paraphrase the input text as a news article (see Note 1).

Next, in order to control the participants' reading of the input text, for **Task B** they had to write a short summary of the input text.

Finally, in order to ascertain the participants' intuitive judgment of content relatedness between input text clauses, in **Task C** (**marking survey** below) participants had to mark those clauses in the input text they thought to be related in content within the context of the whole input text.

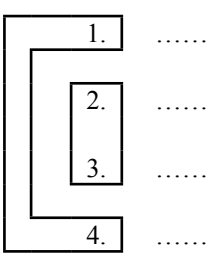
For the input text used in the survey (a news item reporting a suicide) and its English translation, see Appendix II. The actual instructions used in the survey are given below.

Instructions for task A (paraphrase survey):
Without taking away or adding to the content, paraphrase the above text as an objective news report such as you find in newspapers.

Instructions for task B (summary survey):
Write a short summary of the above text.

Instructions for task C (marking survey):
Among the 25 sentences constituting the above text, mark those that you consider to be related in their content within the overall context of the whole text, following the example below.

Fictional example for task C:



3. INPUT TEXT CLAUSES AND THE MARKING SURVEY

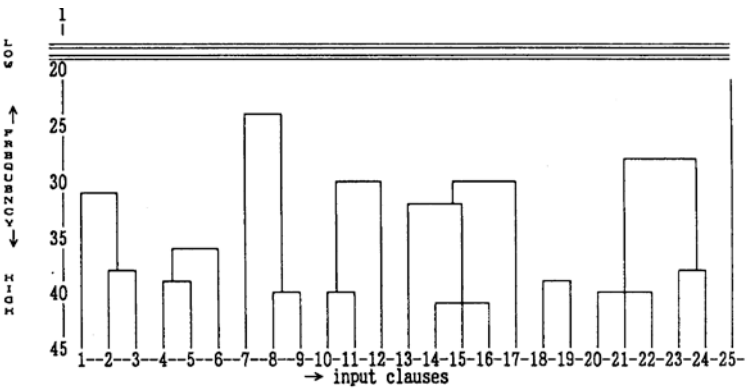
For analysis of the marking survey, each pair of input clauses was assigned the value 1 for every participant who marked the pair as related in content. The total score for each pair was represented in a matrix, where rows and columns represent input clauses and each element of the matrix represents the total marking score of the corresponding input clause pair, or, in other words, the frequency of any such pair being marked as related. The matrix is shown below. Since it is symmetric, only the lower half is shown in the so-called lower diagonal form (see Note 2).

Table 1. *Content relatedness matrix*

▾ ▸ **input clause No.**																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	31																							
3	30	38																						
4	5	6	6																					
5	4	5	5	39																				
6	4	5	5	35	36																			
7	1	1	1	2	1	6																		
8	2	2	1	1	1	2	24																	
9	2	2	1	1	1	22	3	40																
10	0	0	0	0	0	0	2	3	3															
11	0	0	0	0	0	0	1	1	1	40														
12	0	0	0	0	0	0	1	1	1	32	30													
13	0	0	0	0	0	0	1	1	1	17	15	21												
14	0	0	0	0	0	0	1	1	1	9	9	12	32											
15	0	0	0	0	0	0	1	1	1	9	9	14	31	41										
16	0	0	0	0	0	0	1	1	1	9	9	14	31	41	41									
17	0	0	0	0	0	0	1	1	1	9	9	11	21	29	30	27								
18	0	0	0	0	0	0	1	1	1	4	4	8	6	7	7	7	9							
19	0	0	0	0	0	0	1	1	1	4	4	7	6	7	7	7	7	39						
20	0	1	1	0	0	0	1	1	1	4	4	3	4	4	4	4	4	17	16					
21	0	1	1	0	0	0	1	1	1	4	4	3	4	4	4	4	4	16	16	40				
22	0	1	1	0	0	0	1	1	1	4	4	3	4	4	4	4	4	15	15	40	40			
23	0	1	1	0	0	0	1	1	1	4	4	3	5	4	4	4	4	11	11	26	28	27		
24	0	1	1	0	0	0	1	1	1	3	3	2	4	3	3	3	3	9	9	23	24	24	38	
25	0	0	0	0	0	0	1	1	1	3	3	2	4	3	3	3	3	4	4	5	5	5	9	10

The matrix, shown in Table 1. above, already reveals an internal structure just as it is. High frequency scores are centered in blocks along the diagonal, implying a grouping of clauses into chunks with relatively strong content relatedness within such chunks. However, we need a subtler method to arrive at more valid conclusions. Since the matrix represents a kind of similarity matrix, with the marking frequencies standing for similarity measure, it is possible to apply one of the cluster analysis methods and see if any clauses tend to cluster together. Applying the minimal distance linkage method (cf. Anderberg 1973) the following clustering diagram was obtained (see Note 3).

Diagram 1. *Clustering tree of the marking survey*



The vertical axis of the diagram represents the observed frequency of clause pairs being marked as related. It shows at which level input clauses, listed along the horizontal axis, were merged together in clusters. Terminal, or near terminal clusters merge at a higher frequency and are therefore more important than higher-level clusters. I shall, therefore, limit analysis to: terminal clusters containing only clauses (marked by "( )"); level 2 clusters containing clauses as well as terminal clusters (marked by "[ ]"); and level 3 clusters containing besides clauses terminal clusters, as well as clusters of level 2 (marked by "{ }"). I shall further limit this to clusters merged at a level higher than 20 (this frequency represents the approximate median for the whole matrix). The input clauses then appear merged in clusters as follows:

Figure 1.

[1 (2 3)] [(4 5) 6] [7 (8 9)] [(10 11) 12] {[13 (14 15 16)] 17} (18 19) [(20 21 22) (23 24)] 25

The clauses contained in these clusters are those marked by the participants as being most related.

What then is the native speakers/writers' intuition which can be suspected behind such grouping? Using the notion of **topic continuity** as proposed by Givón (1983, 1989) (intuitively it corresponds to the entity being talked about) I grouped clauses sharing the same topic entity in the same cluster. Thus I arrived at the following grouping of input clauses.

Figure 2. *Clusters of clauses sharing the same topic entity.*

(1)	(2 3)	(4 56)	(7)	(8 9)	(10 11)	(12)	(13 14 15 16)	(17)	(18 19)	(20)	(21 22)	(23 24)	(25)
T	O	P	K	O	S	V	O	F	V	O	V	O	K

Topic entities of each cluster:

T = time; O = Mr. O.; P = person who discovered O.; K = police; S = O.'s son; V = victim; F = O.'s family

Now to examine the content of the clusters in Figure 2. Cluster (1) is a single clause specifying the time when events (2 3) happened. Cluster (2 3) describes O.'s suicide. Cluster (4 5 6) describes how O.'s corpse was discovered, including the reason why the person who discovered

O.'s corpse went there and his subsequent action. Single clause cluster (7) provides information about police action. Cluster (8 9) tells of the results of the investigation, providing the identity of the corpse. Cluster (10 11) tells of the accident caused by O.'s son and its consequences. Cluster (12) includes a single clause introducing the victim of the accident. Since the victim does not appear again in the near vicinity, this clause stands isolated. Clauses (13 14 15 16) tell of O.'s actions after he heard about the death of the victim until he went missing. Single clause cluster (17) provides us with the source of information of the previous cluster, i.e. O.'s family. Cluster (18 19) tells of the reason for the victim's death. Single clause cluster (20) specifies the source and modality of information appearing in the subsequent cluster (21 22), i.e. about the supposed reason for the victim's death. Clauses (23 24) include the information about O.'s actions leading up to his committing suicide. And the last cluster, again a single clause, provides the source and modality of the information specified in clauses from 18 to 24.

In Figure 2., all the single clauses except clause 12 are clauses related to evidentiality (cf. Chafe 1986), that is to say clauses specifying the source and type, i.e. fact, supposition etc., of information (clauses 7, 17, 20, 25) or specifying background information (clause1).

It is interesting to note that clauses 1, 7, 17, and 25 also appear in the marking survey (Diagram 1.) as relatively loosely attached to more strongly merged clusters of other clauses. In other words, these single clauses from Figure 2., appear in Diagram 1. as merged with other clusters at levels 2 or 3 or even higher, meaning a relatively looser association. The common point of all these clauses (clauses 1, 7, 17 and 25) is that they are simultaneously related in content to several other clauses, though none of the relations involve topic continuity (see Note 4).

There remains the behavior of clauses 12 and 20 in the marking survey. Actually, clause 12 is not the only clause that includes the potential topic entity "victim". "Victim" also appears in clause 11. The reason why it does not appear as topic entity is that there is a more powerful candidate for the same role in clauses 10 and 11. This is "O.'s son" appearing as subject (definition of subject according to Sibatani 1978) in clause 10 and as ellipted (or better, non-expressed) subject in clause 11. Ellipsis is a very powerful cohesive and topic continuity marker (see Chapter 3.) and therefore "O.'s son" is preferentially interpreted as the topic entity in this case.

The reason for clause 20 (which also provides evidentiality information) to appear in Figure 1. closely merged with its content clauses 21 and 22, is perhaps that the whole segment of the text is embedded as the content of police reasoning within the range of clause 25, and the compactness of the cluster containing clauses 20, 21, 23 is thus an expression of relatively higher content relatedness of these clauses in regard to clause 25.

As we have seen, each marking survey participant had at his/her disposal only one level to mark the content relatedness of input clauses. From the similarity observed between clusters in Figures 1. and 2., we may assume that the participants' judgment had to be to a great extent based on the topic continuity that they intuitively observed in the input text. Thus, we may understand the hierarchical structure of content, seen in clause clusters resulting from the marking survey, to be at least partially a consequence of topic continuity in the input text.

From Diagram 1. we can also see that the input text is segmented into several largish chunks. The greatest discontinuity appears between clusters (1–9), (10–17), (18–19) and (20–25). Again, within cluster (1–9) there is a rather sharp discontinuity between clusters (1–6) and

(7–9). Cluster (1–9) as a whole, is merged at the frequency level 6, low compared to the maximal frequency of 45.

4. THE PARAPHRASE SURVEY

Now let us consider the results of the paraphrase survey (task A). The purpose of this survey was to observe how participants would merge input clauses into complex sentences in their paraphrases. Again, each co-occurrence of a pair of input clauses in the same sentence in one of the paraphrases was counted as value 1 in the count of the total co-occurrence score for each possible pair of input clauses, (see Note 5.).

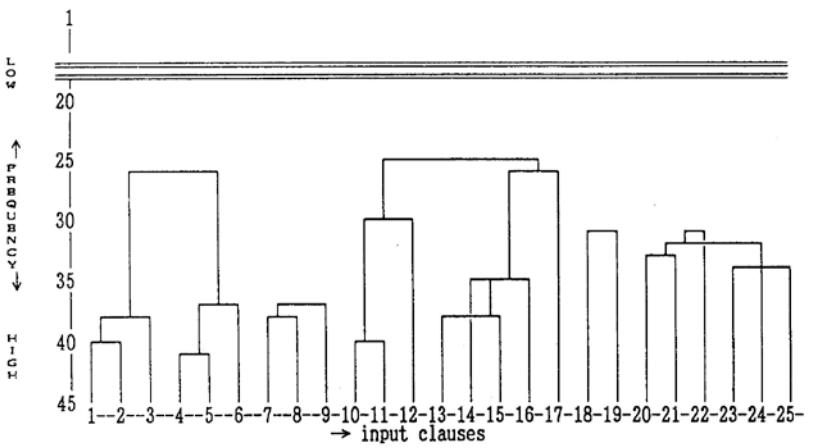
Table 2. *Intra-sentence clause co-occurrence matrix*

▾ ▸ **Input clause No.**																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	40																							
3	38	38																						
4	20	21	22																					
5	25	26	24	41																				
6	18	19	19	37	37																			
7	0	2	1	2	2	5																		
8	0	2	1	3	3	6	38																	
9	0	0	1	2	2	5	35	37																
10	1	1	0	1	0	0	5	1	1															
11	1	1	0	1	0	0	5	1	1	40														
12	1	1	0	0	0	0	4	1	1	30	30													
13	1	1	0	0	0	0	2	0	0	17	17	23												
14	1	1	0	0	0	0	1	0	0	14	14	25	33											
15	1	1	0	0	0	0	1	0	0	14	14	19	38	34										
16	1	0	0	0	0	0	1	0	0	16	16	20	33	35	34									
17	0	0	0	0	0	0	1	0	0	13	13	15	23	24	25	26								
18	0	1	0	0	0	0	1	0	0	5	4	8	4	6	5	6	6							
19	0	0	0	0	0	0	1	0	0	2	2	2	1	2	1	2	5	31						
20	1	1	0	0	0	0	1	0	0	5	5	7	4	6	6	6	4	17	15					
21	1	1	0	0	0	0	1	0	0	5	5	7	4	6	6	6	4	16	14	33				
22	1	0	0	0	0	0	0	0	0	2	2	2	2	2	2	1	3	12	13	28	30			
23	1	0	0	0	0	0	0	0	0	3	3	5	3	2	2	1	3	11	12	28	28	27		
24	1	5	2	1	1	1	2	1	0	7	7	8	5	5	4	4	4	16	15	32	31	28	34	
25	1	0	0	0	0	0	0	0	0	4	4	5	3	3	2	2	3	14	13	28	27	26	31	34

As in the marking survey, the total scores were assembled in a symmetrical co-occurrence matrix, shown here in the lower diagonal form (see Table 2. above).

In this matrix we can again observe the internal structure, where the highest co-occurrence frequencies are centered in blocks along the diagonal, already signaling the presence of several large clusters of clauses. To extract finer clusters of input clauses, which tended to appear within the same sentence in paraphrases, cluster analysis (minimal distance linkage method, cf. Anderberg 1973) was applied to the matrix. The resulting clustering diagram is shown below.

Diagram 2. *Clustering tree of the paraphrase survey results*



Even at first glance, the above clustering diagram resembles that of the marking survey. There are small discrepancies among terminal clusters or clusters on the levels immediately above terminal. I will discuss these below. But there are no discrepancies such as clusters with clearly defined boundaries (i.e. merged at a significantly higher frequency than the frequency connecting it to another cluster) in one diagram, split among two or more clusters in the other diagram. In other words, all the large groupings mentioned at the end of the third section, except for clause 25, are the same in both diagrams. At the level of terminal clusters, clusters of level 2 and 3, the situation is as follows:

Figure 3a.

[(1 2) 3] [(4 5) 6] [(7 8) 9] [(10 11) 12] {[(13 15) 14 16] 17} (18 19) {[(20 21) (23 24 25)] 22}

Differences between Figures 1. and 3. at terminal level and level 2 appear in the following clusters:

Figure 3b.

[(1 2) 3], [(7 8) 9], [(13 15), 14 16]

In addition, discrepancies at terminal level, level 2, and level 3 appear in the following clusters:

Figure 3c.

{[(20 21) (23 24 25)] 22}

These differences appear great at first glance, but a closer scrutiny reveals that this is not so. With the exception of cluster {20–25}, level 2 clusters coincide, i.e. include the same entities. Again, within them, the difference of merging frequency of terminal clusters and level 2 clusters appears to be very small: it is two in the case of clusters (1 2) and 3; it is one in the case of (7 8) and 9; and it is three in the case of (13 14), 15 and 16. This means that only 1–3 participants among 35 to 40 included particular clauses in the same sentence while excluding the others. Such small differences, compared with the frequencies of merger of terminal level and level 2 (i.e. from 35 to 40), do not appear to be statistically significant and may be the result of a statistical variation. This is further supported by the results in Bekeš (1987), where terminal and level 2 clusters resulting from the paraphrase survey coincide with those of the marking survey. Thus the above result may be seen as a strong merging trend at level 2.

The case of cluster {20–25} is similar, except that the merging frequencies within the whole cluster vary within the range from 31 to 34; again a small difference compared with the total range of frequency. Because of the larger number of clauses, the whole cluster is merged at level 3.

The trend of level 2 or even level 3 clusters appearing within a narrow range of frequencies is connected with an extended use of syntactic means in the paraphrase survey. In Bekeš (1987: 92), clustering diagrams of the paraphrase survey from two different groups are given. One group, first-year senior high school students of a less prestigious school, shows less cluster integration than the other group, second-year high school students from another more prestigious school. The results of the latter group seem to have a comparable degree of integration to that of the paraphrase survey used here where participants were first-year university students. These differences seem to be connected with the developing ability to master the writing medium, which presents an interesting field to explore in itself.

The reason for an overall similarity between paraphrase and marking survey results lies most probably in the fact, as was pointed out in Bekeš (1987: 169–172), that in both surveys there was the same underlying factor affecting participants' activity, namely a certain intuitive perception on the part of the survey participants of content relatedness between input clause pairs.

In Bekeš (1987), I examined the paraphrase survey on the basis of Chafe's (1980) hypothesis concerning the nature of sentence, and I interpreted the resulting clusters (such as those in Diagram 2.) in the light of this hypothesis, as a hierarchically organized content constituent structure. The observed similarity of clusters in both surveys justifies such an interpretation, as was already pointed out in Bekeš (1987). Further, in the light of observations made in sections 3. and 4., it could be said that globally, topic continuity

appears to be the factor behind determining the perception of content relatedness as well as the integration of clauses into the same sentence.

However, the correspondence observed at the cluster level, is a global correspondence pertaining to the whole population of participants. In Bekeš (1987), where I tried to put my initial hypothesis concerning the paraphrase survey mentioned in the previous paragraph on a firmer footing by directly investigating content relatedness intuitions, this was the only possible conclusion since the group involved in the marking survey was different from the group participating in the paraphrase survey.

In the present study I will attempt to verify this relationship between the two surveys on the level of each individual participant and thereby elucidate the motivation for sentence format in written language.

5. CORRELATION BETWEEN THE MARKING SURVEY AND THE PARAPHRASE SURVEY RESULTS

There are 300 possible pairs of input clauses in the text, but this does not mean that for every such pair the frequency of co-occurrence within a paraphrased sentence or the frequency of being marked as related, carry statistical significance. In order to reduce the unnecessary load of work, I shall limit the discussion here to the most significant level of clusters, i.e. terminal clusters and clusters including clauses and terminal clusters.

In the paraphrase survey, it is reasonable to consider participants' intuition concerning content relatedness of clauses as an independent variable and actual usage of clauses in paraphrase sentences as a dependent variable. Therefore, clusters obtained from the marking survey will be taken as the starting point. These clusters are as follows:

Figure 4.

[1 (23)] [(45) 6] [7 (8 9)] [(10 11) 12] [13 (14 15 16)] [18 19] (20 21 22) (23 24) (25)

Input clauses 17 and 25 are omitted, because they merge with other clauses at a level higher than the first two levels chosen here.

Table 3. below, shows the relation between marking content relatedness and co-occurrence of clauses within the same sentence.

Table 3. *Marking of content relatedness and co-occurrence within the same sentence (terminal and level 2 combined)*

		Co-occurrence within the same sentence	
		yes	**no**
Marking	**marked**	585	100
	unmarked	24	18

$Chi^2 = 21.3$, $p < 0.001$

The table shows considerable correlation between the two surveys (Chi^2 test, cf. Walpole 1974). To better observe the dynamics, we shall also compare the correlation within terminal level clusters (shown in Table 4.) and between second level clusters (shown in Table5.).

Table 4. *Marking of content relatedness and co-occurrence within the same sentence (terminal clusters only)*

		Co-occurrence within the same sentence	
		yes	**no**
Marking	**marked**	384	60
	unmarked	3	0

Direct Chi^2 computation is impossible because of the low numbers (zero in one of the cells and three in the other). With correction of insufficient numbers in lower row cells (this correction increases the number of unfavorable cases and so does not affect the outcome of the test), the modified result is in the range of the results shown in Table 3.

Table 4. shows that there is proportionally about the same amount of clause pairs in terminal clusters, which are marked as related but which do not appear together in the paraphrases, as in Table 3. But the proportion of unmarked clauses that appeared together in sentences diminishes greatly compared with Table 3. Because of the low frequencies in the "unmarked" line, correlation for this case cannot be computed.

Table 5. *Marking of content relatedness and co-occurrence within the same sentence (level 2 only)*

		Co-occurrence within the same sentence	
		yes	**no**
Marking	**marked**	201	40
	unmarked	21	18

$Chi^2 = 16.1$, $p < 0.001$

Table 5. shows that second level clusters, i.e. those with clauses more loosely marked as related than clauses in terminal clusters, contribute proportionally more to the frequencies in the "unmarked" line as compared to the frequencies in the "marked" line (overall 16.3: 1; terminal clusters 148: 1; second level clusters 6.2: 1). At the same time, the proportion between "co-occurrence" and "no co-occurrence" cases in the "marked" line does not change so drastically (overall 5.85: 1; terminal clusters 6.4: 1; and second level clusters5: 1). Furthermore, Table 5. still exhibits a strong correlation between marking and co-occurrence.

From the above three tables, it seems that, depending on the level of clustering, about 10%–20% of marked clause pairs do not end in the same sentence in the paraphrases. This and the co-occurrence of unmarked pairs, though proportionally much lower, indicate that when integrating clauses within the same sentence there must also be some other factor at work besides those purely semantic or cognitive considerations such as topic continuity; factors that, as we have seen, are reflected in marking relatedness.

6. CONCLUSION

In section 4., we saw that the overall trend in grouping clauses within sentences seems to coincide with the trend for clauses to be marked as related within the context. In section 5., we verified this trend on the level of individual participants. As we observed in section 3., topic continuity seems to be the prevailing factor influencing marking of clause relatedness. Chunks of information sharing the same topic seem to be either a series of connected events sharing the same principal entity or a description of a situation concerning the same principal entity.

Such chunks seem to bear information similar to what Chafe hypothesized as a center of interest in spoken discourse. But, as we have seen in the fourth section, cognitive factors connected with "marking" content relatedness do not account for the whole phenomenon of sentence formation. Several participants, while still paraphrasing, used in their paraphrases the same one clause one sentence strategy. In such cases content relatedness between clauses was signaled not so much by cohesive means that operate exclusively within the sentence (i.e. syntactic means) as by cohesive means operating on a wider scope (anaphora, ellipsis, lexical cohesion, etc.). The choice of cohesive means, for a particular realization of text, does indeed seem to depend on stylistic and/or rhetoric considerations, and last but not least, on writer's ability or skill. For example, the choice of syntactical means seems to be connected with a more condensed style, or again, in some instances, with ideological considerations (as exemplified in the twisted style of bureaucratic language, cf. Kress and Hodge 1979).

These considerations may account for the absence of co-occurrence of marked clause pairs. As I also pointed out in Bekeš (1987), overt signaling of content relatedness by syntactical means tends to decrease with the decrease in frequency of marked content relatedness. On the other hand, cases where clause pairs were unmarked but which coincided within the same sentence in paraphrase texts, seem to be connected with the way in which syntax operates within a particular language. An attempt to clarify this question using the same survey material is given in Bekeš (1991).

The above analysis was carried out using Japanese language material, but it seems to be valid for other languages as well (cf. Bekeš 1992). We may add that, in the end, the great role played by intuitions of content relatedness in sentence formation is just another example of iconicity working in syntax. Here, semantic proximity of clauses is signaled by their spatial proximity within the sentence, while their semantic distance is signaled by means of formal boundaries delimiting them one from another.

Finally, I would like to stress the relevance of this chapter to Chapters 3. and 4. This chapter shows how content hierarchy is one of the fundamental principles of organization of text. Explicit signaling of content boundaries is connected with the level that boundary occupies in this hierarchy. Chapter 3. discusses referential expressions within and across boundaries in such hierarchy. Chapter 4. basically discusses the *wa*-topic as the most frequently used means of organizing content into delimited units of text.

NOTES

[1] Corresponds to paraphrase survey (simple sentences to complex sentences) in Bekeš (1987, Ch. 4).

[2] In Bekeš (1987) this matrix was interpreted as a kind of numerical measure of content relatedness (*yuuensei*).

[3] Levelt (1974, Ch. 2) used the same method to determine semantic relatedness between immediate constituents of a sentence.

[4] A possible reason why such clauses were left single more often than other clauses in the marking survey seems to lie in the fact that each participant had at his/her disposal only one level to mark content relatedness of input clauses. Where there was a possibility of choice, strong content relations, based on topic content, seem to have had more chance of being marked explicitly than the weaker relations described above. *A propos* the tendency of such clauses to be left single, we also observed a similar phenomenon in the paraphrase survey. The reason here is that the one-dimensional chain of linguistic signs does not provide an easy means for specifying such hierarchical relations. For treatment of these phenomena in Japanese see Bekeš (1987, Ch. 5).

[5] I discussed the issue of identification of the input clauses in paraphrases at length in Bekeš (1987, Ch. 2). The accuracy test, based on independent identification performed by two different persons, gives about 97% accuracy for the survey described here. This is well within the limits of statistical fluctuations.

CHAPTER 3.
INTRINSIC AND EXTRINSIC FACTORS IN ANAPHORIC REFERENCE: THE JAPANESE DEMONSTRATIVES *KONO* AND *SONO* IN A WIDER PARADIGM

1. INTRODUCTION

1.1 BACKGROUND

Japanese demonstratives form a tri-partite system, distinguished by personal (speaker-related, hearer-related, other) deixis, rather than proxal-medial-distal deixis (Sakuma 1951, Watanabe 1952, summarized by Yoshimoto 1986).

In exophoric use, demonstratives of the type *ko-* are associated with the speaker, demonstratives of the type *so-* with the hearer, and demonstratives of the type *a-* with other (this being accessible to both speaker and hearer). To this it is necessary to add the interrogative type *do-*. Morphemes *ko-*, *so- a-*, and *do-* can be attached to various other morphemes. For example, attaching them to suffix *re*, results in the pronominals *kore* (this), *sore* (that), *are* (that over there), and *dore* (which among a set of entities).

Japanese demonstratives have been studied in considerable detail; representative research after 1980 can be found in Syooho (1981), Tanaka (1981), Hayasi (1983), Yoshimoto (1986) and Kinsui (1990).

These and most of the other analyses (cf. *Nihongo sizi kenkyuu bunken itiran* – List of research on Japanese demonstratives, run by *Sizisikenkyuukai* – Demonstratives research group, see Internet Sources in Bibliography) all treat the Japanese adnominal demonstratives *kono* (this) and *sono* (that) exclusively within the *ko-*, *so-*, *a-* demonstrative paradigm, thus keeping within the bounds of traditional approaches in the study of demonstratives.

1.2 PURPOSE

In this chapter I will re-examine the anaphoric use of the demonstratives *kono* and *sono* in the wider paradigm of other referential forms that can occur in the same context, including

in particular: 1. NPs not modified by *kono* or *sono*; 2. ellipsis of NPs; 3. NPs modified by *sono*; 4. NPs modified by *kono*; 5. NPs modified by the Sino-Japanese demonstrative *doo-* (same, aforementioned); and 6. the personal pronouns *kare* (he) and *kanozyo* (she). The demonstrative *ano* (that), however, is not discussed here because it is not used anaphorically nor does it appear in the data used for this study. This study closely follows Bekeš (1995b).

I will further analyze the behavior of the referential form paradigm, including *kono* and *sono*, from the point of view of the following two factors.

The first factor is that of **referential distance** (RD) (Givón 1983, 1989, Myhill 1992). Exophoric use of the demonstratives *kono* and *sono* is closely connected with the participants' domains of accessible information (Yoshimoto 1986). RD, which as will be explained later in more detail, measures the number of intervening clauses between two coreferential forms in the context. It is thus likely to correlate with a higher (low RD) or lower (high RD) degree of accessibility of a particular referent for the hearer, which can in turn influence the choice of *kono*, *sono* or any other possible referential form.

The second factor for consideration is that of **content paragraph boundary**. Relevance of discourse structure in the choice of demonstratives was first pointed out in a typological study by Fox (1987). This chapter re-examines the tenets of Fox in the case of written Japanese texts belonging to the genre of news-report. In particular, the correlation of the choice of referential form for the reference within the content boundary and across the content boundary will be examined.

In order to achieve the above goals, I will, in the next section, propose two methods of data elicitation which should reveal the dynamic paradigmatic aspect in the choice of appropriate referential form.

2. THE DATA

For the present study I used two types of elicited data. The rationale for choosing these particular types of data as the basis for this study was that I especially wanted to investigate the paradigmatic side of demonstrative use. In particular, I was interested in what other forms, outside the narrow three-partite demonstrative paradigm, students would use to signal anaphoric relations in the text. Made-up examples present the drawback of being the researcher's intuition, which is not necessarily the same as the intuition of language users at large. On the other hand, corpus-based ordinary discourse or text analysis would also be inadequate for this task, because at each step, the speaker may make his/her choice only once. This is the referential form documented in the corpus, but there is no information remaining in the discourse as to the other possible choices the speaker had at that particular point. In order to get a dynamic picture of possible choices present at each point in the text and also a rough estimate of the probabilities of particular choices, two methods, presented below, were devised.

In the first method, data for this study was collected using a pragmatic to syntactic mode (cf. Givón 1979, Bekeš 1987) paraphrase task. With this method, I elicited paraphrased

texts of TEXT 1. The text, based on news-report text, was built around four central entities and was artificially altered from the original into pragmatic mode. The procedure for alteration is explained in detail in Bekeš (1987). 45 first-year students of the University of Tsukuba, Japan, participated in the survey, paraphrasing TEXT 1 from pragmatic into syntactic mode. The full text used in this survey is given in Appendix II. (see Note 1 for the paraphrase survey instructions).

In the second method, another type of data was obtained using a different text (TEXT 2), a news-report built around four central entities and six background entities. The methodology used in this survey was as follows. Firstly, I modified the original text by substituting the longest form in which the coreferential noun phrases appeared in the original text for each actual coreferential noun phrase and, to avoid any possible ambiguity, marked their coreferentiality using different kinds of underlining. The text modified in this manner was then used for eliciting "corrected" texts from 35 second to fourth-year students of the University of Tsukuba. The students participating in the survey were given a "correction" task. In this task, I had each of the students surveyed "correct" the text by substituting the form they thought to be most natural in the given context for each noun phrase in the text. The "correction" task also included indicating the beginning of paragraphs in the text. I did not give the students any hints about what forms they should choose from. The unmodified TEXT 2 together with the modified Japanese version used for this survey are given in Appendix III. (see Note 2 for the "correction" survey instructions).

3. DISTRIBUTION OF REFERENTIAL FORMS OVER RD

3.1 CALCULATION OF RD IN THE SURVEY DATA

Referential distance (RD) is one of the empirical measures introduced originally to measure "topicness" of elements. Since it is closely linked to certain notions such as identifiability (cf. Iwasaki 1987, discussed in Chapter 4., section 2.3.2), it also seems to be relevant in relation to anaphora and text reference as a kind of independently definable measure of cognitive accessibility of referents via corefering expressions. The best overall presentation of methodologies involving RD and other such measures is given in Myhill (1992). RD together with the the question of parsing texts into clauses will be discussed in more detail in Chapter 4. However, to avoid switching back and forth among chapters, RD will be introduced briefly in this section as well. Unfortunately, partial overlapping of relevant parts of discussion in this chapter and Chapter 4. could not be avoided.

I calculated the referential distance by finding the most recent previous mention of the referent of the NP and then counted how many clauses back it occurred, according to the definition given in Myhill (1992:34). Contrary to standard practice, I included relative clauses in the count of intervening clauses because they seemed to be as cognitively demanding for processing as other subordinate clauses.

The question of what to consider a clause and how to handle discontinuous topics in Japanese, with its rich system of modal suffixing on the predicate, posed problems. Idefined

clause boundaries basing my decisions on Minami (1974), for a more detailed discussion cf. Bekeš (1994).

I treated discontinuous topics or topics which are shared by several clauses as a separate unit. An example of a discontinuous topic is given in Example 1. below:

Example 1.

a. *Yuuzin wa*
Friend TOPIC

b. *"denwa no koe wa toku ni kawatta yoosu ga nakatta"*
"there was nothing weird about his voice on the phone"

c. *to iu*.
[he] says.

Discontinuous topics are common in reported speech, where the reported part can be of any length. In 1a., *Yuuzin* (friend) is the topic of the clause made up of the "[reported part] + *to iu*". In counting the intervening clauses belonging to the reported part I treated the topic separately. Thus I analyzed Example 1. as three units, counting the topic element *yuuzin wa* as a separate unit. However, since *yuuzin wa* is not a clause, I did not include it in the count of intervening clauses. This made it easier to count the RD between the topic element and the coreferent in preceding clauses as well as the RD between a referent in the last clause with the discontinuous topic and coreferents in the clauses that follow. Thus, I counted the RD between 1c. and 1a. as 1 and RD=0 (co-occurrence in the same clause) for the case where there were no intervening clauses giving the content of the reported speech, such as *Taroo wa iu* (Taroo says).

I used a similar reasoning for my treatment of topics extending over several clauses, such as is shown in Example 2. below. The only difference being that the intervening clauses share the topic element.

Example 2.

a. *Yuki-san wa*
Y. TOPIC.

b. [Ø] *tooka gogo sitizi han koro ni zitaku ni denwa o ireta no o saigo ni*
telephoning home for the last time on the tenth at about half past seven

c. [Ø] *syoosoku o tatta*
stopped informing [about herself]

I measured the RD in the elicited paraphrase texts for the NPs that referred to the central entities in TEXT 1, and with the central and the peripheral entities of the input text for TEXT 2. The NPs that referred to central entities in TEXT 1 occurred in the following four forms in the paraphrased texts: 1. NPs unmodified by *kono* or *sono* ([Ø]+NP); 2. ellided (ELLIPSIS); 3. modified by *kono* ([*kono*]+NP); and 4. modified by *sono* ([*sono*]+NP). In TEXT 2 paraphrases other forms were also used. The most frequent were the personal pronouns *kare* (he) and *kanozyo* (she) (in the tables, both are subsumed under *kare*), and the Sino-Japanese demonstrative prefix *doo-* (the same, aforementioned). The frequencies

of these personal pronouns and *doo-* were comparable to those of *kono* and *sono*. Other forms were also used but with considerably lower frequencies. I have shown the frequency of these forms in the tables under the heading REST.

Coreferential noun phrases, both modified and unmodified, often appeared in shorter forms of the referential chain, e.g., *Miyakawa yoogisya* (suspect Miyakawa) was often "corrected" to Miyakawa. Since the main goal of this study was to shed light on the relation between the traditional narrow demonstrative paradigm and other possible referential forms, I considered any noun phrases of this sort as instances of [Ø]NP. This was further justified by the fact that students seemed to be choosing between a shortened NP form modified by *kono*/*sono*/*doo-* or this NP without *kono*/*sono*/*doo-* rather than between *kono*/*sono* + a long form vs. *kono*/*sono* + a shortened form.

I did not count ellipted coreferents in relative (more correctly adnominal) clauses, because, as will be argued below, the choice of ellipsis in such clauses is partially restricted by syntactic factors.

In relative clauses, the head noun is shared with the matrix clause. In Japanese, the relative clauses are signaled by apposition with the relative clause preceding the head noun. Since the head noun is syntactically not part of the relative clause, I took the relation as a case of NP ellipsis, cataphorically related to the head noun, and counted the RD between the matrix clause and the relative clause as RD=1. If we count ellipted NPs in relative clauses, the count for RD=1 for the distribution of ellipsis would increase. Since ellipsis is most frequent over very short RDs, the omission of relative clauses does not affect the general picture in a significant way as this method diminishes the overall score of NP ellipsis at short RD. I counted the frequency of other NPs present in relative clauses according to the definition of RD given at the beginning of this section.

3.2 DISTRIBUTION OF REFERENTIAL FORMS

TEXT 1 is a description of events leading up to the suicide of the main character which involves the main character's son, a woman, and the man who discovered the corpse, in addition to the main character. TEXT 2 is a description of events leading to the arrest of a kidnapper who killed his victim. The main characters are the kidnapper, his victim, his friend who was crucial for the arrest, and the police. There are also background entities, such as the friend's company, a bar, a telephone, a pager (*pokeberu*), and a telephone call record, all of which were important in the kidnapper's arrest. The police act chiefly as the source of information, appearing in clauses such as 'according to the police investigation', 'the view of police is that ...' etc. Perception of police as the source of information is apparent also in TEXT 1 paraphrases, where clauses framed with police as the subject, as in 'the police investigated...', etc., are very rare, while the central entities appear as subjects of their actions.

I merged the data counts for NPs having the same RD. Because the number of NPs having the same RD varies from RD to RD, in order to be able to compare distributions of different RDs, I calculated the proportions of each form for each RD separately, as shown in Table 1 for TEXT 1 and TABLES 2a. and 2b. for TEXT 2. I only included the data for

animate participants in Table 2a. in order to make it easier to compare the data with the data of TEXT 1. The data for inanimate participants are given in Table 2b. In both tables, the upper row gives the absolute number of occurrences of a given form and the lower row its proportion (%) calculated over each RD.

Table 1. *Distribution of forms over RD*
(TEXT 1. – four animate participants: Mr. O, his son, victim, police)

RD	[Ø]NP	Ellipsis	[*sono*]NP	[*kono*]NP	TOTAL
1	6 (1.9%)	274 (88.1%)	29 (9.3%)	2 (0.6%)	311 (100%)
2	7 (12.3%)	23 (40.4%)	26 (45.6%)	1 (1.7%)	57 (100%)
3	49 (61.3%)	24 (30.0%)	4 (5.0%)	3 (3.7%)	80 (100%)
4	30 (66.7%)	11 (24.5%)	2 (4.4%)	2 (4.4%)	45 (100%)
5	70 (88.6%)	2 (2.5%)	1 (1.3%)	6 (7.6%)	79 (100%)
6	8 (30.8%)	0 (0 %)	3 (11.5%)	15 (57.7%)	26 (100%)
7	4 (57.1%)	2 (28.5%)	0 (0 %)	1 (1.4%)	7 (100%)
8	**no observed cases**				
9	2 (66.7%)	0 (0 %)	0 (0 %)	1 (33.3%)	3 (100%)
10+*	0 (0 %)	0 (0 %)	0 (0 %)	1 (100 %)	1 (100%)

(*10+ means RD equal or bigger than 10)

Table 2a. *Distribution of forms over RD*
(TEXT 2. – animate participants: Miyazaki, friend, Yuuki, police)

RD	[Ø]NP	Ellipsis	[*sono*] NP	[*kono*] NP	[*doo*] NP	*kare*	Rest	TOTAL
1	340 (32.3%)	665 (63.3%)	9 (0.9%)	3 (0.3%)	6 (0.6%)	20 (2.3%)	1 (0.3%)	1045 (100%)
2	170 (44.2%)	184 (47.8%)	13 (3.4%)	6 (1.6%)	1 (0.3%)	10 (2.6%)	1 (0.3%)	385 (100%)
3	167 (95.4%)	2 (1.1%)	1 (0.6%)	0 (0%)	2 (1.1%)	2 (1.1%)	1 (0.6%)	175 (100%)
4	62 (59.0%)	38 (36.2%)	0 (0%)	0 (0%)	0 (0%)	5 (4.8%)	0 (0%)	105 (100%)
5	44 (62.9%)	25 (35.7%)	1 (1.4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	70 (100%)
6	**no observed cases**							
7	69 (98.6%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (1.4%)	70 (100%)
8	65 (92.9%)	3 (4.3%)	1 (1.4%)	1 (1.4%)	0 (0%)	0 (0%)	0 (0%)	70 (100%)
9	28 (80%)	0 (0%)	2 (5.7%)	2 (5.7%)	0 (0%)	0 (0%)	3 (8.6%)	33 (100%)
10–12	**no observed cases**							
13	31 (88.6%)	1 (2.9%)	0 (0%)	1 (2.9%)	0 (0%)	0 (0%)	2 (5.7%)	35 (100%)
14–19	**no observed cases**							
20	133 (95.5%)	7 (5.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	140 (100%)

Table 2b. *Distribution of forms over RD*
(TEXT 2. – inanimate entities: telephone, pager, record, rain, company, bar)

RD	[Ø]NP	Ellipsis	[*sono*]NP	[*kono*]NP	[*doo*]NP	TOTAL
1	116 (82.9%)	2 (1.4%)	14 (10.0%)	3 (2.1%)	1 (0.7%)	136 (100%)
2	128 (91.4%)	0 (0 %)	10 (7.1%)	2 (1.4%)	0 (0 %)	140 (100%)
3	31 (88.6%)	4 (11.4%)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
4	70 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	70 (100%)
5	103 (98.0%)	0 (0 %)	0 (0 %)	1 (1.0%)	1 (1.0%)	105 (100%)
6	35 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
7	**no observed cases**					
8	30 (85.7%)	2 (5.7%)	3 (8.6%)	0 (0 %)	0 (0 %)	35 (100%)
9	**no observed cases**					
10–12	35 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
13	**no observed cases**					
14	35 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
15	**no observed cases**					
16	35 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
17	10 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	10 (100%)
18–19	35 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	35 (100%)
20	10 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	10 (100%)

From the above tables, it can be seen that the distribution of [*sono*]NP over RD and ELLIPSIS over RD is similar, with both being skewed towards shorter RDs. The distribution of [*kono*]NP in Table 1. is different from the distribution of *kono* in Tables 2a. and 2b. The reason for this is that *kono* was used primarily to refer to one entity in TEXT 1, while various entities are referred to by *kono* in TEXT 2.

The distribution of [Ø]NP complements that of [*sono*]NP and ELLIPSIS, with higher frequencies skewed towards larger RDs. Table 2b. in particular, shows an overwhelming proportion of [Ø]NPs for all RDs. Referent forms for inanimate participants were used primarily in oblique cases and in subordinate clauses or other subordinate constructions (e.g. a noun modified by a noun, etc.). A marked increase in forms other then ELLIPSIS, with again [Ø]NP being the most numerous, was also used for animate participants in oblique cases and subordinate constructions, etc.

In contrast to the forms used in TEXT 1, students used additional forms, such as personal pronouns given under the heading *kare* (he) and the Sino-Japanese demonstrative prefix *doo-* (same, aforementioned), in TEXT 2 data. The frequencies of these forms were comparable to those of *kono* and *sono*. Other forms, which only appeared in a few cases, are subsumed under the heading REST.

I will now discuss the factors influencing the choice of ELLIPSIS vs. [*sono*]NP, both of which showed similar skewing towards smaller RDs. In TEXT 1 paraphrases there was a marked tendency to paraphrase a [*sono*]NP in the original by ELLIPSIS in the paraphrase text, as shown in Example 3.

Example 3.

original

[2] *otoko no hito ga …* [3] *SONO otoko wa …*
man of person CP that man TOP.

→ **paraphrase**

SONO otoko wa in paraphrases
ELLIPSIS: 37; [Ø]NP: 0; [*sono*]NP: 3; [*kono*]NP: 0; rest: 5

The category "rest" in this and the following examples, comprises a variety of cases which were not comparable because of a different clause order in paraphrases. The tendency to paraphrase [*sono*]NP as ELLIPSIS in Example 3., relates to the fact that the clauses were adjacent and the referent was easily accessible in the original text since the viewpoint did not change and the NP is marked as a topic with the *wa* particle. This is consistent with the fact that ELLIPSIS is used in environments where the referent is easily accessible.

In Example 4., the NP in the original text was paraphrased as [*sono*]NP.

Example 4.

original

[11] *tyoonan ga aru onna no hito ni …* [12]***zyosei wa …***
eldest son CP certain woman of person CP woman TOP.

→ **paraphrase**

zyosei wa in paraphrases:
ELLIPSIS: 3; [Ø]NP: 10; **[*sono*]NP: 21**; [*kono*]NP: 0; rest: 11

Although in this case the RD is 1, the reason why [*sono*] was added in a marked number of cases, relates to the fact that the viewpoint changes in the second clause, demanding more cognitive effort for the identification of the coreferent.

In Example 5., [*sono*]NP is used in both the original and the paraphrased texts.

Example 5.

original

[3] *SONO otoko wa ...* [5] ***SONO sitai o***
that man TOP. that corpse CP

→ **paraphrase**

SONO sitai o in paraphrases
ELLIPSIS: 3; [Ø]NP: 1; **[*sono*]NP: 21**; [*kono*]NP: 0; rest: 20

Here [*sono*]NP was probably used because of the shift of viewpoint from agent=NOM to patient=ACC, and the semantic change from *otoko* (man) to *shitai* (corpse), which resulted in a cognitively more demanding environment.

Thus I surmised, that in cognitively less demanding environments ELLIPSIS would be preferred to [*sono*]NP, and [*sono*]NP would be used in cognitively more demanding environments.

It is interesting to note that [*kono*]NP was not used to paraphrase any of the above examples. This suggests that [*kono*]NP is not intrinsically connected with difficulty of cognitive processing over short RD as was the case with [*sono*]NP.

On the other hand, as can be seen in Example 4., [Ø]NP is used in the paraphrased texts. I considered this to be a less marked option than [*sono*]NP because it provides fuller information than ELLIPSIS while not being as explicit as [*sono*]NP.

4. DISTRIBUTION OF REFERENTIAL FORMS OVER PARAGRAPH BOUNDARIES

I use the term "paragraph" to refer to a segment of text based on some kind of content division. In the TEXT 1 survey, I defined paragraph in terms of topic, i.e. as a cluster of clauses sharing the same *wa*-marked topic. This definition is circular given the distribution of ELLIPSIS because a shared topic is ellipted in clauses belonging to the same paragraph.

To avoid this circularity, I defined a paragraph in the TEXT 2 survey, operationally, as a segment of text between two content divisions that were indicated by more than 25% (that is more than 9 out of 35) of the students surveyed.

The distribution of referent choices within and across paragraphs is indicated for TEXT 1 data in Table 3a. and for TEXT 2 data in Table 3b. (for the purpose of comparison with TEXT 1 data, the data for animate participants only are included).

[Ø]NP is used both inside and across paragraph boundaries; its use across paragraph boundaries being significantly greater in TEXT 1 data and only slight in TEXT 2 data. The reason for the large presence of unmodified NPs inside paragraph boundaries in TEXT 2 data probably relates to the fact that the NPs in TEXT 2 were used in a larger proportion of oblique cases and subordinate clauses in these data. In addition, the size of paragraphs in TEXT 2, measured in terms of number of clauses, was larger than that of the paragraphs in TEXT 1 data.

Table 3a. *Distribution of forms across paragraph boundaries (TEXT 1. – including circularity involving ellipsis)*

	[Ø]NP	**Ellipsis**	**[*sono*]NP**	**[*kono*]NP**
Inside	8 (4.52%)	315 (93.4%)	39 (60.0%)	0 (0%)
Across	168 (95.5 %)	21 (6.6%)	26 (40.0%)	32 (100%)
TOTAL	176 (100 %)	336 (100 %)	65 (100 %)	32 (100%)

Table 3b: *Distribution of forms across paragraph boundaries (TEXT 2)*

	[Ø]NP	**Ellipsis**	**[*sono*]NP**	**[*kono*]NP**	**[*doo*]NP**	***kare***	**Rest**
Inside	541 (48.8%)	820 (88.6%)	18 (66.7%)	8 (61.5%)	8 (88.9%)	37 (90.2%)	3 (27.3%)
Across	568 (52.2%)	105 (11.4%)	9 (33.3%)	5 (38.5%)	1 (11.1%)	4 (9.8%)	8 (72.7%)
TOTAL	1109 (100 %)	925 (100 %)	27 (100 %)	13 (100 %)	9 (100 %)	41 (100 %)	11 (100 %)

The use of unmodified NPs to refer across paragraph boundaries also contributed to the use of a greater number of [Ø]NPs over short RDs.

Referential form [*sono*]NPs tended to be used inside paragraphs in TEXT 2 data. It is interesting to observe that *doo-* and *kare* display a similar distribution to that of *sono*, but the number of observed cases of *doo-* was too small to be able to come to any conclusions.

Kono was only used across paragraph boundaries in TEXT 1 data. The reason might relate to the fact that paragraphs were smaller in TEXT 1 data. Since *kono* was used at all RDs in both TEXT 1 data and TEXT 2 data, though in small quantities, I surmised that *kono* may not be affected by variables such as RD or internal vs. external paragraph boundaries. This is supported by the fact that, with the exception of a few individual cases (less than ten), *kono* modified NPs (i.e., [*kono*]NP) in the original TEXT 2 were not reconstructed as such in the "corrections". They were primarily "corrected" to unmodified NPs and [*sono*]NPs. This unexpected result shows that pure contextual factors, including RD and paragraph boundaries, may not influence the choice of *kono*. Thus *kono* used for text reference may be chosen for the same reasons as *kono* used for extralinguistic reference, i.e. to refer to the speaker's subjective world in exclusion of (considerations regarding) the hearer. Moreover, TEXT 2, a news article, shows just such a subjective involvement of the journalist reporting a tragic case of kidnapping and the successful arrest of the kidnapper.

5. RELEVANCE OF RD AND CONTENT PARAGRAPH BOUNDARY

The purpose of this study is to investigate how factors like RD and content paragraph boundary are relevant in predicting which referential form will be chosen for a particular anaphoric reference.

The results from the previous section imply that for an understanding of *kono* and *sono* it is necessary to observe their behavior within the wider paradigm of referential choices, because they do not enter into opposition relationships just with each other but also with other types of referential forms.

Both factors, RD and content paragraph boundary, that have been examined here seem to influence, each in its own way, the referential choice. The findings are given below.

1. [*sono*]NP and ELLIPSIS showed a similar distribution, both were associated with shorter RDs and reference inside the content paragraph boundaries. Both criteria, short RD and appearing within the same content paragraph, are to some extent overlapping. Actually, the short RD of two coreferential forms is a consequence of their co-occurring in the same content paragraph. It is necessary to note that the reverse is not necessarily true. Short RD does not always imply co-occurrence within the same content paragraph. Thus, content paragraph boundary as a factor seems to have precedence over RD. Boundary seems to be the primary factor, to a much greater extent, than RD. Furthermore, RD is more a secondary factor largely conditioned by the coreferential forms occurring inside or outside the content paragraph, and can thus be considered as having a derived character. ELLIPSIS was used in cognitively less demanding environments and was thus unmarked (See Halliday 1991: 34–41 for the probabilistically defined notion of markedness). On the other hand, [*sono*]NP was used in cognitively more demanding environments and was thus marked in the probabilistic sense. The proportion of ELLIPSIS vs. [*sono*]NP is roughly 10:1, which corresponds to Halliday's (ibid.) notion of markedness.
2. The use of NPs, unmodified by *kono*, *sono* or *doo*-, i.e. [Ø]NP, is associated more strongly with higher RDs and reference across paragraph boundaries. In this case too, it is content paragraph boundary that is the primary factor and RD the derived factor. In the case of [Ø]NP, a sharp difference between distribution of the forms across paragraph boundaries between data based on TEXT 1 and data based on TEXT 2 must be mentioned. In the case of TEXT 1, [Ø]NP displays overwhelming bias towards across boundary reference, while in the case of TEXT 2, this association is only weakly expressed and is statistically not significant. The reason for this discrepancy among data might be due to the more active role of participants in the first survey. Here, they had to paraphrase the original text in pragmatic mode into a text looking like a news report. This required a rather intensive reformulation of the input text. In the second survey, the participants' role was limited to a more passive task, i.e. the "correction" of referential forms. The participants may, therefore, have been cognitively less involved and have left a great proportion of unmodified NPs, coreferring within, not only outside but also inside the content paragraph boundaries, unchanged.
3. [*kono*]NP does not seem to be associated either with any particular RD or with coreference whether within or across the content paragraph boundary. [*kono*]NP thus seems to be used to indicate referents important in the speaker's subjective world to the exclusion of that of the hearer. This speaker-oriented behavior of [*kono*]NP seems to be coherent with the exophoric use of [*kono*]NP, i.e. referring to an entity in the speaker's circle.
4. *kare* and [*doo*]NP displayed a distribution similar to that of [*sono*]NP and ELLIPSIS. The number of attested cases of [*doo*]NP is too small to make any statistically valid conclusions, but both forms displayed a very clear bias towards short RD and coreference within the content paragraph boundaries. The reason for few attested cases of [*doo*]NP is most probably due to the fact that it belongs to a formal written register. The original news-report texts, based on police bulletins, do include [*doo*]NP in some places. Both surveys were done in the context of the classroom and no special instructions were given regarding the register to be used. The result is a high frequency use of neutral or informal expressions.

However, there is a problem in that some of the above mentioned associations are only weakly expressed. This is particularly true in the case of unmodified NPs. Besides the macro factor mentioned above, i.e. probable lack of deep involvement of participants, some perturbing factors related to syntax, were also noticed:

a) NPs appearing in oblique cases (for example *ni*: goal, etc.; *de*: instrument, etc.; *no*: possession, etc.) which were not as contextually important as to be marked by *sono,* could not be ellipted either because of the obliqueness of the cases they appeared in;
b) for the same reasons as in a) above, subordinate clauses also tended to have more fully expressed referential forms.

6. CONCLUSION

RD and content paragraph boundary were examined as relevant factors for predicting the choice of referential form. Extrinsically postulated RD turned out to be if not wholly, at least partially, derived from the factor that is intrinsic to the discourse, i.e. content paragraph boundary. This result also questions the uncritical use of rough measures such as RD and, as will be discussed in Chapter 4., TQ (topic quotient) and TP (topic persistence) (cf. Givón 1983, 1989, Myhill 1992).

Analysis of distribution of referential forms over RD and content paragraph boundary also revealed the relevance of considering the anaphoric use of demonstratives in a wider paradigm together with other referential forms. Thus, results, not perceived in traditional research centering on the demonstrative paradigm alone, were obtained. One such proven result was the parallel behavior of: ELLIPSIS; the personal pronominal form *kare* (he) and probably also *kanozyo* (she), *aitu* (that guy), etc; and [*doo*]NP and [*sono*]NP. All are biased towards low RD and coreference within the content paragraph boundary. Here, the referential choice seems to depend mostly on cognitive factors (cognitively demanding or not), though it is also affected by register (*doo*) and speaker's empathy (*kare*).

Further, unmodified NPs alone seem to be (albeit weakly) connected with reference across content paragraph boundaries.

Finally, [*kono*]NP seems to be independent of both RD and content paragraph boundary, being based only on the speaker/writer's empathy. This can also be seen from the fact that in the original news reports there were occurrences of [*kono*]NP which were, in most cases, omitted by the survey participants. The reason being, the original news-reports were dealing with highly topical material which also involved a great deal of the writer's empathy. Survey participants were lacking this attitude and, in this respect, chose the more neutral [*sono*]NP or some other referential form.

NOTES

[1] Instructions for the paraphrase survey:

Without taking away or adding to the content, paraphrase the given text as an objective news report such as you find in newspapers.

[2] Instructions for the "correction" survey:

1. *Please correct the expressions marked with frames so that the whole text will read as natural flowing Japanese.*
2. *Please write the corrected expressions immediately above each frame.*
3. *When you have finished correcting, please copy the corrected expressions onto the appropriate lines in the table on the left side of the sheet.*
4. *Please mark with a black triangle those places in the text where you think there is a shift in content.*

(Original instruction text in Japanese)

調査説明（調査では調査のために手を加えたテクストを用いた）

１．枠の中の表現を、文章全体が自然な日本語として読めるように修正してください。

２．修正したものは枠のすぐ上に記入してください。

３．作業が終わったら、記入したものをすべて、左側の表の中の該当の列および行にもう一度書き込んでください。

４．最後に、内容の切れ目があると思われるところに「▼」印をつけてください。

CHAPTER 4.
TOPIC IN CONTEXT AND THE PARTICLE *WA*

1. INTRODUCTION

1.1 ABOUT THIS CHAPTER

In this chapter, I will re-examine the nature of topic in Japanese in the light of three empirically based measures of topic continuity, i.e. Topic Quotient (TQ), ReferentialDistance (RD) and Topic Persistence (TP), using the text of the short novel "Rashômon" by RyûnosukeAkutagawa. These observations will serve as a basis for examining the relation between the way topic is expressed and content boundaries, and also the role of NP+*wa* topic as a signal for such boundaries.

As it turns out, these empirical measures are very unreliable as predictors of the NP+*wa* topic in Japanese. Even worse, in the case of TP, and for different referents, contradictory results were obtained. At closer inspection it appears that this is due to differences in status which referents possess within some segment of a text. What matters is not the numerical frequency of a referential form but the status of its referent, i.e. whether it is presented as a topic entity, or, from the point of view of expression, whether it is represented by a topic chain of referential forms within the text or not.

Restricting discussion to coreferential topic chains, I will also examine the connection between topic marking and content boundaries in texts, and the potential role topic marking plays in explicitly delineating such boundaries in the text. Topic marking seems to be intrinsically connected with content boundaries; passive marking such as ellipsis being the means of expression *par excellence* within the same content segment and overt marking of the topic being employed for marking topics across the boundaries.

1.2 TWO ASPECTS OF THE NOTION "TOPIC"

Strict definition of functional notions in linguistics is a never-ending uphill battle with the menace of circularity, topic not being an exception. The following quotation shows how intuitively clear the notion of topic is:

> A referent is interpreted as the topic of a proposition if in a given situation the proposition is constructed as being about this referent, i.e. as expressing information which is relevant to and which increases the addressee's knowledge of this referent.
>
> (Lambrecht 1994: 131)

The problem is that this and other definitions of topic do not provide sufficient means to identify particular topics in actual propositions, the reason being that topic is a functional notion and definitions of functional notions tend to be circular; form and function are difficult if not impossible to separate.

Topic ('theme' in the Prague tradition) has been studied from two different perspectives. The first treats topic on the level of a single sentence. This involves discovering syntactical properties of sentences with a topic (in the case of Japanese, Mikami 1953, 1960; Kuno 1973; Kuroda 1972). The second approach tries to apprehend the regularities involving topics from the wider perspective of text and context. This approach stresses the functional aspects of topic as seen from the point of view of text and context and is concerned with text-pragmatic issues and conditions for topicalization. Pioneer work within this approach has been done by Yamada (1908), Matusita (1928, reprinted 1984) for Japanese and by Daneš (1964, 1974) Chafe (1976), Givón (1979, 1983, 1989, 1993) from a more general linguistic perspective.

The first perspective, which I will call the **local approach**, usually postulates the topic as a sentence element accompanied by a topic marker; in Japanese, for instance, a noun phrase marked with the so called topic particle *wa* (see for example Noda 1994).

The second, the **global approach**, is, on the other hand, preoccupied with identifying topic elements in their contexts and with marking of such elements.

To provide an independent criterion for "topicness" of elements, a number of empirical parameters have been proposed, such as Topic Quotient (TQ), Referential Distance (RD), and Topic Persistence (TP), etc., (Givón 1983, 1989, 2005; Myhill 1992).

In section 2., I will give an outline of various functional approaches to topic in Japanese as relevant to this chapter. In section 3., I will present the methodological background. Section 4. will deal with the empirical measures of "topicness" and their validity. And in section 5., I will examine topic chains and the role of NP+*wa* topic as a potential content boundary marker. Finally, in section 6., I will present some conclusions.

2. TOPIC IN JAPANESE

2.1 TOPIC IN SENTENCE

I will begin with a short outline of topic in Japanese. The most common topic marker is the particle *wa*, though other markers, such as *nanka, nara, toieba,* etc., are used in particular contexts as well. However, I will limit my short introduction to topics marked with *wa.*

Syntactically, a sentence with a topic is seen as having the following structure (Sibatani, 1978: 207 ff): [TOPIC (T)] [PROPOSITION (P)]

There have been long discussions concerning the question of whether there are cases with topic being syntactically incorporated into proposition, but pragmatic considerations point

towards the above structure as being generally valid for sentences with topics (Sibatani, ibid.). Some examples of sentences with and without a topic follow. Example 1. below, is a sentence without a topic, so called *mudai bun*. It expresses an event or a state without any previous presupposition.

Example 1. – *sentence without a topic* ***(mudai bun)***

Basu ga ki- ta.
bus NOM. come-PAST.
The bus came.

On the other hand, Examples 2a., b, and c. below are sentences with a topic, so called *yuudai bun*. The topic particle *wa* is shown in capitals in the examples.

Example 2. – *sentence with a topic* ***(yuudai bun)***

a. *Watasi WA Tanaka desu.*
I TOPIC T.(name) copula-PRESENT-FORMAL.
I am Tanaka.

b. [context] *Atarasii gakka ga dekita.* (A new department has been opened.)
Gakkatyoo WA Tanaka sensei da.
Head TOPIC T. (name) professor copula-PRESENT-INFORMAL.
The head is Prof. Tanaka.

c. *Kuzira WA honyurui da.*
whale TOPIC mammal copula-PRESENT-INFORMAL.
Whales are mammals.

All these examples conform to the [TOPIC] [PROPOSITION] schema mentioned above. Not all referents are eligible to be presented as topics. The consensus is (cf. Kuno 1973) that only elements accessible in their context can become topics, e.g.:

a) those accessible directly in the immediate context of communication, as in Example 2a.;
b) those accessible from the context of communication on the basis of our general knowledge of the world, as in Example 2b.;
c) generic assertions, not dependent on any particular situation, as in Example 2c.

2.2 APPROACHES TO TOPICALIZATION

The term "topicalization" is used in two totally complementary senses. One is the formal process of derivation of a sentence with a topic (the formal approach). The other is functionally and pragmatically oriented; it implies factors and constraints imposed by discourse on assignment of topic function to some element in the context (the functional-pragmatic approach).

2.2.1 Formal approach

This approach presupposes an ideal underlying form and derived topicalized form. A typical representative of this line of thought is Noda (1994).

> There are many sentences with ~*wa* topic in Japanese. […] Sentences with the topic in Japanese and sentences with the topic in Spanish have basically completely identical structures (see Note 1).
>
> (Noda 1994:32, translation Bekeš)

Noda treats topicalization as a process at the sentence level acting upon the structure of the sentence, i.e. topicalization is a procedure whereby a sentence with a topic is derived from a sentence without a topic. In his treatment Noda presents several syntactic and semantic constraints under which the procedure is possible (pp. 34, 35).

Noda's treatment is neat and detailed, but the question remains as to whether such a derivation is actually what happens in online discourse. Particularly, longer more complex sentences with a topic cannot possibly be derived from a supposedly primary structure without a topic. The effort spent on the task speaks against such an understanding of the topicalization process in real situations, though the results may be valid in applications such as natural language understanding, machine translation, etc.

The formal view is not usually extreme and combines with the functional view at sentence level, as for example in Givón (1979).

2.2.2 Functional – pragmatic approach

The other approach is to treat topicalization as seen from discourse. Here, the focus is on the function of topic in discourse and on discourse factors influencing the appearance of a topic at some particular point of the discourse.

The common denominator of this approach is an understanding that the appearance of the topicalized element depends on context. Regarding the informational status of the topicalized element, various frameworks have been proposed.

Pioneer work has been done by the Prague school within the framework of the Functional Sentence Perspective (FSP). Mathesius (1975) distinguished between theme and rheme. Firbas (resumed in Firbas 2001) introduced the notion of CommunicativeDynamism, further elaborated by Sgall in an original formal generativistic framework (cf. Sgall 2003).

A further conceptual breakthrough came with Daneš' (1964) view of syntax as belonging to three different, mutually rather independent levels. His "three-level approach to syntax" was very fecund and profoundly influenced functionally oriented researchers, among them Halliday, Dik (cf. Davidse 1987), and later on Fillmore's construction grammar (though Fillmore does not publicly acknowledge his source of inspiration, cf. Fried and Boas 2005).

The connection of sentence topic with the context was further made explicit by tests, devised in FSP tradition, to identify the topic (Sgall 1987), and by context based distinctions such as Old Information vs. New Information (Halliday 1967, and Given vs. New introduced by Chafe (1976).

There were further attempts to operationalize the above mentioned distinctions by what can be termed "West coast functionalism", represented by the work of Givón (1979,

1983, 1989, 2005), Myhill (1992), Chafe (1980), Hinds (1987), Iwasaki (1987), and Maynard (1987). For research on Japanese in such functional paradigms, Hamada (1983) also presented an early but largely unnoticed research study on referential choice. For the work on Japanese topic as presented here, of special relevance are Hinds, Iwasaki and Maynard.

Hinds (1987), examines the choice between *wa* and *ga* in the light of Prince's notion of assumed familiarity (cf. Prince 1981). He also connects the usage of NP+*wa* with the rhetorical organization of text, in particular with the introduction of *ten*, the turning point of the fourfold rhetorical structure (i.e. *ki* – introduction; *syoo* – elaboration; *ten* – turning point, the core part of the narrative; and *ketu* – conclusion).

Iwasaki (1987) deals with the pragmatic status of NP+*wa*, and its function in discourse. He proposes the notion of "identifiability" as preferred to "anaphoric" and "generic" conditions for the choice of NP+*wa.* From a functional point of view, he argues that the primary function of NP+*wa* is scope setting. Further, there are also the derivative functions of NP+*wa*, i.e. providing "multiple predications", indicating "negative scope" and "contrastive element" in its discourse context.

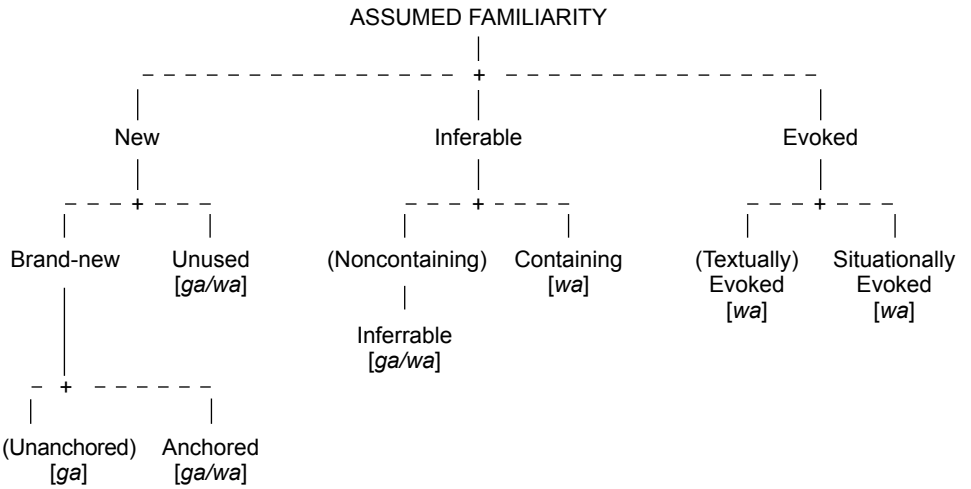
On the other hand, Maynard (1987) centers on the discourse function of NP+*wa*, arguing that it is a means of realizing "staging", i.e. NP+*wa* employed as a speaker's device to express his/her perspective towards the events described.

Hinds' (1987) analysis on the choice between NP+*wa* and NP+*ga,* based on the notion of assumed familiarity proposed by Prince (1981), will be examined in the following section.

2.3 INFORMATIONAL STATUS OF A REFERENT IN THE CONTEXT: ASSUMED FAMILIARITY AND IDENTIFIABLITIY

Hinds (1987:87) employed Prince's (1981) taxonomy of assumed familiarity, the most widely encompassing taxonomy of various context based information statuses of the referent influencing the choice of topic, to predict whether a certain NP in context will be realized as NP+*wa* or NP+*ga* in Japanese. In his correlation between Prince's taxonomy and *wa/ga* distinction (Diagram 1. below), Hinds (ibid.) shows the more the referent is assumed by the speaker to be accessible (evoked, inferable in Price's paradigm) to the hearer, the bigger the probability of NP+*wa* being chosen as the referential form; on the other hand, the newer (brand-new, unused, inferable-noncontaining) the referent, the greater the probability that NP+*ga* will be chosen. Whereas actually, the exclusive domain for *ga* to be chosen is only that of the referents assumed by the speaker to be brand-new and unanchored for the hearer.

Diagram 1. *Assumed familiarity (of hearer as assumed by speaker) and the choice of* ***wa*** *and* ***ga***



2.3.1 Assumed familiarity: data from a newspaper article

Hinds (ibid.) was only interested in explaining the choice between the particles *wa* and *ga*, but in the continuation, I will present a wider paradigm of choices; besides NP+*wa* and NP+*ga* there is also ellipsis (Ø). A newspaper article (Asahi Shinbun, 1 Sept. 1993, see APPENDIX III.) was analyzed for this purpose. Since the analyzed text contains only 81 clauses and only five human referents were examined, not all possibilities were realized in the table below, but the general trend is discernible nonetheless.

Table 1. *Assumed familiarity and referential forms in newspaper article*

	NP+*wa*	**NP+P**	**Ellipsis (Ø)**
Brand-new – Unanchored	–	1	–
Brand-new – Anchored	–	2	–
Unused	1	1	–
Inferred	3	–	–
Evoked	15	14*	38

** The four cases of evoked NP-ga included in the number all belong to clauses modifying nouns or clause nominalized with the formal noun* ***koto****.*

As we can see from Table 1. above, evoked information seems to be a necessary condition for ellipsis (i.e. if we have ellipsis as a referential form we can safely assume that the information status of the referent is 'evoked').

The same also holds true for most of the animate NP+*wa* attested in the text. The majority of the attested NP+*wa* also refer to evoked referents. On the basis of this, it could be concluded that, from the hearer's perspective, the hearer can guess what information

status was assumed by the speaker for a particular referent at some particular point of conversation (or written text), deducing it from the referential form.

It is interesting, and here the data differ from Hinds' findings, that full NPs with a case particle are also significantly represented by the evoked category. Even if the four noun-modifying clauses with NP+*ga* are excluded, because the choice of referential form is syntactically determined, there still remain 11 out of 14 NP+CP cases referring to an evoked referent.

Since NP+CP can appear with other information statuses besides evoked, evoked is not a necessary condition for NP+CP. This is even more so in relation to other information statuses.

On the other hand, the reverse prediction, i.e. from the type of information to the selection of a particular form, is not straightforward in any of the cases, with the exception of impossibility (or low probability if we adopt the probabilistic interpretation of the data) of ellipsis implied by types of information status other than evoked, which is in fact just the necessary condition expressed in reverse.

As for the evoked status itself, it does not predict that because the referent is assumed to have evoked status a particular referential form will be selected. It follows, therefore, that evokedness itself is not a sufficient condition to predict which form will be selected.

Actually, Hinds' explanation is also limited to informational status as a necessary condition, though Hinds does not discuss this issue openly. The cases mentioned (Hinds 1987:89) conform to the assumed familiarity categories, but the reverse is not (and in the light of empirical data presented here, most probably could not be) shown.

It is thus safe to draw the conclusion that assumed familiarity provides a limited necessary condition in the case of ellipsis, and provides, in view of the correlation of other referential forms particular statuses, a probabilistic clue as to the most probable information status of the referent expressed by a particular referential form.

2.3.2 Identifiability: Iwasaki (1987)

Iwasaki (1987:108ff) uses the term identifiability, replacing the narrower "anaphoricity" used by Kuno (1973). He argues that "anaphoricity" is simply a special case of identifiability. Identifiability also includes Kuno's "genericity", since "concepts of a generic and unique nature are stored in the permanent registry" (Iwasaki ibid.).

Iwasaki studies conversations describing outlay of apartments and identifies three types of identifiability. The first is anaphoricity. This corresponds to "textually evoked" information in Price's taxonomy. The second is identifiability through frame. This corresponds to Price's "inferable". These two types of identifiability are just a subset of Price's assumed familiarity therefore it would be difficult to say that Iwasaki goes beyond the scope explored by Hinds but for one crucial exception. Iwasaki (ibid.) realized that identifiable referents are not all necessarily expressed as NP+*wa*. In trying to find the motivation for identifiable referents being expressed as NP+CP, Iwasaki attempts to specify not only necessary but also sufficient conditions for the choice of some of the referential forms. This effort is connected to the third type of identifiability distinguished by Iwasaki, i.e. "miscellaneous".

It includes adverbial phrases, which according to Iwasaki can be neither thematic nor contrastive (1987:116). Some examples of "type m" (miscellaneous) are as follows

Example 3.

a. *yonin gurai made WA*
four people about up-to *WA*
up to about four people (*WA*)

b. *shita ni aru no yori WA*
below at be of more *WA*
[better] than being below (*WA*)

c. *dainingu teeburu to WA*
dining table next-to *WA*
beside the dining table (*WA*)

Since these examples are neither thematic nor topic, Iwasaki proposes the unifying function of the topic particle *wa* as setting the scope of the cases X for which a given predication P is valid. Yet the "type m" examples, in spite of what Iwasaki assumes, also do seem to be contrastive or at least to have contrastive interpretations. Thus, Example 3a. could possibly be contrasted with something like "*gonin ijou WA*"(more than five *wa*). In Example 3b., contrast with some other element is implied by "*yori*" (compared with, than), signaling comparison. It is only in Example 3c. that it seems difficult to find a contrastive interpretation.

Nonetheless, Iwasaki's intuition regarding *wa* as the marker of scope seems to be right, though supporting his case with so few examples is problematic.

Both assumed familiarity and identifiability basically present the necessary conditions for the usage of NP+*wa,* NP+*ga* and other referential forms. This means that there might be other factors which could trigger the usage of NP+*wa* or NP+*ga* as well. Furthermore, Iwasaki's argument for *wa* as marker of scope, based on a weak example as presented in Example 3. above, is not necessary. It would be possible to proceed to an examination of the scope hypothesis even without the above argumentation.

3. METHODOLOGICAL REMARKS

In this section, I will discuss the data used for analysis and various related methodological issues.

3.1 CHOICE OF DATA

The empirical analysis is based on the short novel *Rashômon (Rasyoomon)*(R. Akutagawa, computer readable version from "*Aozora bunko"* (http://www.aozora.gr.jp/, approx. 6750 characters). The choice was motivated by the rich narrative structure of this work, with many animate (human) and inanimate referents appearing throughout the text. The human referents are: Servant, Old Woman, Corpse(s) (referred to when they were still alive), Woman, Crow(s), and the Author. The most frequently mentioned inanimate referents are:

the gate Rashômon, Rain, Hair (of the dead people), Fire, Kyoto, Twilight, Furuncle (on servant's cheek), and Cricket. The ease of accessing the computer-readable version can facilitate further analysis of this work. For the whole analyzed text see APPENDIX IV.

In addition, a newspaper article taken from the Asahi Shinbun (edition Sept. 1, 1993, see APPENDIX III.) was used to illustrate assumed familiarity (cf. Table 1., section 2.) as discussed in section 2.

3.2 PARSING THE TEXT INTO CLAUSES

The empirical measures examined in section 4. are based on how coreferential forms appear in subsequent clauses of a text. It has been shown that a clause in spoken language is a primary phenomenon related to human cognitive capabilities (Chafe 1980, 1987, etc.). As argued in Bekeš (1987, 1994), a clause can also validly be considered in the same manner in written language in spite of the differences in its production.

The question of what to consider a clause and how to handle discontinuous topics in Japanese, with its rich system of modal suffixing on the predicate, posed some problems. I defined clause boundaries, basing my decisions on Minami (1974), as described in Bekeš (1994).

Central among such problems is that of how to deal with discontinuities, or cases where the same element (topic, sentence, adverb, etc.) is shared by several clauses. I treated discontinuous topics or topics which are shared by several clauses as separate units. An example of a discontinuous topic is given below in Example 4.

Example 4. *(same as Ex.1., Ch.3.)*

a. *Yuuzin wa*
Friend TOPIC.

b. *"denwa no koe wa toku ni kawatta yoosu ga nakatta"*
"there was nothing weird about his voice on the phone"

c. *to [Ø] iu.*
[he] says.

Topic element 4a. is listed separately from the intervening clause 4b. and clause 4c. to which it is actually attached.

As to topics shared by several clauses, such as in Example 5. below, I proceeded in a similar way.

Example 5. *(same as Ex.2., Ch.3.)*

a. *Yuki-san wa*
Y. TOPIC

b. *[Ø] tooka gogo sitizi han koro ni zitaku ni denwa o ireta no o saigo ni*
telephoning home for the last time on the tenth at about half past seven

c. *[Ø] syoosoku o tatta.*
stopped informing [about herself].

The only difference is that in this case the topic element 5a., which is again listed separately, is shared by all the clauses, i.e. by 5b. and 5c. It is also important to note that though the topic element in cases such as Examples 4. and 5. is listed separately, it is not considered as a clause. This issue will be further discussed in section 4. in connection with the measuring of referential distance.

Coreferential noun phrases, both modified and unmodified, often appeared in shorter forms in the coreferential chain. Since the main goal of this study is to shed light on the topicalization of coreferential noun phrases and not on the referential form itself, I considered any noun phrase of this sort as an instance of the same NP.

In the text of "Rashômon" (see APENDIX IV. for the whole analyzed text), a total of 152 sentences and 495 clauses were identified.

4. EMPIRICAL MEASURES OF TOPICNESS

4.1 BACKGROUND

To circumvent the built-in circularity of functional notions, various empirical measures have been proposed for measuring the "topicness" of referents. The best overall presentation of methodologies involving such measures is given in Myhill (1992).

In the following subsections, I will examine the three most common empirical measures of "topicness", i.e. Topic Quotient (TQ), ReferentialDistance (RD) discussed in Chapter 3. in relation to text reference, and Topic Persistence (TP) and their relation to various referential forms.

The main purpose of this study is to examine the predictive power of the above empirical measures for the appearance of the canonical topic in Japanese, i.e. noun phrase + topic particle *wa* (NP+*wa*). Other important referential forms are ellipsis (Ø) and full noun phrase accompanied by a case particle (NP+CP). Thus, the referential forms considered in this study are:

a) noun phrases including full reference to the referent + case particle (NP+CP);
b) noun phrases including full reference to the referent + topic particle *wa* (NP+*wa*);
c) ellipsis (Ø);
d) other forms involving other particles, such as *mo* (also), etc.

The three empirical measures will be examined as both necessary and sufficient predictors for a "noun phrase+*wa*" and other referential forms. Here, "necessary" means, whenever a certain referential form is attested, there is a high probability that a given empirical measure is within a certain range of values, either high or low. On the other hand, "sufficient" means that a given empirical measure being within a certain range of values, either high or low, implies with high probability a certain choice of referential form.

4.2 TOPIC QUOTIENT

Topic quotient (abbreviated TQ) is supposed to measure "topicness" of a referent over the whole text. It is measured as the proportion of clauses in a given text referring to the given referent, i.e. the number of clauses referring to the given referent (frequency),

divided by the total number of clauses in a text (Myhill 1992). The relation between TQ and referential forms of various referents is shown in Table 2.

It can be seen from the table that different referents appear in the text with different frequencies. TQ does not seem to predict anything. The only correlation easily observed is the correlation between animate (human) referents and high frequency of ellipsis (Ø) on the one hand, and inanimate referents and high frequency of non-topical full referential forms on the other. This simply reflects the fact that the narration in "Rashômon" is built around the actions of human referents.

Table 2. *Referential forms and topic quotient (TQ) (R. Akutagawa: "Rashômon")*

Referent	**Frequency**	**TQ (F/495)**	**REFERENTIAL FORMS**							
Animate (human) referents										
			NP+CP		**NP+*wa***		**Ellipsis (Ø)**		**Other**	
			prop.	**freq.**	**prop.**	**freq.**	**prop.**	**freq.**	**prop.**	**freq.**
Servant	211	0.43	0.12	26/211	0.19	42/211	0.66	140/211	0.03	3/211
Old Woman	115	0.23	0.29	33/115	0.10	12/115	0.57	65/115	0.03	2/115
Corpse*	39	0.08	0.44	17/ 39	0.05	2/ 39	0.46	18/ 39	0.05	2/ 39
Woman	17	0.03	0.17	3/ 17	0.12	2/ 17	0.71	12/ 17	0	0
Crow	12	0.02	0.33	4/ 12	0.09	1/ 12	0.58	7/ 12	0	0
Author	7	0.01	0	0	0.14	1/ 7	0.86	6/ 7	0	0
Inanimate referents										
			NP+CP		**NP+*wa***		**Ellipsis (Ø)**		**Other**	
			prop.	**freq.**	**prop.**	**freq.**	**prop.**	**freq.**	**prop.**	**freq.**
Ra-shômon	55	0.11	0.75	41/ 55	0.07	4/ 55	0.16	9/ 55	0.02	1/ 55
Rain	17	0.03	0.59	10/ 17	0.12	2/ 17	0.29	5/ 17	0	0
Hair	14	0.03	0.72	10/ 14	0.14	2/ 14	0.14	2/ 14	0	0
Fire	13	0.03	0.61	8/ 13	0.08	1/ 13	0.31	4/ 13	0	0
Kyoto	11	0.02	0.36	4/ 11	0.36	4/ 11	0.28	3/ 11	0	0
Twilight	7	0.01	0.86	6/ 7	0.14	1/ 7	0	0	0	0
Furuncle	4	0.01	1.00	4/ 4	0	0	0	0	0	0
Cricket	2	0.004	0.50	1/ 2	0	0	0	0	0.50	1/ 2

** Corpses are referred to as persons when they were alive.*

Only the highest TQ (the case of referent Servant) seems to predict necessarily and sufficiently a slightly higher relative frequency of *wa* topics.

TQ is basically a rough measure of referent anaphoricity and thus its accessibility. TQ might work to a certain extent in analyses of shorter segments of text centered around just a few referents (see Bekeš 1995a). Yet, as we can see from the above table, it may safely be

concluded that in any longer text, such as "Rashômon", TQ is a very unreliable predictor of *wa* topics or indeed of any other referential form.

4.3 REFERENTIAL DISTANCE

Referential distance (abbreviated RD) was already briefly introduced in Chapter 3. in the context of textual reference. As mentioned in Chapter 3., I calculated the referential distance (RD) following Myhill (1992:34) by finding the most recent previous mention of the referent of the NP and then counting how many clauses back it occurred. Contrary to standard practice, I included relative clauses in the count of intervening clauses because they seemed to be as demanding for processing as other subordinate clauses.

There is the problem of how to treat RD in the case of discontinuous topics and topics extending over several clauses. Discontinuous topics are common in reported speech, where the reported part can be of any length, see Example 4. of section 3. above, repeated here for ease of reference.

Example 4. *(repeat)*

a. *Yuuzin wa*
Friend TOPIC

b. *"denwa no koe wa toku ni kawatta yoosu ga nakatta"*
"there was nothing weird about his voice on the phone"

c. *to [Ø] iu.*
[he] says.

Here, *Yuuzin* (friend) in 4a. is the topic of the clause consisting of the "[reported part] + *to iu*". In counting the intervening clauses belonging to the reported part I treated the topic separately. Thus I analyzed Example 4. as three units, counting the topic element *yuuzin wa* as a separate unit. However, since *yuuzin wa* is not a clause, I did not include it in the count of intervening clauses. This made it easier to count the RD between the topic element and the coreferent in preceding clauses as well as the RD between a referent in the last clause with a discontinuous topic and coreferents in the clauses that follow. Thus, I counted the RD between 4c. and 4a. as 1, while I counted RD=0 (co-occurrence in the same clause) for the case where there were no intervening clauses conveying the content of the reported speech, such as *Taroo wa iu* (Taro says).

I used a similar reasoning in my treatment of topics extending over several clauses, such as shown in Example 5. of section 3., also repeated below. The only difference being that the intervening clauses share the topic element.

Example 5. *(repeat)*

a. *Yuki-san wa*
Y. TOPIC

b. *[Ø] tooka gogo sitizi han koro ni zitaku ni denwa o ireta no o saigo ni*
telephoning home for the last time on the tenth at about half past seven

c. *[Ø] syoosoku o tatta.*
stopped informing [about herself].

Again, I did not include the topic element (i.e. 5a.) in the count of intervening clauses. In cases such as Example 5., the RD from the ellipted topic in 5b. to the topic 5a. was counted as 0 and in the clause(s) following the clause, adjacent to the topic element (i.e. clause 5c.), RD was counted as 1.

Referential distance is a rough measure of referent anaphoricity and thus of accessibility of a referent. The largest meaningful distinction of RD is up to 20 clauses. Occurrences of a referent beyond 20 clauses are treated as having the referent as inactive as a reference (Givón 1983, 1989).

In order to arrive at meaningful data including a variety of RD, only the most frequently appearing referents were chosen, i.e. "Servant" and "Old Woman" among human, and "Rashômon", "Hair" and "Rain" among inanimate referents.

Table 3. *Distribution of referential forms over referential distance (RD)*

Animate – "Servant"							
		Referential forms					
RD	**Frequency (TOTAL)**	**NP+CP**		**NP+*wa***		**Ellipsis (Ø)**	
		Frequency	**Proportion**	**Frequency**	**Proportion**	**Frequency**	**Proportion**
1–4	176	16	0.09	29	0.16	131*	0.74
4–20	26	8	0.31	12	0.46	6	0.23
Animate – "Old Woman"							
		Referential forms					
RD	**Frequency (TOTAL)**	**NP+CP**		**NP+*wa***		**Ellipsis (Ø)**	
		Frequency	**Proportion**	**Frequency**	**Proportion**	**Frequency**	**Proportion**
1–4	33	23	0.70	10	0.30	0	0.00
5–20	19	15	0.79	4	0.21	0	0.00
Inanimate**							
		Referential forms					
RD	**Frequency (TOTAL)**	**NP+CP**		**NP+*wa***		**Ellipsis (Ø)**	
		Frequency	**Proportion**	**Frequency**	**Proportion**	**Frequency**	**Proportion**
1–4	46	28	0.61	5	0.11	13	0.28
5–20	44	36	0.82	6	0.14	2	0.04

** numbers of cases exceeding half of the total in each category are underlined.*

*** = "Rashômon", "Hair" and "Rain"*

Table 3. shows the RD data for each referent or group of referents split into two groups. Shorter RDs, from 1 to 4, constitute one group, and RDs equal to or larger than 5, constitute the other group (see Note 2). The property of RD as a measure of accessibility is reflected in the correlation of short RDs with ellipsis in the case of both human referents. In the case of inanimate referents, even short RDs co-occur most often with full nontopical noun phrases. With longer RDs, less frequent referents such as Old Woman and inanimate referents also correlate with full nontopical noun phrases. Either way, there seems to be

no pattern correlating topical noun phrases and RD. In the case of Servant, topical noun phrases even become the relatively most frequent referential form of long RDs.

4.4 TOPIC PERSISTENCE

Topic persistence (abbreviated TP) is a measure of importance of a referent in the context that follows some particular occurrence. It is defined as the number of clauses referring to the referent within 10 clauses following the particular occurrence (Givón 1983, 1989). Givón (2005) refers to topic persistence as cataphoric persistence, but, in the sense of the empirical measure, I will continue to use established terminology.

TP is similar to TQ in that it is supposed to roughly reflect the referent's "topicness" in its context. The more topic-like the referent is, the more likely it is that it will continue to be referred to in the context following some particular occurrence (Givón 1983, 1989, 2005).

I examined the distribution of referential forms in relation to topic persistence for the two main human referents in the story: the Servant (references in 211 clauses); and the Old Woman (references in 115 clauses). The number of references being quite high, much higher than found in short conversations and newspaper articles, it is reasonable to expect that the trends, supposedly predicted by TP, would emerge quite clearly.

Table 4a. *Distribution of referential forms over Topic Persistence (TP) ("Servant": 211 references)*

TP	Referential form								TOTAL
	NP+*wa*		Ellipsis (Ø)		NP+CP		OTHER		
	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.	
0–3	0.15	8	0.70	36	0.15	8	0.00	0	52
4–6	0.24	15	0.61	38	0.15	9	0.00	0	62
7–10	0.20	19	0.68	66	0.09	9	0.03	3	97

Table 4b. *Distribution of referential forms over Topic Persistence (TP) ("Old Woman": 115 references)*

TP	Referential form								TOTAL
	NP+*wa*		Ø		NP+CP		OTHER		
	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.	
0–3	0.06	2	0.63	22	0.31	11	0.00	0	35
4–6	0.13	5	0.57	23	0.25	10	0.05	2	40
7–10	0.13	5	0.50	20	0.37	15	0.00	0	40

Let us have a look at Tables 4a. and 4b. above. These tables show the referential form as a function of topic persistence in the case of the coreferential chains of the Servant and the Old Woman. In the case of the Servant, Table 4a., NP+*wa* (noun phrase + particle *wa*), the form that is supposed to indicate the topic, exhibits a rather modest relative frequency. The relative frequency, though increasing toward mid-range TP, then slightly decreases again.

On the other hand, in the case of the Old Woman**,** Table 4b., the relative frequencies of NP+*wa* are even lower, though increasing with a higher TP.

Ellipsis shows a more or less permanent relative frequency for both referents, in the range of between 0.50 and 0.70. The reason why ellipsis is so frequent is that, most often, after the referent is introduced in the full form, either as NP+*wa* or N+NP, it is then repeated in ellipted form. Within one sentence this is more or less obligatory, but it also happens across sentence boundaries. The behavior of NP+CP is even more interesting. In the case of the Servant, its relative frequencies decrease with higher TP values, as TP is supposed to predict. On the other hand, in the case of the Old Woman, the relative frequencies actually increase as the TP gets to the highest range. The absolute frequency of such cases increases too. This is exactly the contrary of what the TP is supposed to predict.

Since the topics have higher TP, it is natural to suppose that a form such as NP+*wa*, if being marked for "topicness", should systematically exhibit stronger affinity with higher TP. So let us have a look at Tables 5a. and 5b. with TP expressed as a function of referential form.

Table 5a. *Topic Persistence (TP) as function of referential form ("Servant": 211 references)*

	Topic persistence (TP)						TOTAL	Average TP	MD
	0–3		4–6		7–10				
	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.			
NP+*wa*	0.19	8	0.36	15	0.45	19	42	5.93	6.0
Ø	0.26	36	0.27	38	0.47	66	140	5.56	6.0
NP+CP	0.30	8	0.35	9	0.35	9	26	4.65	5.0
OTHER	0.00	0	0.00	0	1.00	3	3	8.50	9.0

Table 5b. *Topic Persistence (TP) as function of referential form ("Old Woman": 115 references)*

	Topic persistence (TP)						TOTAL	Average TP	MD
	0–3		4–6		7–10				
	Proport.	Freq.	Proport.	Freq.	Proport.	Freq.			
NP+*wa*	0.16	2	0.42	5	0.42	5	12	5.17	5.0
Ø	0.34	22	0.35	23	0.31	20	65	4.65	5.0
NP+CP	0.30	11	0.28	10	0.42	15	36	5.17	5.5
OTHER	0.00	0	1.00	2	0.00	0	2	5.00	6.0

In Tables 5a. and 5b. the observations from Tables 4a. and 4b. become even clearer. In the case of the Servant, the relative frequencies of higher range TP, associated with both NP+*wa* and ellipsis, tend to increase. On the other hand, TPs associated with NP+CP tend to have the same relative frequency regardless of their range. This is just what the TP is supposed to predict. But then again, in the case of the Old Woman the picture is the reverse of what we would expect the TP to predict. Not only do we have an increase of relative frequencies for mid and high range TP values associated with NP+*wa*, but also

an **increase,** and not a decrease, for TP values associated with NP+CP. Here, the relative frequencies of TP associated with ellipsis are the same regardless of the TP range.

From the above empirical observation, it can be concluded that TP as such is not a reliable predictor of the referential form, in particular of the form supposed to signal a topic.

5. TOPIC AS A CHAIN OF COREFERENTIAL NOUN PHRASES AND PERCEPTION OF CONTENT BOUNDARIES

5.1 INTRODUCTION

The contradictory behavior of the two coreferential chains, i.e., that of the Servant and that of the Old Woman, in relation to TP that we have observed in the preceding section, indicates that there might be coreferential chains that manifest a topic-like behavior (i.e. the Servant) and chains that do not (i.e. the Old Woman). In this section, I will argue for topics to be understood as coreferential chains of referents with topic-like behavior, i.e. topic chains, and will examine their relation with the content paragraph boundary and with the explicit ways used to signal such paragraph boundaries.

Once a topic is established, it is usually referred to by reduced referential forms, such as pronouns or zero referential forms (ellipsis). Nonetheless, as I will discuss in section 5.2., there are cases of *wa*-topics appearing in the middle of a coreferential chain, often in close vicinity of the previous mention of the same topic, and still being expressed with a full referential form (NP+*wa*) (see Note 3).

In the rest of section 5., I will argue that such *wa*-topics serve primarily to finely delineate content boundaries within the segment of the text relating to the same topic entity, and are perceived as boundary markers by the readers/hearers.

5.2 *WA*-TOPIC AS A DEVICE FOR ORGANIZING NARRATIVE DISCOURSE

In this section, I will examine readers' perceptions of content boundaries in narrative in relation to *wa*-topic. My discussion here is based on the analysis of the short story "Rashômon" by Akutagawa Ryûnosuke.

By examining the behavior of coreferential chains in narrative texts, it becomes clear that in texts where the narration is built around principal characters, there are segments of the text exhibiting two types of chains. This is illustrated in Table 6. below, a segment of "Rashômon" with two clearly distinguished coreferential chains. One is the chain where the same referent is consistently being referred to in the form of a noun phrase accompanied by the particle *wa* (NP+*wa* or NP+CP+*wa*) interchanging with zero referential forms. This is what I call a TOPIC CHAIN. In Table 6. below, the "Servant" chain, i.e. expressions referring to the servant of the story, is just such a topic chain. The other type, the NON-TOPIC CHAIN, is a coreferential chain, which can refer to a particular referent quite frequently, but nonetheless, does not include expressions of the form NP+*wa* (see Note 4). The "Old Woman" chain in Table 6. is an example of such a chain. N' in Table 6. denotes a derived topic (cf.Daneš 1974).

Table 6. *Topic coreferential chain "Servant" and nontopic coreferential chain "Old Woman" (for the whole text, see Appendix IV)*

Servant chain (topic)	**Old Woman chain (non-topic)**	**Sent. No.**	**Content boundary (freq.)**	**TEXT** (each line is a clause, a conjunction or a topic)
Ref. form	**Ref. form**			
N'+*wa*		**80:**	**[1]**	***Sore hodo, kono otoko no aku o nikumu kokoro WA***
	NP+CP			*– rooba no yuka ni sasita*
				– matu no kigire no yooni,
Ø				*– ikioi yoku moeagaridaasite ita no de aru.*
NP+*wa*		**81:**	**[3]**	***Genin ni WA,***
	N+*ga*			*– motiron, naze rooba ga sinin no kami no ke o nuku ka*
Ø				*– wakaranakatta.*
		82:		*Sitagatte,*
	NP+CP			*– gooriteki ni wa, sore o zen-aku no izure ni katadukete yoi ka*
Ø				*– siranakatta.*
NP+*wa*		83:		*Sikasi, genin ni totte WA*
	Ø			*– kono ame no yoru ni, kono Rasyoomon no ue de, sinin no kami no ke o nuku*
Ø				*– toiu koto ga, sore dake de sude ni yurusu bekarazaru*
Ø				*– aku de atta.*
NP+*wa*		**84:**	**[1]**	***Motiron, genin WA*,**
N+*ga*				*– sakki made jibun ga, nusubito ni naru ki de ita*
Ø				*– koto nazo wa, too ni wasurete ita no de aru.*
NP+*wa*		**85:**	**[6]**	***Soko de genin WA*,**
Ø				*– ryooasi ni tikara o irete,.*
Ø				*– ikinari, hasigo kara ue e tobiagatta.*
		86:	**[1]**	***Sosite***
Ø				*– hizirizuka no taitoo ni te o kakenagara,*
Ø	NP+CP			*– oomata ni rooba no mae e ayumiyotta.*

Abbreviations:

Sent. No. = number of sentence in the text
[#] = frequency of pointing out content boundaries
N+*ga* = noun+case particle *ga*
NP+CP = noun+case particle
NP+*wa* = noun+topical particle *wa*
Ø = ellipsis

(*TRANSLATION*)

80: Thus fiercely, like the splint of pine the old woman had stuck in the floor, blazed up this man's detestation of evil.
81: The servant, of course, did not know why the old woman was pulling out the hair of the dead.
82: Consequently, he did not know rationally whether her conduct should be set down as good or evil.
83: But for him, the pulling of hair from the heads of the dead on that rainy night up in Rashômon was, on the face of it, an unpardonable crime.
84: Naturally, he had already forgotten that a little before he had had half a mind to turn thief himself.
85: So, bracing his two feet firmly, he suddenly sprang from the ladder up into the room.
86: Then, grasping the plain handle of his sword, he advanced with great strides up to the old woman.

(Translation based on Glenn W. Shaw, Rashômon, Hara Publ. Tokyo 1964).

So it can be said that what has been called the topic until now is simply a local manifestation at sentence level of a global property, i.e. the speaker's (narrator's) choice of topic entity, that is to say a referent around which some particular segment of discourse is built.

In the simplest of cases, topic entity can be manifested in a certain segment of the text as a coreferential chain of noun phrases referring to it in the textual world. It is this choice and not merely numerical parameters that are responsible for the local topic marking (see Note 5)**.**

Thus, it can be said, that the segments of narrative may be organized around topical entities expressed by NP+*wa* (or some other thematizing particle instead of *wa*). Such organization, the so-called topic paragraph, is perhaps the simplest type of coherence in a narrative.

This resonates well with the research reported in Chapter 2. In that chapter, I argued from another perspective, that of the paraphrase survey (also in Bekeš 1992, 1993), that seen from the context, *wa*-topic plays an important role: content chunks in a text can be, and very often are, organized around *wa*-topics. Compare Figure 1a. (identical to Figure 2., Ch. 2.) with Figure 1b. (identical to Figure 1., Ch. 2.) and again with Figure 1c. (identical to Figure 3a., Ch. 2.).

Figure 1a. *Clusters of clauses, sharing the same topic entity (O., P.: two persons, also appearing in the text.)*

CLUSTERS	(1)	(2 3)	(4 56)	(7)	(8 9)	(10 11)	(12)	(13 14 15 16)
Referent	time	O.	P.	police	O.	son	victim	O.

CLUSTERS	(17)	(18 19)	(20)	(21 22)	(23 24)	(25)
Referent	family	victim	O.	victim	O.	police

Figure 1b. *Clusters as the outcome of naive text analysis (terminal clusters only)*

CLUSTERS	(1)	(2 3)	(4 5)	(6)	(7)		(8 9)		(10 11)	(12)		(13)	(14 15 16)		
Referent	time	O.	P.	P.	police		O.		son	victim		O.	O.		

CLUSTERS	(17)	(18 19)	(20 | 21 22)	(23 24)	(25)
Referent	family	woman	O.	victim	O.	police

Figure 1c. *Clusters as reflected in naive text synthesis (paraphrase) into complex sentences (terminal clusters only)*

CLUSTERS	(1	2)	(3)	(4 5)	(6)	(7		8)	(9)	(10 11)	12		(13 15)	(14)	(16)	(17)	
Referent	time	O.	O.	P.	P.	police		O.	O.	son	victim		O.	O.	O.	family	

CLUSTERS	[18 19]	(20	21)	(23	24 25)	(22)	
Referent	woman	O.	victim	O.	police	victim	

Indeed, the clusters of sentences centered on topics in Figure 1a., are almost identical to the content clusters in Figure 1b. which are based on perceived content relatedness, and to the clusters in Figure 1c. based on sentences that were paraphrased within the same sentence in the paraphrase survey. In other words, *wa*-topics play an important role both in perception and in synthesis.

An analysis of "Rashômon" shows that Akutagawa also widely availed himself of the possibilities of organizing and presenting the content of his narrative by means of *wa*-topic (NP+*wa* or NP+CP+*wa*) or ellipsis in topic paragraphs, built around topic coreferential chains.

There are actually two types of *wa*-topic usage. One type introduces a completely new topic or chooses a coreferential element from a previously non-topic chain as a topic, as can be seen in sentences #72 and #73 from the full text (see Appendix IV.) given in example 6 below:

Example 6.

#72 *Kyuuki no kisya no kotoba wo karireba, [genin WA=Ø] "toosin no ke mo futoru" yoo ni kanzita no de aru.*
Borrowing the expression from an ancient chronicler, the servant felt as if "the hair on both his head and his body were growing fat".

#73 ***Suru to rooba WA*** *[…] sono nagai kami no ke wo ippon zutu nukihajimeta.*
And then the old woman began to pull out the hairs one by one.

(Translation A. Bekeš)

After the last sentence with the Servant as a part of the topic chain (sentence #72), the topic in the following sentence (#73) is switched to the Old Woman, and the Old Woman's chain becomes the topic chain. In this use, NP+*wa* seems to be in a kind of contrastive relation to the previous topic chain and topical in relation to the new topic chain introduced by it.

The other type of use is the reappearance of NP+*wa* within the same topic chain and referring to the same topic. Such clear-cut examples of NP+*wa* are seen in sentences #84 and #85 in the segments of Table 6. above, where a clear manifestation of servant as a topic can be observed.

Actually, the situation is rather peculiar. On the one hand, the topic structure of a paragraph based on a coreferential chain sharing the same topic is simply a generalized structure of a topic sentence. While in the sentence we have the schema:

Figure 2.

TOPIC(=NP+*wa*) PREDICATION

in the paragraph, we have particle *wa* reaching across the sentence boundary, (*piriodo-koe*) of Mikami (1960), as in:

Figure 3.

TOPIC(=NP+*wa*) $PREDICATION_1$
(ellipsis) $PREDICATION_2$
.....
(ellipsis) $PREDICATION_n$

So, NP+*wa* in a paragraph extends not only over one predication but also over a multi-predication (see Note 6). Such behavior of NP+*wa* is not only typical of literary texts but is also common in plain, non-literary narratives.

On the other hand, a closer look at the topic chain reveals something else. What we have in Table 6. is not a series of topic paragraphs, each with a different topic, but a series of paragraphs sharing the same topic. Schematically, the situation looks like a series of multi-predication clusters all sharing the same topic X+*wa*, as is shown in Figure 4. below:

Figure 4.

X *wa* P_1 /content boundary/
.....
P_m
X *wa* Q_1 /content boundary/
.....
Q_n
.....

We shall deal with what is behind this peculiar behavior in more detail in the following sections.

5.3 HYPOTHESIS REGARDING NP+*WA* AS A BOUNDARY MARKER

Regarding the use of *wa*-topic, I thus take the view that the speaker/writer directs the flow of information, at each step of the communication process, by, among other means,

choosing a topic deemed appropriate and using it as a peg on which to hang new content. From the speaker/writer's point of view, explicit mention of a new topic thus signals to the hearer/reader the shift in topic and also, at the same time, that a shift of content is to be encountered in the incoming discourse. Thus NP+*wa* is associated in the hearer/reader's mind from the beginning with the shift of content. This can be confirmed also by the strong correlation of content boundary perception and NP+*wa* at the head of a topic chain, where it serves to introduce major shifts in content, as can be seen in Table 7. below.

Table 7. *Correlation between perception of boundary and referential form at the head of a topic chain (see Note 7).*

		Referential form		Remarks
		NP+*wa*	**Ø, NP+other**	
Content boundary perceived immediately before the ref. form	**YES**	18	3	(Ø=1, NP+OTHER=2)
	NO	2	4	(Ø=1, NP+OTHER=3)

$Chi^2_C = 4.22$, $P_C < 0.05$

It therefore follows that at the beginning of a topic chain, NP+*wa* serves two functions at the same time: firstly, as an explicitly marked topic establishing the new topic chain, and secondly, from its strong association with the content boundary, as its indirect marker.

Since in the middle of the topic chain the topic is already established, the contribution of NP+*wa* as an explicit topic in such a position is not particularly important. Thus, the function of boundary marker may become more prominent.

The hypothesis I would like to advance here, is that *wa*-topics (expressed as NP+*wa*) in the middle of a topic chain, are actually perceived as boundaries between different chunks of content.

This implies the perception of NP+*wa* as a delimiter. Further, taking into account the systematic association between NP+*wa* and sentence-final modality form, as discussed in section 2.2, it is also possible to hypothesize that the formal bracket structure (TOPIC – MODALITY) is actually perceived as a bracket structure and would thus contribute to an even more efficient perception of content boundary.

Thus, in either case, i.e. taking NP+*wa* either as delimiter or in combination with sentence-final modality as a bracket structure, it can be expected that a systematic perception of content boundaries will be observed in its vicinity.

5.4 SURVEY

In order to assess the connection between NP+*wa* and perception of content boundaries, a survey was carried out with eight Japanese native speakers as participants. They were asked to point out the perceived content boundaries in the text of "Rashômon". An example of the resulting frequency of each individual content boundary thus pointed out is shown in Table 6. above, in square brackets immediately to the right of the sentence number under

the heading "Content boundary (freq.)". As can be observed in Table 6., in the vicinity of locations where content boundary was perceived, the referential form in the topic chain tended to be either NP+*wa* (shown in the Table as NP+*wa*) or NP+CP+*wa* (shown in the Table as NP+CP+*wa*).

In Table 6., the use of a full referential form for *wa*-topic in sentence #80 can be explained by the fact that the topic, *kono otoko no aku wo nikusimu kokoro wa* (lit. "this man's heart hating the evil") is a topic derived (i.e. "a part of the whole") from *genin* (servant) and therefore has to be expressed in its full form. Here we actually have a subtle, albeit perceptible, shift in content, shifting the focus of narrative from the servant's actions to his mental state.

The use of NP+CP+*wa* can be explained by the fact that ellipsis (zero referential form) cannot be accompanied by an oblique case particle (as for example *genin ni wa* in sentence #81 and *genin ni totte wa* in sentence #83) and therefore, there has to be some sort of full form used. Incidentally, no content boundary was perceived at this point.

On the other hand, g*enin+wa* appears in sentences # 84 and #85. In both sentences, there is also an additional expression, a modal adverb or a conjunction, preceding the *wa*-topic.

In sentence #84, the boundary was perceived (albeit weakly, i.e. one out of eight) in the vicinity of NP+*wa*, expressed as *genin wa.* The modal adverb *motiron* (of course) definitely is an amplifying factor as a signal of boundary.As I will argue in Chapter 5, the agreement of adverb with corresponding sentence-final modality also serves as a kind of bracket signaling content boundary. However, since we are still in the same topic chain, and the preceding explicit mention of the topic is just in the preceding sentence, according to Givón's previously mentioned rule of thumb, the servant should be safely established as a topic, and it would be expected that he be referred to with zero-form. Therefore, the explicit expression of*genin wa* should be redundant unless it performs some additional function.

We have a comparable case in sentence #85. In this sentence, the conjunction *soko de* (so) precedes the phrase *genin wa.* At the beginning of this sentence, the majority of participants (six people out of eight) pointed out a content boundary. Therefore, the perception of boundary may be due to the conjunction *soko de* (so) as much as to *wa*-topic. This is probably true and it is this that is probably reflected in the high degree of agreement among the participants. But again, sentence #85 is also perfectly possible in the same context with the topic expressed as zero form, since the full form is at that point redundant having been mentioned just in the preceding sentence. As in the previous case, there must again be some additional reason for *wa*-topic to be nevertheless expressed explicitly. This observation is strengthened by sentence #86, introduced by the conjunction *sosite* (then). In this sentence, the topic is ellipted as would be expected. At the same time, only one out of eight survey participants perceived a boundary in content at this point. This points to the fact that with the absence of NP+*wa* and on the strength of conjunction alone, the perception of boundary seems to weaken.

As regards the fact that NP+*wa* or any other expression can signal content boundary, it must be noted that there are cases, such as in sentence #83, where there may be both

a conjunction *sikasi* (but) and NP+*wa* but nonetheless there is no content boundary perceived. Therefore, perception of boundary and association of this perception with particular referential forms has to be thought of not as categorial but as probabilistic.

5.5 NP+*WA* AS A BOUNDARY MARKER

In this section the hypothesis stated in section 5.3., i.e. that *wa*-topics in the middle of a topic chain provide the reader/hearer with a clue for content boundary, will be tested.

To test this hypothesis, frequencies of particular referential forms appearing in the topic chain were cross-tabulated with the frequency of perception of content boundary, as shown in Table 8. below.

Table 8. *Correlation between perception of boundary and referential form in the middle of a topic chain*

		Referential form in the middle of a topic chain		**Remarks**
		NP+*wa*	**Ø, NP+other**	
Content boundary perceived immediately before the ref. form	**YES**	15	12	(Ø=7, NP+OTHER=4)
	NO	6	27	(Ø=24, NP+OTHER=3)

$Chi^2_C = 7.548$, $P_C < 0.006$

In Table 8, in agreement with the hypothesis, a pronounced correlation between NP+*wa* in the middle of the topic chain and the perceived boundary can be observed. In addition, other referential forms are mostly ellipses (zero referential forms), which is in agreement with Givón's (1983) rule of thumb.

As examples of NP+*wa* usage in Table 6. show, and as can be expected in general, even in the special case where *wa*-topic is in the middle of a topic chain, this is not the only factor that influences the perception of content boundary. There are many other means, such as conjunctions, modal adverbs, periods (in written texts), etc., contributing to this perception. But since *wa*-topic nonetheless appears at points where zero referential form would be expected, according to Grice's (1975) Maxim of Quantity, (cf. also Chapter 5 for more detailed discussion), there must also be some additional function performed by *wa*-topic in such cases. It would be too hasty though to immediately jump to the conclusion that this additional function is that of marking content boundary.

An examination of just a short segment of "Rashômon", shown in Table 6, is already quite instructive in this respect. For example, the full form *wa*-topic in sentence #84 may delineate a switch between the servant's lenient attitude towards his own thoughts about becoming a thief, and his negative feelings about the old woman's actions in #83. Each sentence thus represents a distinctive chunk of information about the servant, and the use of the full form for *wa*-topic, together with the sentence-final modality form, helps frame each chunk as such. Thus we do actually have a kind of bracket structure, framing and

singling out each individual chunk as a distinct piece of information.

On the other hand, there are cases, such as #82, where the topic is ellipted even though there is a gap in content compared with the previous sentence. Sentence #81 is presented as a premise, and #82, accompanied by the conjunction *sitagatte* (consequently), as a logical conclusion.

From the examples above it is possible to conclude that the primary motivation for the use of NP+*wa* in the middle of a topic chain is to signal a shift in content. Yet by his choice of either using it or using a zero referential form instead, the author is actually employing it as a content boundary marker. By choosing the zero referential form, the author can present a given segment as a unit, and by choosing the full form, he can indicate a boundary between even subtle changes in content.

To sum up, the author can choose between NP+*wa* and zero referential form to organize his narrative in two ways. One is to use *wa*-topic (including those forms with oblique cases) to introduce new topic chains or to switch between established ones, thus imposing a kind of rough-grained framing of a narrative. The other, discussed above, provides a more fine-grained framing within a particular topic chain. In other words, within the same topic chain, the author can frame the information pertaining to a particular topic either as a series of longer chunks or as a series of quickly successive chunks presented as distinct information, thus also influencing the rhythm of the narrative on a finer scale.

5.6 NP+*WA* IN THE MIDDLE OF A TOPIC CHAIN: BRACKET OR DELIMITER

From the preceding discussion it follows that the author can use NP+*wa* in the middle of a topic chain as a pragmatic signal of text content boundary and zero referential form as a signal of the lack of it, or in other words, as a signal of maximum continuity (see also Givón 2005: 136). Further, the agreement-like association of *wa*-topic with the sentence-final modal form could lead to the conclusion that what we have is actually a bracket structure, i.e. the reader/hearer may infer that a certain segment of text contains a distinct chunk of information if such a segment is sandwiched between a *wa*-topic and the sentence-final modal form accompanying it.

In fact, as Noda (1995) has shown (see Chapter 1. of the present study), *wa*-topic is associated with modalities (assertion, negation) that can also be associated with many other categories of extrapolated (*toritate*) elements appearing in the main clause of the sentence. Because of this multiple association of the sentence-final modality form with various types of extrapolating (*toritate*) particles, it is probably usually very difficult for the final modality form to be predicted on the basis of *wa*-topic alone.

On the other hand, as Kinsui (1995) argued, there is a strong association of *wa*-topic with the sentence-final tense-aspect form *-ta* in narrative (the so-called *katari no wa*).

In his short paper, Kinsui (1995) outlined how *katari no wa* (the *wa* in narrative use) evolved. *Katari no wa* appears in agreement with the predicate in *-ta* form. Being one of the ways of presenting topic in the text, the role of *katari no wa* in the context is to organize the content of narrative.

The gist of Kinsui's paper is as follows:

a) such usage of *wa* cannot be observed in classical texts. The topic was presented without a particle that would mark it as such;
b) from available texts dating from the Edo period, it seems that in spoken language, *wa* was already being used as a topic marker in narratives;
c) such usage of *wa* became widespread after the *genbun-itti* movement succeeded in making spoken language the basis for the new written language standard and is one of the characteristic usages of particle *wa* in modern language;
d) this function of *wa* in narrative use emerged naturally.

One of the reasons why *wa* in narrative use could emerge in a relatively short time is perhaps its double role as a marker of content boundaries as well. As was pointed out in Chapter 1., delimiters and brackets may considerably reduce processing load, which might have influenced the development of *katari no wa*, attested by Kinsui.

On the basis of Kinsui's findings, it could be surmised that in purely narrative segments, *wa*-topics form bracket structures in association with sentence-final *-ta*. But to give a more thorough answer to the dilemma of whether NP+*wa* should be regarded as a delimiter or as a bracket structure, an analysis of the strength of association of NP+*wa* with particular sentence-final modal forms based on a larger corpus would have to be carried out. Empirical probabilities thus obtained would serve as a finer tool for understanding the role of NP+*wa* in context.

6. CONCLUSION

Several issues were examined in this chapter. Firstly, in section 2., the notion of topic was introduced and presented from the point of view of context, centering on the approaches of Iwasaki (1987), Hinds (1987) and Maynard (1987).

In section 4., empirical parameters (i.e. TQ, RD and TP) as measures of topicness, were examined from the point of view of their ability to predict appearance of NP+*wa* topics in text. From the analysis presented above it is possible to conclude that the examined parameters are, at least as far as the Japanese language is concerned, very unreliable predictors of "topicness" and the referential forms that signal it. In the light of their mechanical definition this should not surprise us.

In section 4.4. in particular, it was enlightening to see just how the mechanical adherence to one such parameter, TP, does not reveal any important and so far unnoticed facts.

As stated in section 5.2., the most important point is to define what should be considered as a topic. As we have seen, sheer mechanical repetition related to cognitive accessibility obviously is not enough. Topic is a textual phenomenon, and has to be analyzed and explained from the point of view of text. Its manifestation in some particular sentence is merely a local aspect of the complex issue we can call "topic". As can be seen from the example of the two parallel topic chains, the Servant's and the Old Woman's, "topicness"

itself is a question of speaker's choice, as are how to structure the narration and what entities to choose for this purpose. Though beginning from a different starting point, Maynard (1987) also arrives at a similar conclusion. It is this creative aspect that lays behind the elusive nature of the numerical parameters examined here.

Again, it should be stressed that the coreferential chain is just the simplest case of text coherence, of structuring a text, involving the topic entity and descriptions of actions and states centered on it. More complex ways of global structuring a text do exist as well.

Finally, in section 5.5, explicit marking of topics such as NP+*wa* was shown to be closely connected with content boundary. Here again it seems that it is up to the speaker/writer to decide when and how to use NP+*wa* to signal a boundary and thus dictate the pace of what is being told.

Also, to further clarify the choice of some particular referential form marked for topic, it is necessary to examine the coreferential chain in relation to the way the text is structured as a narration. The primary candidate for such examination would be the content paragraph structure of the text.

NOTES

[1] Original text: ...日本語には「〜は」という主題をもつ文が多く見られる。...日本語の主題をもつ文もスペイン語の主題をもつ文も、基本的にはまったく同じ構造をもつ…。

[2] A line could be drawn between shorter RDs (3 or 4) without changing the picture in any substantial way.

[3] *Wa-t*opics accompanied by an oblique case particle (i.e. NP+CP+*wa*) are excluded from this consideration, since oblique cases cannot be conveyed by a zero referential form.

[4] Thus, contrary to Givón's (1983, 1989) conjecture, the frequency of mentioning of a referent expressed as various numerical parameters, though intuitively reasonable as the measure of topicality, are just a *necessary* condition for the usage of NP+*wa* and therefore insufficient as predictors of its use. See Bekeš (2000) for a detailed discussion.

[5] It is not a coincidence that at approximately the same time, Sunakawa (2005) arrived at a similar conclusion, discovering topical chains and nontopical chains in expository prose texts. Applying the same general methodology, centered on empirical examination of whole texts, such a view was the natural outcome of the adopted methodology.

[6] Hamada (1983) gives an early and detailed account of this, based on the analysis of Japanese folk tales.

[7] Because of the small number of attested cases in cells other than "YES" **x** "NP+*wa*", the calculation of correlation is risky in this case. Nonetheless, occurrence of NP+*wa* together with the perception of boundary, abundantly outmatches both opposite cases: other forms coinciding with the content boundary perception (18:3), as well as incidence of NP+*wa* where content boundary has not been recognized (18:2). Therefore, it is still possible to conclude that the form NP+*wa* is strongly associated in the readers' minds with content boundary.

CHAPTER 5
STRUCTURE, PROBABILITY AND SPEAKER-HEARER INTERACTION

1. INTRODUCTION

1.1 ABOUT THIS CHAPTER

In this chapter, I will examine the role of co-occurrences of suppositional adverbs, such as *tabun* (probably), and utterance-final modal forms, such as *daroo* (probably), in speaker-hearer interaction. Two corpora of spoken Japanese were analyzed with regard to such adverb – predication – utterance-final modality type utterances. Frequent co-occurrence of adverb and modality form, implying probabilistic bracket-like behavior, seems to trigger more frequent interventions by the hearer in the immediately preceding vicinity of modal forms. This is in line with the hypothesis that such highly predictable bracket structures facilitate the hearer's processing of an incoming utterance, and points towards the probabilistic nature of the syntactic structure emerging from highly probable configurations in discourse.

1.2 REDUNDANCY IN EXPRESSION OF MODALITY: BRACKET STRUCTURES

From the point of view of discourse, modal meanings are interesting, because although their expression is structurally bound to sentences their scope tends to converge with discourse units in conversation. In the spoken Japanese corpora used in this study, up to about 10% of suppositional modality meanings seem to be expressed by the apparently redundant combination of suppositional adverb (*suiryoo hukusi*) and some corresponding utterance-final modality form, as in Example 1. below:

Example 1. *(same as Example 3., Chapter 1.)*

... ***dooyara*** *kono mati ni mo gonin gurai wa i -ru* ***rasii*** ...

somehow this town at too five-persons about *WA* are *-RU* it_seems

WA: CONTRAST; *-RU*: NON-PAST-AFFIRMATIVE

... somehow, it seems as if there should be about five [of them] in this town, too...

This redundancy is not limited to combinations of suppositional or, more widely, modal adverbs and the sentence-final modality form alone. It is common with other adverbs as well, as for example, adverbs modifying restrictive particles, as in Example 2. below:

Example 2. *(internet commercial)*

*...**tatta** muttu-no seibun **dake**...*
just six -of ingredients only
…no more than just six ingredients…

This seems to be a widespread tendency in Japanese. The "onion-like" property of Minami's model (discussed in Chapter 1. of the present study, cf. Minami 1964, 1974, 1993; Szatrowski 2002) may be a wider reflection of the phenomenon. Furthermore, this bracket-like redundancy is not limited solely to the Japanese language. It is present both in typologically similar Korean (H. Ryu, personal communication), and in typologically different modern Chinese, as in the example given below:

Example 3. *(Chu 1998:91)*

Keshi** Riwen hen nan **ou!
but Japanese very hard OU!
But Japanese is very hard, let me warn you!

Thus, bracket-like structures related to modality expressions seem to be a rather common phenomenon, present in different languages. This phenomenon also seems to be connected with various issues related to speaker-hearer interaction.

Previous research studies on speaker-hearer interaction have pointed out the contribution of case and topic particles (Tanaka 2000) as well as that, among other factors, of modal adverbs (Szatrowski 2002) towards syntactic projection. Szatrowski (ibid. 319–320) further argued that the combination of a suppositional adverb and an utterance-final modality form seem to facilitate syntactic projection and thus prediction of the incoming discourse.

On the other hand, however, empirical studies (cf. Kudoo 2000; results subsumed in Table 1, section 2.2.2) show that the range and likelihood of sentence-final modality forms co-occurring with suppositional adverbs vary considerably from adverb to adverb.

It is therefore possible to put forward the conjecture that the degree of predictability of some particular sentence-final or utterance-final modality forms is commensurate with the frequency, and by extension the probability, of co-occurrence with certain suppositional adverbs.

1.3 AIMS OF THIS CHAPTER

The aims of this chapter are twofold: firstly, to examine the conjecture put forward above and secondly, to pinpoint a possible motivation for such redundant co-occurrences. Basing my analysis on Kudoo's (ibid.) empirical research on suppositional adverbs, I will limit the scope of the present chapter to suppositional modality in Japanese and will focus on discourse aspects of the redundant way of expressing modality in the spoken language as

illustrated in Example 1. By examining the effects of such redundancy on speaker-hearer interaction, I will attempt to confirm the above conjecture and to elucidate what motivates the emergence of this 'quasi-grammatical' (cf. Kudoo ibid.) redundant relationship between suppositional adverbs and utterance-final modality forms. In particular, I will examine prediction and disambiguation, two functions that, as we have seen already in Chapter 1. of the present study, go hand in hand with bracket structures.

One important factor influencing the frequency and role of such redundancies, is the structure of context, i.e. specifics of **field** and **tenor** (cf. Halliday 1978). Namely, for longer utterances in more formal contexts, it would seem that modal brackets are primarily employed for disambiguation as would be expected from the bracket model. On the other hand, in more informal contexts, brackets seem to put the relevant segment of utterance into a kind of prominent focus.

The methodology here is consistent with the position taken at the beginning of the present study, i.e. a view of language phenomena as essentially probabilistic with structural aspects emerging from continuously repeated linguistic interaction. It is empirically oriented, being based on an analysis of two spoken Japanese corpora: Oikawa (1998), a corpus of formal inteviews; and Ohso (2003), a corpus of spontaneous informal conversations carried out at the University of Nagoya.

2. MODAL ADVERBS AND CO-OCCURRENT FORMS IN JAPANESE

2.1 MODAL ADVERB BASED BRACKET STRUCTURES IN JAPANESE SENTENCES

As a group, modal adverbs exhibit a rather unruly behavior and Kudoo (2000) gives one of the first systematic treatments of the whole related field. According to Kudoo (ibid.: 185–6), the function of modal adverbs is to secondarily reinforce the primary sentence and predicate modality.

Kudoo (2000: 188) describes the characteristics of **modal adverbs,** *zyoohoo hukusi* in his terminology, as follows:

> Modal adverbs, when necessary, stress or determine the degree of modality of a particular predicate or make the sentence modality more explicit. Syntactically they are not obligatory, which means that in the sense that they are optional and not compulsory, they as linguistic means belong to 'lexical' (not grammatical) means (R. Jakobson). Yet, in the sense that their lexical content refers only slightly to substantial notions and that they possess very strong relational properties, modal adverbs are also 'grammatical' means.
>
> (Translation A. Bekeš)

This hybrid property of modal adverbs was presumably arrived at by a gradual process of strengthening mere possibilities of co-occurrence of particular elements within the clause into tighter relations of agreement, though the extent to which this happened differs

for different modal adverbs. The results presented in Table 1. in section 2.2.2. (Kudoo 2000: 204, Table 3.1.) are very instructive in this respect, showing, on a corpus of texts, the convergence of suppositional adverbs (*suiryoo hukusi*) towards particular sentence-final modalities as a statistical trend.

Kudoo (ibid.: 191) subdivides modal adverbs into two groups on the basis of agreement: those that display agreement and those that do not. Those displaying agreement are more frequent and include modality related to: i.) activities; ii.) cognition; and iii.) conditionals. Modal adverbs without agreement belong to various cases of submodality.

Here, I will present some examples from Kudoo (ibid.) to illustrate possibility of agreement of modal and certain other types of adverbs with specific modal meanings and non-modal meanings such as completive, restrictive etc., resulting in bracket like configurations.

Firstly, Kudoo demonstrates that there are certain types of adverbs, such as **evaluative adverbs** for example *hizyooni* (extremely), that cannot co-occur with imperative, decisive or invitative modality expressed by the suffix *-nasai* (a polite request), as is shown in the example below:

Example 4. *(Kudoo ibid.: 226)*

??	***Hizyoo-ni***	*hayaku*	*hasiri-**nasai***
	very	fast	run -IMPERATIVE

On the other hand, there are types of adverbs that can co-occurr with corresponding types of aspect or modality with no problem. The following examples are based on Kudoo (2000).

Example 5.

a.	***Moo***	*ki*	***-ta.***	(ASPECT – COMPLETIVE)
	already	come -COMPLETIVE		
	<	>		
b.	***Mosi***	*ame-ga*	*fut-**tara** …*	(HYPOTHETICAL CONDITION)
	if	rain-NOM.	fall-CONDITION	
	<		>	
c.	***Doozo,***	*kotira-ni*	*kite-**kudasai**.*	(REQUEST)
	please	here -to	come-REQUEST	
	<		>	
d.	***Tabun***	*kuru*	***daroo.***	(EXPECTED)
	probably	come	copula-EXPECTED	
	<		>	

Example 5a. shows the aspectual adverb *moo* (already) co-occurring and semantically agreeing with suffix *-ta*, here marking a completive event. 5b. is an example of conditional modality, with the conditional adverb *mosi* co-occurring and in semantic agreement with the conditional conjunctive particle *–tara*, expressing hypothetical condition. Example 5c. is a request, with the adverb *doozo* (please) semantically agreeing with and amplifying *-kudasai*, modality form expressing request. The last example, 5d., belongs to suppositional

modality, with the adverb *tabun* (probably) amplifying and semantically agreeing with the utterance-final form *daroo* (probably).

In all the above examples, it is clear that modal (and also some aspectual) adverbs not only amplify the primary meaning, such as a particular type of aspectual meaning or modality, but also serve another function. They actually explicitly mark, and thus delimit in a bracket-like fashion, the scope which falls under some particular modal or aspectual meaning. The scope lies between the adverb and the corresponding modality form or aspect marker. This bracket-like property is shown by "<....>" below the elements that are in agreement (printed in bold).

There is another type of nonmodal adverb, i.e. *toritate hukusi* (extrapolating adverbs) which serve to reinforce *toritate* (extrapolating) discourse particles, that also displays the same property, as illustrated in the example below.

Example 6. *(Kudoo ibid.: 180)*

Tada	*kimi*	***dake***	*ga*	*yuitu-no*	*tayori*	*da.*	(RESTRICTIVE)
only	you	only	NOM.	only GEN.	depended	copula	
<		>					

In this example, the adverb *tada* (only) amplifies the restrictive discourse particle *dake* (only), both semantically and structurally, by marking and thus delimiting the extrapolated element of the sentence in a bracket-like fashion. This is how *toritate* (extrapolating) adverbs function in general.

Thus, from the above examples, it can be seen that not only modal but also some other types of adverbs amplify the modality or aspectual meaning of either the sentence or the predicate, or in the case of *toritate hukusi*, the meaning of a particular *toritate* discourse particle. They do so, not only by contributing their rarefied modal meaning as surmised by Kudoo above, but also by providing a bracket-like structure that explicitly delimits the scope of modality, temporality or extrapolation of some particular *toritate* discourse particle.

In the remainder of this chapter, I will focus on one particular type of modal adverb – utterance-final modality agreement, i.e. that related to suppositional modality.

2.2 CO-OCCURRENCES OF SUPPOSITIONAL ADVERBS AND UTTERANCE-FINAL MODALITY FORMS

2.2.1 Expression of suppositional modality in conversation

Suppositional modality in conversation data can be expressed in different ways and the semantically redundant co-occurrence of the modal adverb with the utterance-final modality form is one of several possibilities. As shorthand to distinguish the different types more easily, A will be used for MODAL ADVERB, M for UTTERANCE-FINAL MODALITY FORM, P for predication in between, and Ø when neither A nor M were expressed explicitly. Based on this convention,

different types can be distinguished. Example 1. above, illustrates the semantically redundant utterance type A-P-M. Other basic types are shown in Example 7. below:

Example 7. *(Nagoya University Japanese Conversation Corpus, Ohso 2003.)*

a. *zyuuhati dewa-nai* ***n-zyanaika*** [utterance type Ø-P-M]
18 is-not EXPECTED
(she) is not 18, I would say

b. *I.Z.-mo issyo-ni kita* ***desyoo*** *ne…,* ***tabun*** [utterance type P-M-A]
I.Z.-also together came POSSIBILITY TAG likely
probably, I.Z. did not come together either, did she

c. ***tabun****, daizyoobu ø* [utterance type A-P-Ø]
likely, all right copula=Ø
[it is] probably all right

d. ***tabun****, ne* [utterance type A]
likely, TAG
perhaps, isn't it

e. ***desyoo****, ne* [utterance type M]
POSSIBILITY TAG
perhaps, isn't it

Indeed, modal adverbs and utterance final modality forms do co-occur quite often, but the overall picture is more complex. Modality, in the majority of utterances, is only expressed by the utterance-final modality form, as in Example 7a. These are utterances of the Ø-P-M type (no modal adverb, and a predication and utterance-final modality form M). Often, the modal adverb is added as an afterthought, as in Example 7b. These are utterances of the P-M-A type (i.e. predication, utterance-final modality M and modal adverb A).

Or, as in Example 7c., it is the modal adverb alone that provides specific modality, with the utterance-final modality form being omitted or simply expressing a general assertion (a subtype of A-P-Ø). Finally, there are cases where only modality is asserted, either with the modal adverb alone, as in Example 7d. (utterance type A), or, as in Example 7e, with the utterance-final modality form alone (utterance type M). The type of each utterance in the above examples is indicated in square brackets down the right-hand side.

2.2.2 Co-occurrences of A and M in A-P-M type utterances

Kudoo (ibid.) made a detailed analysis of co-occurrences of suppositional adverbs with sentence-final modality forms on a large corpus of written language data (about 100 million characters). The co-occurrence frequencies are given in Table 1. below. As can be seen from the table, suppositional adverbs fall roughly into four groups that correlate in their co-occurrences with four types of suppositional modality. The adverbs: *kitto* (surely) and *zettai (ni)* (absolutely) correlate with NECESSITY; *osoraku* (probably) and *taigai* (mostly) correlate with EXPECTED; *dooyara* (somehow) and *yohodo/yoppodo* (very) with CONJECTURE; and *aruiwa* (perhaps) and *angai* (fairly) with POSSIBILITY. Cluster analysis confirms these correlations (cf. Srdanović et al. 2008).

Table 1. *Co-occurrences of A and M (Kudoo 2000:204, Table 3.1, glosses and bold numbers by A. Bekeš)*

PREDICATE FORM & MODALITY TYPE / **ADVERB**	*suru no da* (NECESSITY)	*ni tigainai* (NECESSITY)	*ni kimatteiru* (NECESSITY)	*--hazu da* (NECESSITY)	*daroo / mai* (EXPECTED)	*to omowareru* (EXPECTED)	*no dewa nai darooka* (EXPECTED)	*-- rasii* (CONJECTURE)	*-- to mieru* (CONJECTURE)	*yoo da / mitai da* (CONJECTURE)	*-- sisoo da* (CONJECTURE)	*kamosirenai* (POSSIBILITY)	*-- darooka* (POSSIBILITY)	*senu tomo kagiranu* (POSSIBILITY)	*suru,tusi ga aru* (POSSIBILITY)	**TOTAL**	**OTHER USAGES (NON MODAL)**
kitto 'surely'	**139**	**38**	**8**	**3**	66	12				1	4	8				279	85
kanarazu 'certainly'	**17**	**5**	**2**	**1**	11											36	146
zetttai(ni) 'absolutely'	**48**															48	38
osoraku 'probably'	31	18		1	**112**	**5**	**10**	2		1		2				182	--
tabun 'likely'	19	1		2	**74**		**1**	1			2	3				103	--
sazo 'surely'					**52**		**1**				1					54	--
ookata 'probably'	2	1			**24**		**1**									28	13
taitei 'usually'	3			1	**7**											11	80
taigai 'mostly'	2				**4**											6	33
dooyara 'somehow'	5						1	**29**		**10**					1	46	39
doomo 'somehow'	13	1					6	**24**				1				45	385
yohodo -yop-podo 'very'	6	2			7		2	**12**	**9**	**3**			2			43	150
aruiwa 'perhaps'					3	2	4					**53**	**3**	**1**		66	69
mosikasureba 'maybe'	2			1	1	1	11					**30**				46	--
hyottositara 'possibly'	2						7					**16**	**1**			26	--
kotoniyoruto 'possibly'	1						4					**7**	**1**	**1**		14	--
angai 'fairly'		1			1		3	1			1	**8**				15	81

Following Kudoo, co-occurrences of suppositional adverbs and sentence-final modality forms were tabulated for conversation data in the Oikawa (1998) corpus. Oikawa (1998) is a corpus of 50 interviews in Japanese, with interviewers and interviewees being Japanese native speakers, originally published in HTML format and reduced to text file format for the purpose of this study. The tabulated co-occurrences are shown in Table 2 below.

Table 2. *Co-occurrences of A and M (Oikawa 1998)*

PREDICATE FORM & MODALITY TYPE / **ADVERBS**	*…noda /…n desu* (NECESSITY)	*hazu da* (NECESSITY)	*(n) daroo/* (n) desyoo (EXPECTED)	*to omou* (EXPECTED)	*suru koto ga aru* (EXPECTED)	*(n) zyanaika,* (EXPECTED)	*yoo da / mitai da* (CONJECTURE)	*yoona ki gasuru / yoo ni omou* (CONJECTURE)	*kamosirenai* (POSSIBILITY)	*(n) darooka (n)desyooka* (POSSIBILITY)	*da / desu / dearu / dewanai* (UNMARKED)	*suru /simasu / sinai* (UNMARKED)	**TOTAL**	**OTHER USAGES**
kitto 'surely'			3	4	1				1				9	
kanarazu 'certainly'	1	1		2							4	7	15	
osoraku 'probably'	2		1			3					1	1	8	
tabun 'likely'	2		2	26		4	1		1		4	1	41	4
ookata 'almost'					1								1	
taitei 'usually'	1			1		1					2	3	8	1
doomo 'somehow'	1					1		2				3	7	1
yohodo-yop-podo 'very'	1												1	
aruiwa 'perhaps'														12
mosikasitara 'maybe'			1			1			5	1		1	9	3
hyottositara 'possibly'												1	1	
kanarazusimo …nai 'not necessarily'									1		4		5	
angai 'fairly'						1							1	

Since Kudoo was working with written data, his set of suppositional adverbs is actually larger and encompasses the set of suppositional adverbs found in Oikawa (1998). The size of the Oikawa data is about 1% of the data used byKudoo. Because of the small size of the Oikawa data, the correlations of adverbs and modal meanings are not as clear-cut as inKudoo's data. A substantial proportion of co-occurrences belong to just one adverb, i.e. co-occurrence of the adverb *tabun* (probably) with various utterance-final modality forms (about 42%), with *tabun to omou* (I think that) comprising about 27% of all co-occurrences. Spoken data, with less time for planning, thus reflect a less complex picture than written data.

2.2.3 Structural and probabilistic view of modal adverb – utterance-final modality form pair

In Minami's model, modal adverbs and sentence-final modality forms belong to the mirrored non-predicate components and predicate elements of level C of his layered sentence structure (cf. Table 1. in Chapter 1., section 6.1.).

In corpus linguistics, systematically co-occurring forms are analyzed as collocations. In this sense modal adverb – utterance-final modality form co-occurrences are also collocations, though this does not only concern neighboring or nearby elements but, in principle, also collocations over a long distance. In the probability theory, these long distance collocations, as all collocations, would be a kind of Markoff chain (cf. Manning and Schütze 1999), though of a rather particular kind which has not received much attention so far in natural language processing, i.e. the 'long distance binary Markoff chains'.

Another way of looking at these collocations is as bracket-like structures (cf. Chapter 1. of the present study; also Bekeš 2007). Structurally, in each particular sentence, they actually bracket off the scope of the particular modality being expressed by them. In Example 1. for instance, the scope of the particular suppositional modality, bracketed by the adverb *dooyara* (somehow) and the sentence-final modality form *rasii* (it seems), is *kono mati ni mo gonin gurai wa i-ru* (there should be about five [of them] in this town, too). Thus, such bracket structures can be seen as a means of reducing the indeterminacy of the information that is conveyed by the speaker to the hearer. The speaker wishes to explicitly mark the scope of modality and has the means at his disposal to achieve his/her goal. So, from the speaker's point of view there is nothing indeterministic going on. From the speaker's point of view (and equally also based on *ex post facto* conversation analysis) it is indeed possible to speak of an A-M pair (e.g. in Example 1. *dooyara,* somehow and *rasii,* it seems) as a bracket, delimiting the scope of modality in a deterministic sense.

On the other hand, from the hearer's point of view, the appearance of the modal adverb itself triggers the conditional probabilities of utterance-final modality forms or types that tend to co-occur with the initial modal adverb. On the basis of these probabilities, the hearer is able to restrict the range of possibilities of interpretation and thus process the incoming information more efficiently. Thus, from the hearer's perspective, the A-M pair is a binary Markoff chain, where, with any given modal adverb the utterance-final modality form appears with certain conditional probability ascribed to their co-occurrence.

2.3 PROBABILISTIC NATURE OF A-P-M TYPE UTTERANCES AND THEIR MARKEDNESS

2.3.1 Relevance of adverb – utterance-final modality option

As has been argued in section 2.1. above, A-P-M type bracket structures are semantically redundant. On the other hand, Grice's Maxims of Quantity (cf. Grice 1975) state that over-informative contributions are not acceptable:

> 1. Make your contribution as informative as is required (for the current purposes of the exchange).
> 2. Do not make your contribution more informative than is required.
>
> (The second maxim is disputable; it might be said that to be over-informative is not a transgression of the CP but merely a waste of time. However, it might be answered that such over-informativeness may be confusing in that it is liable to raise side issues; and there may also be an indirect effect, in that the

> hearers may be misled as a result of thinking that there is some particular POINT in the provision of the excess of information. However this may be, there is perhaps a different reason for doubt about the admission of this second maxim, namely, that its effect will be secured by a later maxim, which concerns relevance.)
>
> (Grice 1975: 45–46)

If these maxims are heeded by the speaker, then the redundancy of the A-P-M type bracket structure should therefore be unacceptable, or less acceptable, because it breaches the second maxim and therefore should not exist. However, as modality is sufficiently frequently expressed in such redundant expressions as to guard against accidental slips of tongue, it must therefore follow that to express it in such a redundant way has to be relevant for the hearer in some other way than can be deduced from the context. Over-informativeness of the A-P-M type thus makes such utterances marked as compared to the unmarked P-M option of expressing modality.

2.3.2 Markedness of A-P-M Type of expressing modality in statistical sense

As I will argue in this section, compared to simply using utterance-final modality form, the A-P-M type of expressing modality is also marked in the statistical sense (cf. Halliday 1991:33–40). This is in principle true not only of suppositional modality but also of other modalities allowing for redundant bracket-like expressions. According to Halliday (ibid.:35), when their proportion in the binary system of choices with skewed distribution of choice probabilities is in the vicinity of about 1:10, the choice which is less probable (i.e. less frequent) tends to be perceived as marked.

For example, the conditional adverb *mosi* (if) co-occurring with utterance-final conditional modality forms (*tara*, if; *(re)ba,* if; *temo,* even though*;* etc.) appears in the Ohso (2003) corpus in 72 cases, while there are 5348 cases of utterance-final **conditional modality forms** appearing alone. The proportion of the two is in the range of 1:100. On the other hand, there are also 744 cases of *mosi* observed alone. The proportion of bracket-like form and *mosi* alone is approximately 1:10. It is thus possible to conclude that the bracket-like expression of conditional modality is marked in relation to both modality expressed by utterance-final form alone, and to modality expressed by the conditional adverb alone.

The same skewed distribution can also be observed in the case of suppositional modality. The suppositional adverb *tabun* (probably) collocated with *daroo* (probably) in the semantically-redundant bracket structure, appears in the Ohso (2003) data 39 times, as opposed to *daroo* alone appearing 2222 times (the proportion being roughly 1:100), and to *tabun* alone appearing 558 times (the proportion being roughly in the range of 1:10).

Based on Halliday's observations above, it can be concluded that the A-P-M option of expressing suppositional modality is, in addition to being marked in Grice's sense, also marked in the statistical sense as compared to the use of utterances with either M alone or A alone.

2.4 HYPOTHESIS

The observations regarding the probabilistic aspect of the bracket structure in section 2.2.3. hold only for utterances of the A-P-M type where the modal adverb A provides advance clues to the hearer. An example where a particular adverb is only weakly associated with some modality forms is in the adverb *doomo* (somehow), see Table 2., which co-occurring in similar frequencies with many different types of modality forms can only vaguely signal what modality form is going to appear at the end of the utterance.

On the other hand, there are adverbs, such as *tabun* (probably), co-occurring in Oikawa data (Table 2.) with the modality type EXPECTED 32 times out of 41, i.e. in 78% of all cases, which can be a strong predictor of the utterance-final modality type and thus of understanding the whole relevant segment as belonging to this modality type even before the completion of the utterance. This observation together with the observations from section 2.2.3. above, form the basis of the following hypothesis:

> **Hypothesis**
>
> In speaker-hearer interactions, in utterances of the A-P-M type, the adverb – utterance-final modality form combinations with a higher co-occurrence probability will enable the hearer to better predict the scope of a particular modality as well as the timing of the relevant incoming predicate, as compared to the adverb – utterance-final modality form combinations with lower co-occurrence probabilities.

This hypothesis will be tested on the two corpora used in this study, Oikawa (1998) and Ohso (2003).

3. SPEAKER-HEARER INTERACTION: HEARER'S INTERVENTIONS

In Japanese utterances, the canonical position of modality forms is after the predicate. In this respect, as has been argued by Szatrowski (2002), the layered structure of the Japanese sentence, see Table 1. of Chapter 1., section 6.1. (cf. Minami 1993), is an important clue in predicting its timing in the ongoing discourse. The problem is that quite often, because of their spontaneity, conversational data are not well structured in this respect. Example 8. below is an illustration of such data.

In conversation, speakers and hearers tend to cooperate. During the conversation, the hearer may intervene in various ways, by *aizuti* tags, co-constructions and taking turns to speak. Various examples of such interventions are shown in Example 8., a segment of an interview; P being the interviewer and Y the interviewee. The hearer's interventions are shown in [ ].

Example 8. *(Oikawa 1998)*

Y:/*etto, sensei ga ossyatta hutatume no*	well, the second thing that you said
[P:*hai* yes] *ano, koyuu no*,	well, in particular...
[P:*un* yeah] *katati o sorezore no, tiiki de*	the form, in each of the regions
[P:*ee* yeah] *mezasiteiru katte iu,*	[that they are] striving at,
[P:*un,un* yeah, yeah] *situmon ni mazu okotaesuru to*,	let me answer [this] question first
[P:*ee* yeah] ***TABUN*** *zyoohoo mo,*	**PROBABLY** the information, as well
[P:*un* yeah] *moo sekaizyuu, sugu ni nagareru,*	is already flowing everywhere in the world
[P:*un* yeah] *syakai desu node*,	because [it is such a] society
[P:*soo desu yo nee* right, of course] *ano daitai ugoki to iuka nagare to site wa*,	well, the movement, or shall I say trends
[P:*uun* yeah] / *anoo, / dandan issyo*	well, getting together more and more
[P:*un* yeah] *, ni natte ikutte iu ka koo,*	or how should I say, thus...
[P:*un* yeah] /*ko, koyuu no, bunkatte iu ka*,	should I say the particular cultures
[P:*aaa, dakara boodaresu ni, natteiku to* yeah, therefore, by becoming borderless],*ee,*	yeah
[P:*kentiku no* of architecture] ***usuretei[ku]yoona***	**are getting dimmer and dimmer**
[P:*unun* yeah, yeah] /***ki ga surun desukeredomo.***	**it seems to be [like that]...**
P:*naruhodo nee, uun*	I see, yeah...

Example 8. is interesting because the section spoken by Y is syntactically poorly structured. Here, the "onion-like" structure proposed by Minami's model (cf. Chapter 1. of the present study) is not readily discernible. Actually, the only structure that clearly stands out seems to be the modal adverb – utterance-final modality form relationship. It thus seems that, in poorly structured utterances in spontaneous speech, A-P-M bracket structures may serve secondarily as an important means of organizing the spoken text and of thus facilitating the hearer's perception of it.

There are various types of *aizuti* tags used in Example 8. For example, shorter expressions such as *hai* (yes), signal that the hearer is following what is being said. Then, there are longer interventions showing still deeper involvement, such as *aaa, dakara boodaresu ni, natteiku to* (yeah, therefore, by becoming borderless...), where the hearer is making his or her own conclusions on the basis of what has been said but without permanently taking a turn to speak. In the Oikawa data, the co-constructions were not marked explicitly at the point at which they occurred. It is therefore not clear whether some interventions, such as the last one, could be classified as co-constructions or not. Finally, at the end of Example 8., there is an instance of the hearer taking a turn as the next speaker.

Because of the small size of the corpus, individual types of interventions were not frequent enough to guarantee a statistically meaningful observation. Therefore, in order to achieve a statistically sufficient number of cases, different types of hearer's interventions, such as

aizuti tags, putative co-constructions and taking-turns, were all merged under the common label INTERVENTION, which will be used in the remainder of this chapter.

4. ANALYSIS

In the above hypothesis, a higher frequency of co-occurrence was proposed as a clue to the hearer's better prediction of the scope of modality and thus of the timing of the predicate. Hearer's prediction is expected to be founded on the experience-based conditional probability of the utterance-final modality form (or of the utterance-final modality type) co-occurring with a given modal adverb. To proceed further, it is necessary to estimate the hearer's experience-based probabilities of such co-occurrences.

4.1 EMPIRICAL ESTIMATE OF CO-OCCURRENCE PROBABILITIES

The totality of verbal exchange of an individual up to a given point in time can be viewed as a kind of corpus. Thus an estimate of co-occurrence probabilities could be achieved by analyzing a corpus of comparable size. The size of the spoken corpora used here (Oikawa 1998 and Ohso 2003) is too small (see Table 2. for Oikawa corpus), and the frequencies of the majority of relevant co-occurrences too low, to provide a meaningful estimate. On the other hand, the frequencies obtained by Kudoo from the written corpus are high enough to warrant meaningful estimates. The size of the corpus data used by Kudoo is in itself already comparable to the amount of language data exchanged in several years' worth of conversation. Judging from the similarities and dissimilarities of the frequency distribution in Tables 1. and 2., the main difference is that some of the co-occurrences, which are less frequent in spoken data (Table 2.), tend to be more frequent in written data (Table1.). On the other hand, the reverse case, i.e. frequent co-occurrences in spoken data being less frequent in written data, does not seem to be true. If, in addition, we consider that the majority of people nowadays absorb a considerable amount of linguistic input in its written form, then, lacking a better alternative such as a 100 million word spoken corpus, the frequencies obtained by Kudoo can be taken as viable estimates for the present study.

But even in Kudoo's data it is necessary to agglomerate the individualA-P-M co-occurrences into co-occurrences of adverbs with forms belonging to one of the following four suppositional modality types, i.e. NECESSITY, EXPECTED, CONJECTURE and POSSIBILITY.

Adverb – modality type co-occurrence probabilities for individual adverbs are estimated as a percentage based on frequencies in Table 1. Empirical probability estimates for those adverb – modality type pairs that are attested in the Oikawa data are shown in Table 3a. Co-occurrence probability estimates for those adverb – modality type pairs that are attested in the NUJCC (Ohso) data are shown in Table 3b.

Table 3a. *Suppositional adverbs: empirical probability of co-occurrence with particular modality types and frequency of co-occurrences in Oikawa data (based on Kudoo 2000:204, Table 3.1)*

Adverb	Modality type	Co-occurrence probability: high-low	Empirical probability of co-occurrence	Freq. high	Freq. low
kitto 'surely'	necessity	high	0.52	9	
kanarazu 'certainly'	necessity	low	0.13		15
osoraku 'likely'	expected	high	0.7	8	
tabun 'probably'	expected	high	0.73	41	
ookata 'probably'	expected	high	0.6	1	
taitei 'usually'	expected	low	< 0.1		8
doomo 'somehow'	conjecture	low	< 0.1		*7*
yohodo – yoppodo 'very'	conjecture	low	0.12		1
mosikasitara 'maybe'	possibility	high	0.65	9	
hyottositara 'possibly'	possibility	high	0.65	1	
kanarazusimo-nai 'not necessarily'	possibility	high	0.5	5	
angai 'fairly'	possibility	low	< 0.1		1
Total number of high probability co-occurrences in Oikawa (HIGH)					**74**
Total number of low probability co-occurrences in Oikawa (LOW)					**32**

It is interesting to observe that the distribution of estimated probabilities in Tables 3a. and 3b. is bimodal. Observed empirical probabilities fall neatly into two distinct groups. In the HIGH group, there are co-occurrences with estimated probability equal to or higher than 50% and in the LOW group, co-occurrences with probability lower than 10%. The HIGH group displays 1 order of magnitude (5–20 times) larger probabilities than the LOW group – a fact that is possibly related to markedness in the statistical sense (cf. section 2.3.2. above). Exceptions are in *kanarazu* (certainly), where empirical probability of co-occurring with NECESSITY is 13%, and *yohodo/yoppodo* (very), where empirical probability of co-occurring with CONJECTURE is 12%. Since this is reasonably close to the rest of the LOW group, *kanarazu* and *yohodo/yoppod*o are also included in the LOW group for the purpose of this study. This inclusion does not impair the results. The reason being that since, according to the hypothesis, a higher co-occurrence probability would result in a better prediction of the scope of modality, the inclusion of *kanarazu* and *yohodo/yoppod*o which have a relatively high co-occurrence probability among the LOW group, would only affect the prediction adversely.

Thus, the divided combinations of adverbs and modality types displayed 74 occurrences in the HIGH group and 32 occurrences in the LOW group for the Oikawa data, and 40 occurrences in the HIGH group and 13 occurrences in the LOW group for the NUJCC data.

In Tables 3a. and 3b., for each adverb – modality type combination, the number of co-occurrences and the probability group (LOW or HIGH) is shown down the right hand side.

Table 3b. *Suppositional adverbs: empirical probability of co-occurrence with particular modality types and frequency of co-occurrences in NUJCC (Ohso) data (based on Kudoo 2000:204, Table 3.1)*

Adverb	Modality type	Co-occurrence probability: high-low	Empirical Probability of co-occurrence	Freq. high	Freq. low
kitto 'surely'	necessity	high	0.52	3	
kanarazu 'certainly'	necessity	low	0.13		7
zettai (ni) 'absolutely'	necessity	high	1.00	27	
osoraku'likely'	expected	high	0.7	1	
tabun'probably'	expected	high	0.73	4	
taitei'usually'	expected	low	< 0.1		1
taigai'mostly'	expected	low	< 0.1		1
doomo 'somehow'	conjecture	low	< 0.1		3
dooyara 'somehow'	conjecture	high	0.85	2	
yohodo -yoppodo 'very'	conjecture	low	0.12		1
mosikasitara'maybe'	possibility	high	0.65	1	
kanarazusimo...nai 'not necessarily'	possibility	high	0.50	1	
hyottositara'possibly'	possibility	high	0.65	1	
Total number of high probability co-occurrences in NUJCC (HIGH)					**40**
Total number of low probability co-occurrences in NUJCC (LOW)					**13**

4.2 UTTERANCE-FINAL MODALITY TYPE AND HEARER'S INTERVENTIONS IN OIKAWA DATA

Using the estimates of co-occurrence probabilities of adverb – utterance-final modality forms from the previous section, it is now possible to test the hypothesis. Both the Oikawa data and the NUJCC corpus were used for this purpose. I will discuss the Oikawa data first followed by the NUJCC corpus.

According to the hypothesis, A-P-M type combinations with a higher co-occurrence probability will enable the hearer to better predict the scope of a particular modality and thus the timing of the incoming predicate in comparison to low co-occurrence probability cases.

Expecting hearer cooperation, it is reasonable to suppose that the timing of his or her interventions would tend to coincide with breaks in the flow of the speaker's conversation.

Since a stretch of the speaker's conversation displaying a particular modality provides such segmentation, the hearer's ability to predict the type of utterance-final modality, and thereby also its location, would result in a larger frequency of the hearer's interventions in the immediate vicinity of the predicate as compared to lower co-occurrence probability cases. This conjecture was tested in Table 4a. below, based on the Oikawa data.

Table 4a. *Coincidence of hearer's interventions in the vicinity of co-occurring utterance-final modality form for Oikawa data*

Probability of co-occurrence	**Number of A-P-M type utterances**	**Position of hearer's intervention relative to predicate forms and number of interventions**	
		Immediately before P to before M	Coinciding with M or after M
LOW	32	4 (12.5%)	28 (87.5%)
HIGH	74	20 (27.0%)	54 (73.0%)

The immediate vicinity of the predicate means the position immediately before the predicate or coinciding with the predicate up to just before the modality form (Immediately before P to before M in the table) and coinciding with or after the modality form (Coinciding with M or after M in the table).

Relative position (timing) of interventions is illustrated below in Example 9., which is actually the last part of Example 8. Here the relevant interventions are marked with an asterisk and precede the predicate in speaker Y's utterance.

Example 9. *(Oikawa 1998)*

[P: *un* yeah] , *ni natte ikutte iu ka koo,*	or how should I say, thus...
[P: *un* yeah] /*ko, koyuu no, bunkatte iu ka,*	should I say the particular cultures
*[P: *aaa, dakara boodaresu ni, natteiku to* yeah, therefore, by becoming borderless], *ee*,	yeah
*[P: *kentiku no* of architecture] ***usureteі[ku]yoona***	**are getting dimmer and dimmer**
[P: unun yeah, yeah] /***ki ga surun desukeredomo.***	**it seems to be [like that]...**
P: naruhodo nee, uun	I see, yeah...

The timing of the first intervention, a co-construction type (P: *aaa, dakara boodaresu ni, natteiku to* yeah, therefore, by becoming borderless), may not only be due to the hearer's prediction of the predicate alone but perhaps also to Y's hesitation, *ee* in this transcription, immediately following the intervention, which, while possibly uttered at more or less the same time may also have been a clue. Hearer P's second, shorter intervention, also of the co-construction type (P: *kentiku no*, of architecture), follows the speaker's hesitation *ee* and immediately precedes the predicate + modality form *usureteі[ku]yoona* in speaker Y's utterance. On the other hand, the intervention immediately following the modality form, *yoona* (seems as) in Y's utterance, does not count as an intervention based on prediction

since the possibility that the preceding modality form may have been the trigger cannot be excluded. The same is also true of P's first utterance after the turn-taking took place, i.e. P: *naruhodo nee, uun* (I see, yeah...), since it happened after the modality of Y's utterance had been fully expressed.

In the case when an intervention occurs concurrently with or after the utterance-final modality form, then intervention due to prediction cannot be distinguished from an intervention due to *ex post facto* judgment at the end of the bracket. Such interventions were, therefore, left out of the consideration. Thus, only those cases when an intervention occurred in the position ranging from immediately before the predicate up to the beginning of the modality form were taken into account. These interventions would more likely be due to the hearer's hypothetical prediction of the modality form type. If this were indeed the case, then the proportion of interventions in this position for the LOW group should be expected to be *lower* than the proportion of interventions in the same position in the HIGH group.

As can be seen in Table 4a., for the interventions occurring at the position ranging from immediately before the predicate to the modality form, the proportion of interventions (%) belonging to the LOW group (12.5%) and to the HIGH group (27.0%) differ, with the inerventions belonging to the LOW group being only about half as likely as the interventions in the HIGH group, as is predicted by the hypothesis.

As the total number of observed cases is low, and according to the "comparison of proportions" test (Walpole 1974:178), it turns out that this result would seem to be only of weak significance ($p < 0.1$) from a statistical point of view. Common sense usually determines significance as $p < 0.05$.

5. DATA FROM THE NAGOYA UNIVERSITY JAPANESE CONVERSATION CORPUS

For a better understanding of the timing of the hearer's interventions, another corpus (Nagoya University Japanese Conversation Corpus, NUJCC, Ohso 2003) was also analyzed. While the Oikawa data offer a rather straightforward confirmation of the hypothesis, the NUJCC corpus seems to contradict it. In the following subsections, an analysis of the interventions and a discussion of possible factors behind the discrepancy are given.

5.1 HEARER'S INTERVENTIONS IN NUJCC CORPUS

In the NUJCC corpus, co-occurrences of the A-P-M type were about 5 times less frequent relative to the size of the data, than in the Oikawa corpus. The hearer's interventions in relevant positions are tabulated in Table 4b. below:

Table 4b. *Coincidence of hearer's interventions in the vicinity of co-occurring utterance-final modality form for NUJCC (Ohso 2003) data*

Probability of co-occurrence	Number of A-P-M type utterances	Position of hearer's intervention relative to predicate forms and number of interventions	
		Immediately before P to before M	Coinciding with M or after M
LOW	13	5 (38.5%)	8 (61.5%)
HIGH	40	7 (17.5%)	33 (82.5%)

The picture we get is actually the reverse of what we get in Table 4a.: the percentage of interventions (38.5%) is higher for the low probability A-M co-occurrences, i.e. those in the LOW group, than the percentage (17.5%) for the high probability ones, i.e. those in the HIGH group.

The frequencies shown in the first row of Table 4b. are too low to have any statistical significance, but nonetheless, the reversal of results, as compared with the Oikawa data in Table 4a., is intriguing, as here the result does not concord with the hypothesis but actually contradicts it.

5.2 PRINCIPAL DIFFERENCES BETWEEN THE ANALYZED CORPORA

Since one set of data gives results concordant with the hypothesis and the other set gives results that seem to counter it, there are two possibilities. One is to discard the hypothesis. The other is to see whether there might not be some additional factors responsible for the discrepancy between the two sets of data and to revise the hypothesis so that the revised hypothesis only bears on data of a particular type which do not present the factors responsible for the discrepancy.

In addition, the relative scarcity of A-P-M type modality expressions in the NUJCC data, compared to the Oikawa corpus, also brings up the question of other possible roles played by A-P-M (and other bracket-like forms in conversation) in relation to the type of linguistic exchange occurring in different types of discourse.

One difference between the two corpora is immediately apparent, i.e. the different nature of conversations recorded in Oikawa (1998) and Ohso's NUJCC. The conversations in the Oikawa corpus are interviews. The interviewer is usually a professor and the interviewees, graduate students. The setting is formal since the interviewer and interviewee are usually not familiar with each other. There is a very low degree of shared knowledge pertinent to the topics of conversation. The topics are typically chosen by the interviewers who seem to have the initiative throughout each interview. This fact is also reflected in the disproportionate frequency of *aizuti* tags produced by interviewers as compared to *aizuti* tags produced by interviewees. The former are much more frequent and imply a one-sided interest in the conversation.

On the other hand, the conversations in the NUJCC corpus are between family members and intimate friends, mostly in informal everyday settings, with a high degree of shared background knowledge. These differences, pertaining to various aspects of context of situation (tenor, field and mode, cf. Halliday and Hasan 1976; Halliday 1978; among others) centering on tenor, are subsumed in Table 5. below. Differences pertaining to mode are discussed separately and subsumed in Table 7.

Table 5. *Principal differences in context of situation between Oikawa (1998) and NUJCC data*

Context of situation	Oikawa (1998)	NUJCC
TENOR		
Setting	Formal	Informal
Speaker-hearer familiarity	Unfamiliar	Familiar
Speaker-hearer status similarity	Different, hierarchical	Similar
Degree of shared knowledge	Low	High

The differences between the two corpora are also reflected in the differences in register of modal adverbs (overall use, regardless of whether they appear in A-P-M type modal expressions or not), as can be seen in Table 6. below. So that the frequencies of use of the various suppositional adverbs could be comparable, the counts were modified according to the size of each corpus, this is shown in the table as frequency per 1MB of data (freq./1 MB). As expected, the following differences in register emerged: the adverbs belonging to a less formal register seem to be more common in the NUJCC data, and more formal adverbs are more common in the Oikawa data. Further, differences in the formality of setting and speaker-hearer familiarity are reflected in the choice of suppositional adverbs, such as *kitto*, and *zettai*, which are by far more prevalent in the NUJCC data and comprise a substantial proportion of all modal adverbs. This reflects the differences in the speakers' strategies, relying, in the informal context of the NUJCC data, on assertions formulated bluntly using the NECESSITY type of modality, while in the formal context of the Oikawa interviews, relying on assertions presented in a softened form as EXPECTED type of modality. These differences are reflected in the different choices of register of suppositional adverbs in both corpora, as is shown in Table 6.

Furthermore, there is a very clear difference between the demands faced by participants in these different situations, resulting in markedly different verbalization strategies being chosen in each set of data, which can be seen as pertaining to mode.

In the case of the interviews, formal setting, status differences between co-participants and the fact that co-participants had almost no possibility of relying on prior shared background information, resulted in the need for a more explicit elaborate presentation of information with tighter formal organization, similar to what Givón (1979) calls the "syntactic mode."

Table 6. *Differences in register regarding total number of suppositional adverbs, NUJCC* vs. *Oikawa data*

Adverbs	NUJCC freq./1MB	Oikawa freq./1MB	NUJCC : Oikawa proportion
kitto	**49.1**	**13.4**	**3.69**
kanarazu	14.3	28.0	0.51
zettai	**105.0**	**18.3**	**5.74**
osoraku	2.6	9.8	0.27
tabun	**164.6**	**54.9**	**3.00**
taitei	1.4	12.2	0.11
doomo	**22.6**	**8.5**	**2.66**
yoppodo	**9.7**	**2.4**	**4.04**
mosikasitara	9.4	14.6	0.64
hyottositara	1.1	1.2	0.91
kanarazusimo-nai	2.3	4.9	0.47
angai	**4**	**1.2**	**3.33**

In the informal conversations of the NUJCC corpus, informal setting and proximity in status of co-participants, who because of their familiarity could presuppose a large degree of shared knowledge, allowed for a lesser degree of explicitness from co-participants resulting in a looser formal organization; actually in a very elliptic discourse with relatively simple syntax similar to Givón's (ibid.) "pragmatic mode." Examples 7a. to 7e. illustrate such kinds of conversation. The overall picture is subsumed in Table 7. below:

Table 7. *Mutual position of Kudoo, Oikawa and NUJCC data on "pragmatic mode – syntactic mode continuum" (cf. Givón 1979)*

TIGHT FORMAL ORGANIZATION			
↑ ↓	**Mode** (Haliday & Hasan 1976)	**Syntactic mode** (Givón 1979)	**Corpus/data**
↑	*written*	*syntactic mode*	Kudoo (2000) data
	spoken-formal	*tighter pragmatic mode*	Oikawa (1998) data
↓	*spoken-informal/familiar*	*looser pragmatic mode*	NUJCC data
	Pragmatic mode (Givón 1979)		
LOOSE FORMAL ORGANIZATION			

5.3 THE DISCUSSION

The fact that bracket-like A-P-M type utterances are present in the Oikawa corpus and much less so in the NUJCC data conforms to the principle of economy. In a formal

context, such as the Oikawa data with a low degree of mutually shared information, A-P-M type utterances are used for explicit signaling of the scope of modality to reduce the indeterminacy for the hearer and thus help the hearer to process the incoming discourse more efficiently. Compared with unfamiliar participants in interviews facing a high degree of indeterminacy in their interviews, mutually familiar close friends or family members in their everyday small talk tolerate indeterminacy much better, partly because of their shared knowledge, partly because of the easier access to backchannels. This, in line with the principle of economy, is reflected in the comparatively less frequent use of A-P-M type utterances in data such as the NUJCC corpus.

It thus seems that, in contexts tolerating less indeterminacy, the predominant role ofA-P-M type utterances is to reduce indeterminacy in communication by explicitly signaling the scope of the particular modality being expressed.

Yet, in contexts where indeterminacy is more easily tolerated, the lack of a need to reduce indeterminacy does not result in the disappearance of A-P-M type utterances but only in a comparative reduction in their frequency. It is interesting to note that in the case of Ohso's NUJCC corpus, with participants relying more on Givón's pragmatic mode,A-P-M type utterances are in general shorter in comparison to the same type of utterances in the Oikawa corpus. Because they are short, there is no need for their disambiguation. In such cases, markedness, provided by A-P-M type brackets, must obviously serve purposes other than disambiguation. The clarification of these purposes is to be an object of future research in this area.

6. CONCLUSION

The two corpora cited above were examined in order to verify the predictions of the hypothesis, namely, that predictable combinations of suppositional adverbs with sentence-final modality types reduce the indeterminacy in discourse and may thus influence speaker-hearer interaction as reflected in the timing of the hearer's interventions.

Analysis showed that: 1. the A-P-M type of expressing modality in utterances is much more common in contexts requiring higher precision (i.e. allowing less indeterminacy) in communication, as reflected in the Oikawa corpus of formal interviews compared to the Ohso corpus of informal conversations; and 2., that in such contexts, there seems to be a better perception of more probable co-occurrences of modal adverbs with utterance-final modality, as reflected in the timing of the hearer's interventions and coinciding with the immediate vicinity of the predicate. Therefore, the validity of the hypothesis depends on the context of situation and should be reformulated as follows:

Reformulated hypothesis

In speaker-hearer interactions, utterances of the A-P-M type, adverb – utterance-final modality form combinations, with a higher co-occurrence probability, will enable the hearer to better predict the scope of some particular modality as well as the timing of the relevant incoming predicate, as compared to the adverb – utterance-

final modality form combinations with lower co-occurrence probabilities. This is restricted to contexts where a higher degree of precision (i.e. less indeterminacy) is a primary requirement for successful communication.

Further, using the A-M bracket structure as a predictor of incoming discourse, as seems to be the case in more formal contexts, concordance with the reformulated hypothesis can be thought of as a secondary development. The high probabilities in co-occurrence of certain adverbs with certain utterance-final modal forms ('quasi grammatical' in Kudoo's words, Kudoo 2000: 188) can be seen to be a result of a gradual process of amplification, thus providing a glimpse into the process of structure emerging from high co-occurrence probabilities.

Because A-P-M type utterances also appear in informal conversations, albeit much less frequently and usually in shorter utterances, it can be supposed that besides the socio-linguistic and pragmatic factors mentioned in section 5., other, more discourse specific factors governing the use of A-P-M type utterances could also be at play. These factors need to be explored in the direction of prominence and the connection of such prominence to the hearer's specific local needs and the speaker's goals in particular discourses. This is an important issue left for future investigation.

Since the size of the corpora used in this study was small, the above results will have to be tested and further research carried out on larger corpora. Such large corpora have just recently become available (cf. *Kotonoha* project at NIJLA, The National Institute of Japanese Language; Maekawa and Yamazaki 2009).

The result obtained here may also provide an additional substantiation for the observations made by Szatrowski (2002) regarding the contribution of suppositional adverb – utterance-final modality form to co-constructions, i.e. that it is the high predictability of adverb and utterance-final modality forms co-occurrence which helps to trigger these co-constructions. In the present study, all *aizuti* tags, co-construction, and turn-taking were merged under the label of INTERVENTIONS. Due to the different nature of these interventions, differences in their timing and their dependence on prediction are likely to appear. A re-examination of the present study, on a larger corpus of conversational data, will be necessary for finer estimates regarding the types of intervention.

The role that experience-based probabilities could play may also have important repercussions for Japanese language teaching and related research.

And last but not least, other types of bracket structures should also be examined to see how the different types of bracket structures contribute not only to the disambiguation but also to the prediction of the incoming discourse.

NOTE

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CHAPTER 6
GENERAL CONCLUSION

Actualized discourse is perceived as a continuous flow, with continuity being the norm by default and discontinuity between units (understood here in the widest sense: from the micro level of phonetic realization to the macro level of discourse) as demanding special attention on the part of the co-participant. Discontinuities are perceived at boundaries where one unit ends and the next unit begins.

In the present study, I propounded that the concept of boundary can provide a unified view of various disparate linguistic phenomena. In this sense, this study is part of a wider development in recent language and discourse research centered on various structuring devices employed for discourse structuring, as well as on linearization and segmentation. The issue of segmentation seems to be, for obvious reasons, especially important in Natural Language Processing, while structuring and linearization are the focus of more theory-oriented discourse research (cf. Ramm and Fabricius-Hansen (eds.) 2008, Nomoto and Nitta 1994). The focus of the present study, however, is directed more towards the explicit means of signaling boundary, i.e. the discontinuity between segments of discourse.

Applying the concept of boundary, I examined various textual phenomena in Japanese. It became evident that explicitly signaled "boundaries" in general, and "bracket structures" as their special case, are ubiquitous at all levels of linguistic structure. In the application of the concept of boundary, and to test the extent of its validity and usefulness, I expressly tried to be as inclusive as possible. In Chapter 1. therefore, I considered the layered structure of the Japanese sentence described by Minami Huzio (1974, 1993) even, as possibly presenting a particular case of bracket structure. Bracket structures seem to play an important role in discourse segmentation and perception. Their most significant property is that they are essentially probabilistic. The opening element of a bracket structure implies the existence of a closing element, not as an absolute as is the case with brackets in algebra, but with a certain probability.

The following topics related to various aspects of interaction between speaker/writer and hearer/reader involving boundary, were examined.

In Chapter 1., I introduced the concept of boundary, illustrating it with different examples from artificial symbolic systems and from the Japanese language. Here in particular, the

inclusion of Minami's (1993) layered model of Japanese sentence structure may well meet with some disagreement. It is an issue that merits further investigation. My view is that the layers themselves are a complex agglomeration of various syntactic phenomena, with particular phenomena belonging to various stages of grammaticalization. With corpora of both written and spoken Japanese becoming more easily accessible, this issue deserves further rigorous examination on both such corpora.

In the ensuing chapters I examined certain specific problems related to boundary.

In Chapter 2., I attempted to shed light on the sentence formation of complex sentences from the point of view of relatedness of content and of content boundaries. The methodology was based on an elicitation of paraphrases from pragmatic to syntactic mode (cf. Givón 1979). Analysis demonstrated that the sentence is a rhetorical device which functions as an explicit marker of content boundaries at the textual level. Relatedness of content was also achieved experimentally via elicitation and content units were shown to correlate with the topic-based paragraph structure of the underlying text, a phenomenon which also figures in a different context in Chapter 4. However, other methods besides elicitation and application of these methods to a greater scope of genres will have to be undertaken for a wider validity of these results. In addition, a further examination of the correlation of qualitative analysis with the analysis based on elicitation results could provide useful data for automatic text segmentation such as described in Nomoto and Nitta (ibid.), which at present, as is often the case with NLP, still seems to rely too much on computational force alone.

In Chapter 3. I examined the choice of appropriate Japanese demonstratives in context and the role of paragraph boundary. Based on empirical data, I argued that the paradigm of demonstratives alone is insufficient for a discussion of intratextual reference. Proxal and distal demonstratives are part of a wider referential paradigm and their usage depends to a great extent on whether the reference is across content boundaries or within them. Contrary to the other chapters, the issue in this chapter, focusing predominantly on the signaling of the boundary itself, is in a way more complex. Indeed, the difference mentioned above between the reference within and across the paragraph boundaries is only connected implicitly with the boundary; it does not signal the boundary itself but reveals different regimes of reference valid within and across the paragraph boundary. Again, in order to grasp the variety and scope of possible linguistic expressions, the methodology was based on elicitation. As in Chapter 2., the genre of analyzed text was limited to a news report. As a task for future research, analysis of intratextual reference over various genres will be necessary in order to establish a wider validity of the results.

Chapter 4. examined the nature of *wa* marked topic seen from the context. It was shown that the choice of *wa* topic depends on the speaker/writer, accessibility of the referent being a necessary but not sufficient condition for its use. *Wa* topic thus emerged as a powerful device for the structuring of discourse. This aspect of *wa* topic was examined in the latter half of the chapter where a possible pragmatic motivation for explicit signaling of topic in the middle of the coreferential chain was proposed, i.e. that the *wa* topic in narrative seems to act as a content boundary marker. Determination of content boundaries was obtained

through elicitation. The genre used for analysis in this chapter was a literary narrative, i.e. a short story *Rashômon* by Akutagawa. The behavior of *wa* topic in nonliterary narratives, both written and spoken, as well as in other genres will have to be examined for a wider scope of validity of the results.

Finally, in Chapter 5, based on two spoken corpora belonging to different genres, I discussed the role of modality-based bracket structure in speaker-hearer interaction. This chapter attempted to reveal the processual aspect of language through an analysis of the hearer's perception and prediction of a subclass of modal adverb, suppositional adverbs (A), co-occurrence with clause - final modality forms (M). These A-M co-occurrences function as probabilistic brackets and in the case of longer utterances the hearer relies on them to predict completion of the utterance. Higher probability of brackets seems to result in better predictability of the type of clause-final modality. However, in shorter utterances this may not necessarily be the case, implying that A-M forms may serve other contextual purposes as well. Also, the usage of brackets predictably shows consistent differences across different genres, being much more common in formal interviews requiring higher precision as compared to spontaneous informal conversation between familiar participants. Written corpora show an even less frequent use of A-M type brackets. Though not discussed here, a recent research study (cf. Srdanović Erjavec et al., 2008) shows that A-M brackets and suppositional modality provide a convenient means for classification of genres. For a more complete picture of the nature and function of A-M brackets, a further exploration of their disambiguating function and of other possible text-pragmatic functions they may have, across a variety of genres, will be necessary.

In relying on elicited data to reveal the paradigmatic aspect of the studied phenomena or corpora, one important fact emerged, either implicitly as in Chapters 2., 3. and 4., or explicitly as in Chapter 5., i.e. linguistic phenomena and the possible function they play are closely associated with the context and the specific genre examined. Therefore, results of studies limited to a particular genre and context, such as those reported here, while seeming to be valid in the light of other research, cannot claim to have wider validity. To properly elucidate their nature and obtain a view of their scope and limitations, linguistic phenomena have to be studied in various different contexts and genres. Thus, the present study has just opened one small window on a particular aspect of a particular language, i.e. Japanese. As the author, I believe that research will continue in the future, in scope and depth, striving towards a more complete picture of discourse phenomena.

APPENDICES

APPENDIX I.

Noda (1995) – original Japanese version

		語幹	アスペクト	肯定否定	現実生	事態へのムード	聞き手のムード
比較系	対立的			は（対比）			
	並立的			も（同類）			
限定系	対立的	だけ	ばかり	しか が（排他）	なら（条件） では	は （主題）	こそ（特立） なら（主題）
	並立的					でも （例示）	も（柔らげ） など（例示）
極限系	対立的			など （否定強調） ぐらい （最低限）			
	並立的			まで（意外） も（意外）	でも（意外）	さえ （意外）	
従属節専用	対立的					こそ （譲歩）	
	並立的				さえ （最低限）		

APPENDIX II.

"*Kaisyain no zisatu*" (Employee's Suicide, cf. Bekeš 1987, 1993)

Clause No.	Japanese text	English translation
1	*Sakuzitu no yugata no koto desita.*	It happened last night.
2	*Kanagawa-ken XX-si no XX-yama no tyuuhuku de otoko no hito ga kubi o tutte imasita.*	In a forest in Kanagawa prefecture there was a man hanging.
3	*Sono otoko wa sinde imasita.*	The man was dead.
4	*Aru hito ga imohori ni dekakemasita.*	Somebody went to dig edible roots.
5	*Sono hito ga sono sitai o mitukemasita.*	This person found the corpse.
6	*Sono koto o XX-keisatusyo ni todokemasita.*	He reported this to the prefectural police.
7	*Keisatu wa kore o sirabemasita.*	The police investigated the case.
8	*Sitai wa Aiti-ken no XX-si no kaisyain O.san desita.*	The corpse was an employee, Mr. O. from XX city in Aichi prefecture.
9	*Sore wa sebiro no nemu kara wakarimasita.*	This was found out from the name on the jacket.
10	*Kyonen no kugatu, tyoonan ga XX-sinai de ziko o okosimasita.*	In September last year Mr. O.'s eldest son caused a traffic accident in his hometown.
11	*Tyoonan ga aru onna no hito ni nikagetu no zyuusyuo o owasemasita.*	The eldest son inflicted heavy injuries upon some woman.
12	*Zyosei wa kyonen no kure ni siboo simasita.*	This woman died last fall.
13	*O.san wa sore o sirimasita.*	Mr. O. learned about this.
14	*Kare wa sono mama kaisya o sootai simasita.*	He immediately left his office.
15	*Ie ni mo kaerimasendesita.*	He did not even go home.
16	*Yukuehumei ni narimasita.*	He became missing.
17	*Kazoku ga soo hanasite imasita.*	The family told this.
18	*Sikasi sono onna no hito no siboo gen'in wa sinhuzen desita.*	Actually, the cause of the woman's death was heart trouble.
19	*Ziko to wa tyokusetu kankei arimasendesita.*	It was not directly connected with the accident.
20	*Sore nanoni, O.san wa koo omoimasita.*	On the other hand Mr. O. thought like this.
21	*Ziko ga gen'in da, to.*	That the accident was the cause.
22	*Onna no hito ga sorede siboo sita, to.*	That the woman died because of this.
23	*O.san wa sekinin o kanzimasita.*	Mr. O. felt responsible.
24	*Zisatu simasita.*	He killed himself.
25	*Keisatu de wa izyoo no yoo ni mite imasu.*	The above is the police view.

APPENDIX III

"Ame ni nurete ikenaku natta" (I got wet from the rain, I can't come),
original text from: *Asahi Shinbun*, morning edition 1st Sept. 1993

Asterisk (*) marks content divisions in the text pointed out by more than 25% of survey participants, i.e. more than 9 out of 35.

Clause No.	Japanese text	Clause by clause English translation
	TITLE:	
1	*"Ame ni nurete*	"I got wet from the rain
2	*ikenaku natta"*	I can't come"
3	*Miyakawa yoogisya*	suspect Miyakawa
4	*Kookoku kanren kaisya ni tutomeru*	working in an advertising company
5	*yuuzin ni hankoo zenya? yakusoku kotowaru*	on the eve before the crime he broke the promise to his friend
	TEXT:	
1	*"Ame mo huttete,*	"It is raining
2	*karada mo nureta si,*	I got wet,
3	*ikenaku natta".*	I can't come"
4*	*Koohu-sinyoo-kinko syokuin no yuukai-satuzinziken de taihoo sareta*	[who] was arrested in connection with the kidnapping and murder of an employee of Kofu Credit & Savings Co.
5	*moto zidoosya hanbai-kaisya syain, Miyakawa yoogisya(38) wa,*	former employee of a car sales company, suspect Miyakawa (age 38)
6	*Utida Yuuki san o satugai sita to sareru tooka yoru,*	on the evening of the tenth when [he] presumably killed Uchida Yuuki
7	*Koohu sinai no sunakku de matiawaseteita*	[with whom] he had an appointment in a bar in Kofu city
8	*yuuzin ni pokettoberu de yobidasareru to,*	when called through the pager by his friend,
9	*itizikan mo ato no gogo 9-zi 14-pun, konna kotowari no denwa o kaketeita koto ga,*	called back to excuse himself an hour later (9:14 PM)
10	*wakatta.*	[– this fact] came to light.
11*	*Yamanasi, Sizuoka ken-kei no goodoo soosa honbu wa,*	joint investigation HQ of Y. and S. prefecture Police
12	*keitaidenwa o motteita*	[who] was carrying the cellular telephone
13	*doo yoogisya ga pokeberu ni sugu ootoo dekinakatta no wa,*	the reason the suspect
14	*KONO zengo ni Yuuki san o satugai si,*	at about THAT time he killed Ms. Yuuki
15	*ame no huru naka de*	in the rain
16	*doo si no kinkoo no Huehukigawa ni nagasita tame dewa nai ka,*	threw her into the F. river in the vicinity of the said city
17	*to miteiru.*	surmise that
18*	*KONO yuuzin wa*	THIS friend
19	*Koohu kinkoo ni sumu*	who lives in the vicinity of Kofu city.
20	*kookoku kanren kaisya no syain (41).*	is an employee of an advertising company (age 41)

Clause No.	Japanese text	Clause by clause English translation
21	*Miyakawa yoogisya wa 5-nen mae kara, KONO kaisya ni torakku no urikomi de deiri site ita.*	Suspect Miyakawa was coming to THIS company to sell trucks since five years ago.
22	*Hutari wa sakunen aki goro kara hinpan ni sake o nomu aidagara ni natta.*	the two became close friends drinking sake together.
23	*toiu.*	it is said
24*	*KONO yuuzin ni yoru to,*	according to THIS friend
25	*Tooka yoru ni nomoo*	to go drinking on the evening of the tenth
26	*toiu yakusoku wa, yooka goro ni sita,*	they promised each other approximately on eighth,
27	*toiu.*	[so he] says
28	*Tooka yuugata ni Miyakawa yoogisya wa, yuuzin no kaisya ni sigoto no utiawase de kao o dasite iru.*	on the evening of the tenth suspect Miyakawa went to his friend's company because of some business
29	*KONO sai, Miyakawa yoogisya kara kotowari mo nakatta tame,*	since at THIS opportunity, suspect Miyakawa did not cancel the promise
30	*yuuzin wa dooryoo to gogo 8-zi goro kara, Koohu sinai no nazimi no sunakku de doo yoogisya o matta.*	[his] friend together with a colleague was from about 8 p.m. on waiting for the said suspect in a bar he knew well in Kofu city
31	*Miyakawa yoogisya ga naka naka sugata o misenai tame,*	since suspect Miyakawa was very late
32	*pokettoberu de yobidasita.*	[he] called him using pager
33	*Yaku itizikan go, yooyaku denwa ga haitta.*	[returning] telephone call came finally about an hour later
34	*Miyakawa yoogisya wa*	suspect Miyakawa
35	*"sigoto ga isogasii.*	"I am busy with work.
36	*Ame mo huttete,*	moreover, it is raining
37	*karada ga nureta si,*	and I am wet,
38	*ikenaku natta"*	I can't come",
39	*to hanasita*	said
40	*toiu.*	so it is said (evidentiality marker)
41*	*Koohu tihoo kisyoodai ni yoru to,*	According to Kofu regional meteorological observatory
42	*Koohu sinai wa KONO yoru danzoku tekini kosame ga hutteita ga,*	it was drizzling with interruptions in Kofu city THIS night
43	*gogo 8-zi ikoo wa sidaini amaasi ga tuyoku natta,*	but after 8 p.m. it gradually began to rain more strongly,
44	*toiu.*	so they say.
45	*Doo gogo 8-zi kara 9-zi ni kakete uryoo wa 3 miri o kiroku siteiru.*	on the same evening between 8 and 9 p.m., 3 mm of rain were recorded
46*	*Yuuzin wa*	[Miyakawa's] friend
47	*"denwa no koe wa toku ni kawatta yoosu ga nakatta"*	"[his] voice on the phone did not seem weird".
48	*toiu.*	says
49	*Denwa o torituida sunakku no mama wa*	The hostess of the bar, who passed the phone [said]
50	*"ima ni natte,*	"it is only now that

Clause No.	Japanese text	Clause by clause English translation
51	*naze ame de nureta ka*	why [he] got wet from the rain.
52	*to omou to*	thinking
53	*tori hada ga tatu.*	I get goose pimples
54	*Kookai sareta*	which was released to public
55	*koe wa kikioboe ga atta ga,*	I remembered the voice
56	*masaka uti no mise no okyakusan da nante".*	but it is hard to believe it was a patron of our bar".
57*	*Yuuzin ni yoru to,*	According to the friend
58	*Miyakawa yoogisya wa tooka ikoo, taido ga okasiku natta,*	suspect Miyakawa's behavior became weird after the tenth,
59	*toiu.*	so he says.
60	*Sizumigati de,*	[He] became easily depressed,
61	*kaoiro mo waruku*	[his] complexion became bad,
62	*syokuzi ni sasotte mo*	inviting him to a meal
[64]	*[Miyakawa wa]*	[Miyakawa]
63	*"syokuyoku ga nai"*	"I have no appetite".
64	*to itteita.*	[he] would say
65*	*Sikasi, 14 niti ni wa, doo yoogisya wa KONO yuuzinra sannin de KONO sunakku ni nomi ni itteiru.*	But on the fourteenth, the said suspect went to THIS bar with THIS friend and with another to have a drink.
66	*Soosa honbu no sirabe ni yoru to,*	According to the [police] investigation HQ,
67	*sasoidasareta*	[who] was invited out [by Miyakawa]
68	*Yuuki san wa*	Ms. Yuuki
69	*tooka gogo 7-zi han goro ni zitaku ni denwa o ireta no o saigo ni*	with the phone home call on the tenth around 7:30 p.m. being the last one.
70	*syoosoku o tatta.*	was not heard of,
71	*Miyakawa yoogisya wa*	suspect Miyakawa
72	*KONO denwa no tyokugo ni Yuuki san o satugai si,*	killed Ms. Yuuki immediately after THIS phone call
73	*Huehukigawa ni nagasita*	and threw her into F. river.
74	*to sareru.*	It is supposed that
75*	*Yamanasi kennai dewa,*	In Y. prefecture
76	*doo yoogisya ga tukatta*	used by the said suspect
77	*keitaidenwa ni yoru tuuwawa,*	the call on the cellular phone
78	*zikan ya tuuwasaki no sinaikyoku ga NTT Docomo Yamanasi sisya no kiroku ni nokosareteiru.*	had the time and local area number preserved as a record in NTT Docomo's Yamanashi branch office
79	*Soosahonbu mo KONO kiroku kara,*	Investigation HQ [deduced] from this record
80	*Miyakawa yoogisya ga sunakku ni denwa o kaketa koto o*	that Miyakawa phoned to the bar
81	*waridasita.*	deduced

Complete English translation of the Japanese text with corresponding clause numbers of the original

Clause No.	Translation
	TITLE:
1	"I got wet from the rain
2	I can't come"
3	Suspect Miyakawa
5	On the eve before the crime he broke the promise to his friend
4	working in an advertising company
	TEXT:
1	"It is raining
2	I got wet,
3	I can't come."
5	Former employee of a car sales company, suspect Miyakawa (age 38)
4	who was arrested in connection with the kidnapping and murder of an employee of Kofu Credit & Savings Co.
6	on the evening of the tenth when he presumably killed Uchida Yuuki
8	when called through the pager by his friend,
7	with whom he had an appointment in a bar in Kofu city
9	called back to excuse himself an hour later (9:14 p.m.)
10	[– this fact] came to light.
11	Joint investigation HQ of Y. and S. prefecture Police
17	surmise that
13	the reason the suspect
12	who was carrying the cellular telephone
13	could not answer the pager call is that probably
14	on THIS(=kono) evening he killed Ms. Yuuki
15	and in the rain
16	threw her into the F. river in the vicinity of the said city.
18	THIS friend
20	is an employee of an advertising company (age 41)
19	who lives in the vicinity of Kofu city.
21	Suspect Miyakawa was coming to THIS company to sell trucks since five years ago.
23	It is said
22	the two became close friends drinking sake together.
24	According to THIS friend
26	they promised each other
25	to go drinking on the evening of the tenth
26	approximately on eighth,
27	[so he] says.
28	On the evening of the tenth suspect Miyakawa went to his friend's company because of some business
29	Since at THIS opportunity, suspect Miyakawa did not cancel the promise
30	[his] friend together with a colleague was from about 8 p.m. on waiting for the said suspect in a bar in Kofu city.

Clause No.	Translation
31	Since suspect Miyakawa was very late
32	[he] called him using pager.
33	[Returning] telephone call came finally about an hour later.
34	Suspect Miyakawa
39	said
35	“I am busy with work.
36	It is raining
37	and I am wet,
38	I can’t come”,
40	so it is said (evidentiality marker).
41	According to Kofu regional meteorological observatory
42	it was drizzling with interruptions in Kofu city THIS night
43	but after 8 p.m. it gradually began to rain more strongly,
44	so they say.
45	On the same evening between 8 and 9 p.m., 3 mm of rain were recorded.
46	[Miyakawa’s] friend
48	says
47	“[his] voice on the phone did not seem weird”.
49	The hostess of the bar, who passed the phone [said]
50	“it is only now that
53	I get goose pimples
52	thinking
51	why [he] got wet from the rain.
55	I remembered the voice
54	which was released to the public
56	but it is hard to believe it was a patron of our bar”.
57	According to the friend
58	suspect Miyakawa’s behavior became weird after the tenth,
59	so he says.
60	[He] became easily depressed,
61	[his] complexion became bad,
62	inviting him to have a meal
64	[he] would say
63	“I have no appetite”.
65	But on the fourteenth, the said suspect went to THIS bar with THIS friend and with another to have a drink.
66	According to the [police] investigation HQ,
68	Ms. Yuuki
67	who was invited out [by Miyakawa]
70	was not heard of,
69	with the phone home call on the tenth around 7:30 p.m. being the last one.
74	It is supposed that
71	suspect Miyakawa
72	killed Ms. Yuuki immediately after THIS phone call
73	and threw her into Fuefukigawa river.

Clause No.	Translation
75	In Y. prefecture
77	the call on the cellular phone
76	used by the said suspect
78	had the time and local area number preserved as a record in NTT Docomo's Yamanashi branch office.
79	Investigation HQ
81	deduced from THIS record
80	that Miyakawa phoned to the bar

Modified version used for the “correction” survey

［題］(Title)

1　「［私（ ＝宮川容疑者）は］［雨］にぬれて
2　［私（ ＝宮川容疑者）は］行けなくなった」
3　［宮川豊容疑者］
4　［広告関連会社］に勤めるる
5　［友人］に犯行前夜？約束断る

［本文］(Text)

1　「［雨］も降ってて、
2　［私（＝宮川）の］体がぬれたし、
3　［私（＝宮川）は］行けなくなった」。
4　［甲府信用金庫職員［＝内田友紀］］の誘拐・殺人事件で逮捕された
5　元自動車販売会社員、［宮川容疑者］（三八）は、
6　［内田友紀さん］を殺害したとされる十日夜、
7　甲府市内の［スナック］で待ち合わせていた
8　［友人］にポケットベルで呼び出されると、
9　一時間も後の午後九時一四分、［宮川豊容疑者］はこんな断りの電話をかけていたことが、
10　わかった。
11　［山梨、静岡県警］の合同捜査本部は、
12　［携帯電話］を持っていた
13　［宮川豊容疑者］が［ポケベル］にすぐ応答できなかったのは、
14　［宮川豊容疑者］が　前後に　［友紀さん］を殺害し、
15　［雨］の降る中で、
16　［宮川豊容疑者］が［友紀さん］を同市の近郊の笛吹川に流したためではないか、
17　と［静岡、山梨両県警］の合同捜査本部がみている。
18　［友人］は
19　甲府市近郊に住む
20　［広告関連会社］の社員（四一）。
21　［宮川豊容疑者］は五年前から、［広告関連会社］にトラックの売り込みで出入りしていた。
22　［宮川豊容疑者］と［友人］は昨年秋ごろから、ひんぱんに酒を飲む間柄になった
23　という。
24　［友人］によると、
25　十日夜に飲もう
26　という約束は、八日ごろにした、
27　という。
28　十日夕方に［宮川豊容疑者］は、［友人］の［広告関連会社］に仕事の打ち合わせで顔をだしている。
29　［　　際］、［宮川豊容疑者］から断りもなかったため、

［友人］は同僚と午後八時ごろから、甲府市内のなじみの［スナック］で［宮川豊容疑者］を待った。
［宮川豊容疑者］がなかなか姿を見せないため、
［友人］は［宮川豊容疑者］を［ポケットベル］で呼び出した。
約一時間後、ようやく［電話］が入った。
［宮川豊容疑者］は
［「私（＝宮川）」は仕事が忙しい。
［雨］も降ってて、
［私（＝宮川）］の体がぬれたし、
［私（＝宮川）］は行けなくなった」
と話した
という。
［甲府地方気象台］によると、
甲府市内は、十日夜、断続的に［小雨］が降っていたが、
午後八時以降は、しだいに［雨脚］が強くなった、
という。
十日午後八時から九時にかけて［雨量］は三ミリを記録している。
［友人］は
「電話の声はとくに変わった様子がなかった」
という。
［電話］を取り次いだ［スナック］のママは
「今になって、
なぜ［宮川豊容疑者］が［雨］でぬれたか
と思うと
鳥肌がたつ。
公開された。
［宮川豊容疑者］の声は聞き覚えがあったが、
まさかうちの店のお客だったなんて」。
［友人］によると、のお客だったなんて」。
［宮川豊容疑者］は十日以降、態度がおかしくなった、
という。
［宮川豊容疑者］は沈みがちで、
［宮川豊容疑者］は顔色も悪く
［友人］が［宮川豊容疑者］を食事に誘っても
［宮川豊容疑者］は［「私（＝宮川）」は食欲がない」
と言っていた。
しかし、一四日には、［宮川豊容疑者］は友人ら三人で［スナック］に飲みに行っている。
［静岡、山梨県警］の合同捜査本部の調べによると、
誘い出された
［友紀さん］は

69　十日午後７時半ごろに自宅に電話を入れたのを最後に
70　［友紀さん］は消息を絶った。
71　［宮川豊容疑者］は
72　［電話］の直後に［友紀さん］を殺害し、
73　［宮川豊容疑者］は［友紀さん］を笛吹川に流した
74　とされる。
75　山梨県内では、
76　［宮川豊容疑者］が使った
77　［携帯電話］による通話は、
78　時間や通話先の市内局などがＮＴＴドコモ山梨支社の［記録］に残されて
いる。
79　［捜査］本部も　［記録］から
80　［宮川豊容疑者］が［スナック］に［電話］をかけたことを
81　割り出した。

APPENDIX IV.

Complete text of Rashômon in Japanese with referential forms of “Servant” and “Old Woman”, clause numbers, and frequency of content boundary perception (from *Aozora Bunko*)

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
					1		●ある日の暮方の事である。
G	N*ga*				2	[1]	一人の下人《げにん》が、羅生門《らしようもん》の下で雨やみを待っていた。
G	NP				3	[1]	●広い門の下には、この男のほかに誰もいない。
					4		ただ、
							・所々｜丹塗《にぬり》の剥《は》げた、
				N*ga*			・大きな円柱《まるばしら》に、蟋蟀《きりぎりす》が一匹とまっている。
					5	[3]	羅生門が、朱雀大路《すざくおおじ》にある以上は、
G	NP						・この男のほかにも、雨やみをする
							・市女笠《いちめがさ》や揉烏帽子《もみえぼし》が、もう二三人はありそうなものである。
G	NP				6		それが、この男のほかには誰もいない。
					7	[6]	●何故かと云うと、
							・この二三年、京都には、地震とか辻風《つじかぜ》とか火事とか饑饉とか云う災《わざわい》がつづいて起った。
					8		そこで洛中《らくちゆう》のさびれ方は一通りではない。>>づいて起った。
					9	[1]	旧記によると、
							・仏像や仏具を打砕いて、
							・その丹《に》がついたり、
							・金銀の箔《はく》がついたりした
							・木を、路ばたにつみ重ねて、
							・薪《たきぎ》の料《しろ》に売っていた
							・と云う事である。
					10	[2]	洛中がその始末であるから、
							・羅生門の修理などは、元より誰も捨てて顧る
							・者がなかった。
					11	[1]	すると
							・その荒れ果てたのをよい事にして、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
							・狐狸《こり》が棲《す》む。
					12		盗人《ぬすびと》が棲む。
					13		とうとうしまいには、
							・引取り手のない死人を、この門へ持って来て、
							・棄てて行くと云う習慣さえ出来た。
					14	[1]	そこで、
							・日の目が見えなくなると、
							・誰でも気味を悪るがって、
							・この門の近所へは足ぶみをしない
							・事になってしまったのである。
					15	[3]	●その代り
							・また鴉《からす》がどこからか、たくさん集って来た。
					16		昼間見ると、
							・その鴉が何羽となく輪を描いて、
							・高い鴟尾《しび》のまわりを啼きながら、
							・飛びまわっている。
					17		ことに門の上の空が、夕焼けであかくなる時には、
							・それが胡麻《ごま》をまいたように
							・はっきり見えた。
					18		鴉は、勿論、
							・門の上にある
							・死人の肉を、啄《ついば》みに来るのである。
					19	[3]	――もっとも今日は、刻限《こくげん》が遅いせいか、
							・一羽も見えない。
					20		ただ、
							・所々、崩れかかった、
							・そうしてその崩れ目に長い草のはえた
							・石段の上に、鴉の糞《ふん》が、点々と白くこびりついている
							・のが見える。
G	N*wa*				21	[8]	下人は
G	Ø						・七段ある石段の一番上の段に、洗いざらした紺の襖《あお》の尻を据えて、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø						・右の頬に出来た、
G	Ø			N*wo*			・大きな面皰《にきび》を気にしながら、
G	Ø						・ぼんやり、雨のふるのを眺めていた。
					22	[5]	●作者はさっき、
G	N*ga*						・「下人が雨やみを待っていた」
							・と書いた。
					23		しかし、
G	N*wa*						・下人は雨がやんでも、
G	Ø						・格別どうしよう
G	Ø						・と云う当てはない。
G	Ø				24		ふだんなら、勿論、主人の家へ帰る可き筈である。
G	Ø				25		所がその主人からは、四五日前に暇を出された。
					26	[1]	前にも書いたように、
							・当時京都の町は
							・一通りならず衰微《すいび》していた。
G	N*ga* 連体				27		今この下人が、
G	Ø						・永年、使われていた
G	Ø						・主人から、暇を出されたのも、
							・実はこの衰微の小さな余波にほかならない。
					28		だから
G	N*ga*						・「下人が雨やみを待っていた」
							・と云うよりも
G	Ø						・「雨にふりこめられた
G	N*ga*						・下人が、行き所がなくて、
G	Ø						・途方にくれていた」
							・と云う方が、適当である。
					29	[2]	その上、
							・今日の空模様も少からず、
G	NP						・この平安朝の下人の Sentimentalisme に影響した。
					30	[4]	申《さる》の刻下《こくさが》りからふり出した雨は、
							・いまだに上るけしきがない。
					31		そこで、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	N*wa*						・下人は、
G	Ø						・何をおいても差当り明日《あす》の暮しをどうにかしようとして
							・――云わばどうにもならない
G	Ø						・事を、どうにかしようとして、
G	Ø						・とりとめもない考えをたどりながら、
							・さっきから朱雀大路にふる
G	Ø						・雨の音を、聞くともなく聞いていたのである。
					32	[5]	●雨は、
							・羅生門をつつんで、
							・遠くから、ざあっと云う音をあつめて来る。
					33	[3]	夕闇は次第に空を低くして、
							・見上げると、
							・門の屋根が、斜につき出した
							・甍《いらか》の先に、重たくうす暗い
							・雲を支えている。
					34		●どうにもならない事を、
G	Ø						・どうにかするためには、
G	Ø						・手段を選んでいる遑《いとま》はない。
G	Ø				35	[1]	選んでいれば、
G	Ø						・築土《ついじ》の下か、道ばたの土の上で、饑死《うえじに》をするばかりである。
					36		そうして、
G	Ø						・この門の上へ持って来て、
G	Ø						・犬のように棄てられてしまうばかりである。
G	Ø				37	[1]	選ばないとすれば
G’	N*wa*						・――下人の考えは、何度も同じ道を低徊《ていかい》した揚句《あげく》に、
G	Ø						・やっとこの局所へ逢着《ほうちやく》した。
					38	[1]	しかしこの「すれば」は、
							・いつまでたっても、結局「すれば」であった。
G	N*wa*				39		下人は、
G	Ø						・手段を選ばない
G	Ø						・という事を肯定しながらも、
G	Ø						・この「すれば」のかたをつけるために、
							・当然、その後に来る可き

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø						・「盗人《ぬすびと》になるよりほかに仕方がない」
G	Ø						・と云う事を、積極的に肯定するだけの、
G	Ø						・勇気が出ずにいたのである。
G	N*wa*				40	[7]	●下人は、
G	Ø						・大きな嚏《くさめ》をして、
G	Ø						・それから、大儀《たいぎ》そうに立上った。
					41	[4]	夕冷えのする京都は、
							・もう火桶《ひおけ》が欲しい
							・ほどの寒さである。
					42	[1]	風は門の柱と柱との間を、夕闇と共に遠慮なく、吹きぬける。
					43	[1]	丹塗《にぬり》の柱にとまっていた
				N*mo*			・蟋蟀《きりぎりす》も、もうどこかへ行ってしまった。
G	N*wa*				44	[3]	●下人は、
G	Ø						・頸《くび》をちぢめながら、
							・山吹《やまぶき》の汗衫《かざみ》に重ねた、
G	Ø						・紺の襖《あお》の肩を高くして
G	Ø						・門のまわりを見まわした。
					45		雨風の患《うれえ》のない、
							・人目にかかる惧《おそれ》のない、
							・一晩楽にねられそうな
							・所があれば、
G	Ø						・そこでともかくも、夜を明かそう
G	Ø						・と思ったからである。
					46	[2]	すると、
							・幸い門の上の楼へ上る、
							・幅の広い、
							・これも丹を塗った
G	Ø						・梯子《はしご》が眼についた。
					47		上なら、
							・人がいたにしても、
							・どうせ死人ばかりである。
G	N*wa*				48	[1]	下人は
							・そこで、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø						・腰にさげた
							・聖柄《ひじりづか》の太刀《たち》が鞘走《さやばし》らないように
G	Ø						・気をつけながら、
G	Ø						・藁草履《わらぞうり》をはいた
G	Ø						・足を、その梯子の一番下の段へふみかけた。
					49	[6]	●それから、何分かの後である。
G	Ø				50	[1]	羅生門の楼の上へ出る、
							・幅の広い梯子の中段に、
G	N*ga*						・一人の男が、
G	Ø						・猫のように身をちぢめて、
G	Ø						・息を殺しながら、
G	Ø						・上の容子《ようす》を窺っていた。
					51		楼の上からさす
G	N*wo*						・火の光が、かすかに、その男の右の頬をぬらしている。
G	Ø				52		短い鬚の中に、赤く膿《うみ》を持った
G	Ø			NP			・面皰《にきび》のある頬である。
G	N*wa*				53	[5]	下人は、
							・始めから、この上にいる
							・者は、死人ばかりだと
G	Ø						・高を括《くく》っていた。
					54		それが、
G	Ø						・梯子を二三段上って見ると、
		R	N*ga*				・上では誰か火をとぼして、
		R	Ø				・しかもその火をそこここと動かしているらしい。
					55		これは、
							・その濁った、
							・黄いろい光が、
							・隅々に蜘蛛《くも》の巣をかけた
							・天井裏に、揺れながら
							・映ったので、
G	Ø						・すぐにそれと知れたのである。
					56	[2]	この雨の夜に、
							・この羅生門の上で、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
		R	Ø				・火をともしているからは、
		R	Ø				・どうせただの者ではない。
G	N*wa*				57	[5]	●下人は、
G	Ø						・守宮《やもり》のように足音をぬすんで、
G	Ø						・やっと急な梯子を、一番上の段まで這うようにして
G	Ø						・上りつめた。
G	Ø				58		そうして体を出来るだけ、平《たいら》にしながら、
G	Ø						・頸を出来るだけ、前へ出して、
G	Ø						・恐る恐る、楼の内を覗《のぞ》いて見た。
G	Ø				59	[2]	●見ると、
G	Ø						・楼の内には、噂に聞いた通り、
							・幾つかの死骸《しがい》が、無造作に棄ててあるが、
							・火の光の及ぶ
G	Ø						・範囲が、思ったより
							・狭いので、
G	Ø						・数は幾つともわからない。
					60	[1]	ただ、おぼろげながら、
G	Ø						・知れるのは、
							・その中に裸の死骸と、着物を着た死骸とがある
							・という事である。
					61		勿論、中には女も男もまじっているらしい。
					62		そうして、
							・その死骸は
							・皆、それが、かつて、生きていた
							・人間だ
							・と云う事実さえ疑われるほど、
							・土を捏《こ》ねて造った
							・人形のように、口を開《あ》いたり
							・手を延ばしたりして、
							・ごろごろ床の上にころがっていた。
					63	[1]	しかも、
							・肩とか胸とかの高くなっている部分に、
							・ぼんやりした火の光をうけて、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
							・低くなっている
							・部分の影を一層暗くしながら、
							・永久に唖《おし》の如く黙っていた。
G	N*wa*				64	[5]	●下人《げにん》は、
							・それらの死骸の腐爛《ふらん》した
G	Ø						・臭気に思わず、
G	Ø						・鼻を掩《おお》った。
					65	[2]	しかし、
G’	N*wa*						・その手は、次の瞬間には、もう鼻を掩う事を忘れていた。
G	NP				66		ある強い感情が、ほとんどことごとくこの男の嗅覚を奪ってしまったからだ。
G’	N*wa*				67	[8]	●下人の眼は、
		R	Ø				・その時、はじめてその死骸の中に蹲《うずくま》っている
G	Ø	R	N*wo*				・人間を見た。
		R	Ø		68		檜皮色《ひわだいろ》の着物を着た、
		R	Ø				・背の低い、
		R	Ø				・痩《や》せた、
		R	N*da*				・白髪頭《しらがあたま》の、
		R	Ø				・猿のような老婆である。
		R	N*wa*		69	[2]	その老婆は、
		R	Ø				・右の手に火をともした
		R	Ø				・松の木片《きぎれ》を持って、
		R	Ø				・その死骸の一つの顔を覗きこむように
		R	Ø				・眺めていた。
					70		髪の毛の長い所を見ると、
							・多分女の死骸であろう。
G	N*wa*				71	[2]	●下人は、
G	Ø						・六分の恐怖と四分の好奇心とに動かされて、
G	Ø						・暫時《ざんじ》は呼吸《いき》をするのさえ忘れていた。
					72		旧記の記者の語を借りれば、
							・「頭身《とうしん》の毛も太る」
G	Ø						・ように感じたのである。
					73	[3]	すると

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
		R	N*wa*				・老婆は、
		R	Ø				・松の木片を、床板の間に挿して、
		R	Ø				・それから、今まで眺めていた
		R	Ø				・死骸の首に両手をかけると、
							・丁度、猿の親が猿の子の虱《しらみ》をとるように、
		R	Ø				・その長い髪の毛を一本ずつ抜きはじめた。
					74		髪は手に従って
							・抜けるらしい。
					75	[4]	●その髪の毛が、一本ずつ抜けるのに従って、
G’	N*wa*						・下人の心からは、
G	Ø						・恐怖が少しずつ消えて行った。
		R	NP		76		そうして、それと同時に、この老婆に対する
G	Ø						・はげしい憎悪が、少しずつ動いて来た。
		R	NP		77	[1]	――いや、この老婆に対すると云っては、
							・語弊《ごへい》があるかも知れない。
G	Ø				78		むしろ、あらゆる悪に対する反感が、
G	Ø						・一分毎に強さを増して来たのである。
G	NP				79	[3]	この時、誰かがこの下人に、
G	N*ga*						・さっき門の下でこの男が考えていた、
G	Ø						・饑死《うえじに》をするか
G	Ø						・盗人《ぬすびと》になるか
							・と云う問題を、改めて持出したら、
G	N*wa*						・恐らく下人は、
G	Ø						・何の未練もなく、
G	Ø						・饑死を選んだ事であろう。
G’	N*wa*				80	[1]	それほど、この男の悪を憎む心は、
		R	NP				・老婆の床に挿した
							・松の木片《きぎれ》のように、
G’	Ø						・勢いよく燃え上り出していたのである。
G	N*wa*				81	[3]	●下人には、
		R	N*ga*従				・勿論、何故老婆が死人の髪の毛を抜くか
G	Ø						・わからなかった。
					82		従って、
		R’	NP				・合理的には、それを善悪のいずれに片づけてよいか

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø						・知らなかった。
G	N*wa*				83		しかし下人にとっては、
		R	Ø				・この雨の夜に、この羅生門の上で、死人の髪の毛を抜く
G	Ø						・と云う事が、それだけで既に許すべからざる
G	Ø						・悪であった。
G	N*wa*				84	[1]	勿論、下人は、
G’	N*ga* 連体						・さっきまで自分が、盗人になる気でいた
G	Ø						・事なぞは、とうに忘れていたのである。
G	N*wa*				85	[6]	●そこで、下人は、
G	Ø						・両足に力を入れて、
G	Ø						・いきなり、梯子から上へ飛び上った。
					86	[1]	そうして
G	Ø						・聖柄《ひじりづか》の太刀に手をかけながら、
G	Ø	R	NP				・大股に老婆の前へ歩みよった。
		R	N*ga* 連体		87	[3]	老婆が驚いたのは
							・云うまでもない。
		R	N*wa*		88	[1]	●老婆は、
G	N*wo*	R	Ø				・一目下人を見ると、
							・まるで弩《いしゆみ》にでも弾《はじ》かれたように、
		R	Ø				・飛び上った。
G	Ø	R	NP		89	[1]	「おのれ、どこへ行く。」
G	N*wa*				90		●下人は、
		R	N*ga* 連体				・老婆が死骸につまずきながら、
		R	Ø				・慌てふためいて逃げようとする
G	Ø	R	Ø				・行手を塞《ふさ》いで、
G	Ø						・こう罵《ののし》った。
		R	N*wa*		91	[2]	老婆は、
G	N*wo*	R	Ø				・それでも下人をつきのけて
		R	Ø				・行こうとする。
G	N*wa*				92	[3]	下人は
							・また、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø	R’	NP				・それを行かすまいとして、
G	Ø	R	Ø				・押しもどす。
G’	N*wa*	R’	N*wa*		93		二人は
G’	Ø	R’	Ø				・死骸の中で、しばらく、無言のまま、つかみ合った。
G’	Ø	R’	Ø		94	[1]	しかし勝敗は、はじめからわかっている。
G	N*wa*				95	[2]	下人は
G	Ø	R’	N*wo*				・とうとう、老婆の腕をつかんで、
G	Ø	R	Ø				・無理にそこへねじ倒した。
		R’	N*da*		96		丁度、鶏《にわとり》の脚のような、骨と皮ばかりの腕である。
G	Ø	R	Ø		97	[2]	「何をしていた。
G	Ø	R	Ø		98		云え。
G	Ø	R	Ø		99		云わぬと、
G	Ø						・これだぞよ。」
G	N*wa*				100		●下人は、
G	Ø	R	N*wo*				・老婆をつき放すと、
G	Ø						・いきなり、太刀の鞘《さや》を払って、
G	Ø	R’	NP				・白い鋼《はがね》の色をその眼の前へつきつけた。
					101	[3]	けれども、
		R	N*wa*				・老婆は
		R	Ø				・黙っている。
		R	Ø		102		両手をわなわなふるわせて、
		R	Ø				・肩で息を切りながら、
		R	Ø				・眼を、眼球《めだま》がまぶたの外へ出そうになるほど、
		R	Ø				・見開いて、
		R	Ø				・唖のように執拗《しゆうね》く黙っている。
G	Ø	R’	Ø		103	[4]	これを見ると、
G	N*wa*						・下人は
G’	NP従	R’	N*ga*				・始めて明白にこの老婆の生死が、全然、自分の意志に支配されている
G	Ø						・と云う事を意識した。
G’	N*wa*				104	[1]	そうしてこの意識は、
							・今までけわしく燃えていた

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G’	Ø						・憎悪の心を、いつの間にか冷ましてしまった。
G	Ø				105		後《あと》に残ったのは、
							・ただ、ある仕事をして、
							・それが円満に成就した時の、
G	Ø						・安らかな得意と満足とがあるばかりである。
					106	[3]	そこで、
G	N*wa*						・下人は、
G	Ø	R	N*wo*				・老婆を見下しながら、
G	Ø						・少し声を柔らげてこう云った。
G	N*wa*				107		「己《おれ》は検非違使《けびいし》の庁の役人などではない。
G	Ø				108		今し方この門の下を通りかかった
G	Ø						・旅の者だ。
G	Ø	R	NP		109		だからお前に縄《なわ》をかけて、
G	Ø	R	Ø				・どうしようと云うような事はない。
		R	Ø		110		ただ、今時分この門の上で、何をして居たのだか、
G	NP	R	Ø				・それを己に話しさえすればいいのだ。」
					111	[2]	●すると、
		R	N*wa*				・老婆は、
		R	Ø				・見開いていた
		R’	N*wo*				・眼を、一層大きくして、
G	N*wo*	R	Ø				・じっとその下人の顔を見守った。
		R’	N*ga* 連体		112		まぶたの赤くなった、
		R’	NP				・肉食鳥のような、鋭い眼で見たのである。
					113		それから、
		R’	NP				・鰓で、ほとんど、鼻と一つになった
		R’	NP				・唇を、何か物でも噛んでいるように
		R	Ø				・動かした。
		R	Ø		114		細い喉で、尖った喉仏《のどぼとけ》の動いているのが見える。
					115	[1]	その時、
		R’	NP				・その喉から、鴉《からす》の啼くような声が、喘《あえ》ぎ喘ぎ、
G’	NP	R’	Ø				・下人の耳へ伝わって来た。

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
		R	Ø		116		「この髪を抜いてな、
		R	Ø				・この髪を抜いてな、
		R	Ø				・鬘《かずら》にしようと思うたのじゃ。」
G	N*wa*				117	[4]	●下人は、
		R’	N*ga* 連体				・老婆の答が存外、平凡なのに
G	Ø						・失望した。
					118	[1]	そうして
G	Ø						・失望すると同時に、
G	Ø						・また前の憎悪が、冷やかな侮蔑《ぶべつ》と一しょに、心の中へはいって来た。
					119	[3]	すると、
G’	N*ga*	R	NP				・その気色《けしき》が、先方へも通じたのであろう。
		R	N*wa*		120		老婆は、
		R’	NP従				・片手に、まだ死骸の頭から奪った長い抜け毛を持ったなり、
							・蟇《ひき》のつぶやくような
		R’	NP				・声で、ごもりながら、
		R	Ø				・こんな事を云った。
					121	[1]	「成程な、死人《しびと》の髪の毛を抜く
		R	Ø				・と云う事は、何ぼう悪い事かも知れぬ。
					122		じゃが、
							・ここにいる
							・死人どもは、皆、そのくらいな事を、されてもいい
							・人間ばかりだぞよ。
		R	N*ga* 連体		123	[1]	現在、わしが今、髪を抜いた
							・女などはな、
							・蛇を四寸《しすん》ばかりずつに切って
							・干したのを、
							・干魚《ほしうお》だと云うて、
							・太刀帯《たてわき》の陣へ売りに往《い》んだわ。
					124		疫病《えやみ》にかかって死ななんだら、
							・今でも売りに往んでいた事であろ。

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
					125		それもよ、
							・この女の売る
							・干魚は、味がよいと云うて、
							・太刀帯どもが、欠かさず菜料《さいりよう》に買っていたそうな。
		R	N*wa*		126	[1]	わしは、
							・この女のした
		R	Ø				・事が悪いとは思うていぬ。
					127		せねば、
							・饑死をするのじゃて、
							・仕方がなくした事であろ。
					128		されば、
		R	N*ga* 連体				・今また、わしのしていた
		R	Ø				・事も悪い事とは思わぬぞよ。
		R	Ø		129	[1]	これとてもやはりせねば、
		R	Ø				・饑死をするじゃて、
		R	Ø				・仕方がなくする事じゃわいの。
					130		じゃて、
							・その仕方がない
							・事を、よく知っていた
							・この女は、
		R	NP 連体				・大方わしのする
		R	Ø				・事も大目に見てくれるであろ。」
		R	N*wa*		131		●老婆は、
		R	Ø				・大体こんな意味の事を云った。
G	N*wa*				132	[5]	●下人は、
G	Ø						・太刀を鞘《さや》におさめて、
G	Ø						・その太刀の柄《つか》を左の手でおさえながら、
G	Ø						・冷然として、
G	Ø						・この話を聞いていた。
G’	N*wa*				133		勿論、右の手では、
G’	N*wo*			N*wo*			・赤く頬に膿を持った大きな面皰《にきび》を気にしながら、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø						・聞いているのである。
					134	[3]	しかし、
G	Ø						・これを聞いている中に、
G’	N*wa*						・下人の心には、
G’	Ø						・ある勇気が生まれて来た。
G”	N*wa*				135		それは、
G	N*wa*						・さっき門の下で、この男には欠けていた
G”	N*da*						・勇気である。
					136		そうして、
G	Ø						・またさっきこの門の上へ上って、
G	Ø	R	N*wo*				・この老婆を捕えた
G”	N*wa*						・時の勇気とは、全然、反対な方向に動こうとする
G”	N*da*						・勇気である。
G	N*wa*				137	[2]	下人は、
G	Ø						・饑死をするか盗人になるかに、
G	Ø						・迷わなかったばかりではない。
G	NP				138		その時のこの男の心もちから云えば、
G	Ø						・饑死などと云う事は、ほとんど、考える事さえ出来ないほど、
G	Ø						・意識の外に追い出されていた。
G	Ø				139	[6]	「きっと、そうか。」
		R’	N*ga*		140		●老婆の話が完《おわ》ると、
G	N*wa*						・下人は
G	Ø						・嘲《あざけ》るような声で念を押した。
					141		そうして、
G	Ø						・一足前へ出ると、
G	Ø			NP			・不意に右の手を面皰《にきび》から離して、
G	Ø	R’	N*wo*				・老婆の襟上《えりがみ》をつかみながら、
							・噛みつくように
G	Ø						・こう云った。
G	N*ga*従	R	Ø		142	[1]	「では、己《おれ》が引剥《ひはぎ》をしようと恨むまいな。
G	N*mo*従				143		己もそうしなければ、
G	Ø						・饑死をする体なのだ。」
G	N*wa*				144	[2]	●下人は、

Servant	Form	Old Woman	Form	Other forms	Sent. No.	Freq.	Text – parsed in individual clauses
G	Ø	R’	N*wo*				・すばやく、老婆の着物を剥ぎとった。
					145		それから、
G’	NP	R	Ø				・足にしがみつこうとする
G	Ø	R	N*wo*				・老婆を、手荒く死骸の上へ蹴倒した。
					146	[1]	梯子の口までは、僅に五歩を数えるばかりである。
G	N*wa*				147		下人は、
G	Ø	R	Ø				・剥ぎとった檜皮色《ひわだいろ》の着物をわきにかかえて、
G	Ø						・またたく間に急な梯子を夜の底へかけ下りた。
		R	Ø		148	[8]	●しばらく、死んだように倒れていた
		R”	N*wa*				・老婆が、死骸の中から、その裸の体を起したのは、
							・それから間もなくの事である。
		R	N*wa*		149		老婆は
							・つぶやくような、
							・うめくような
		R	Ø				・声を立てながら、
							・まだ燃えている
		R	Ø				・火の光をたよりに、梯子の口まで、這って行った。
					150	[1]	そうして、
		R	Ø				・そこから、短い白髪《しらが》を倒《さかさま》にして、
		R	Ø				・門の下を覗きこんだ。
					151	[2]	外には、ただ、黒洞々《こくとうとう》たる夜があるばかりである。
G”	N*wa* 否定				152	[3]	●下人の行方《ゆくえ》は、誰も知らない。

G = SERVANT (下人),
G’, G” = derived referent
R = OLD WOMA N (老婆)
R’,R” = derived referent
● = content boundary
NP = noun phrase
N*wa* etc. = NP + particle *wa* etc.
N*ga*従 etc. = NP + particle *ga* etc. in dependent clause
Ø = ellipted referent

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POVZETEK

"TEXT AND BOUNDARY: A SIDEWAYS GLANCE AT TEXTUAL PHENOMENA IN JAPANESE"

(Besedilo in meja: pogled s strani na besedilne pojave v japonščini)

Knjiga obravnava besedilne pojave v japonščini z nekoliko posebnega vidika, t.j. z vidika »meje«. Eksplicitno zaznamovane »meje« na splošno in »oklepajske strukture« kot njihov poseben primer, so vsesplošno prisotne na raznih ravneh jezikovnih struktur. Tudi slojevitost japonske povedi, ki jo je utemeljil jezikoslovec Minami Huzio, lahko razumemo kot poseben primer oklepajskih struktur.

Oklepajske strukture so po svoji naravi probabilistične. Začetni element v oklepajski strukturi implicira obstoj zaključnega elementa, vendar ta implikacija ni absolutna, kot je npr. pri oklepajih v algebri, ampak nosi samo določeno verjetnost. V tem se oklepajske strukture razlikujejo od preprostega sopojavljanja. Sopojavljanje dveh elementov lahko razumemo kot oklepajsko strukturo samo, če lahko potrdimo, da prisotnost začetnega elementa z določeno verjetnostjo implicira prisotnost končnega elementa.

Knjiga v zvezi z oklepajskimi strukturami obravnava naslednje vidike interakcije med govorcem/piscem in sogovorcem/bralcem.

V 1. poglavju je uveden pojem meje, ilustriram ga s primeri iz umetnih in naravnih simbolnih sistemov, mdr. tudi s primeri iz japonskega jezika. Nadaljnja poglavja obravnavajo posamezne probleme, povezane s pojmom meje.

2. poglavje poskuša osvetliti motivacijo pri oblikovanju vsebine v stavke, in sicer z vidika vsebinske povezanosti in mej med vsebinami. Analiza parafraziranih besedil pokaže, da je stavek retorično sredstvo za eksplicitno nakazovanje vsebinskih meja na besedilni ravni.

V 3. poglavju je obravnavana vloga japonskih kazalnic v sobesedilu. Izkaže se, da sama paradigma kazalnic ne zadošča in da je treba za nanašanje znotraj besedila upoštevati širšo paradigmo izrazov nanašanja, vključno z elipso. Bližinska kazalnica *ko* in daljinska kazalnica *so* nista v neposredni opoziciji med seboj, ampak z drugimi nanašalnimi izrazi, njihova raba pa je v veliki meri odvisna od tega, ali gre za nanašanje preko meja vsebinskih enot besedila, ali pa za nanašanje znotraj teh meja.

V 4. poglavju je obravnavana vloga téme z vidika sobesedila. To je osnova za ugotavljanje tega, kako je raba téme, zaznamovane s tematskim členkom *wa*, v sonanašalni (koreferenčni) verigi odvisna od vsebinske strukturiranosti besedila. Za pripovedna besedila se izkaže, da v sonanašalnih verigah téma z *wa* poleg svoje primarne vloge mdr. tudi eksplicitno zaznamuje vsebinske meje v besedilu.

V 5. poglavju je obravnavana vloga oklepajskih struktur, temelječih na sopojavljanju modalnih prislovov (A) in modalnih izrazov (M) na koncu povedi. V tem poglavju je motivacija rabe dvojnega zaznamovanja modalnosti osvetljena z vidika procesa sporazumevanja, in sicer z analizo sogovorčevega zaznavanja in njegovega predvidevanja sopojavljanja

A-M v spontanem pogovoru. Izkaže se, da A-M, ki oklepa poved, dejansko deluje kot oklepajska struktura in da govorci to izkoriščajo za predvidevanje zaključka daljših povedi. Vendar pa v primeru krajših povedi take potrebe ni, zato kaže, da uporabi A-M botrujejo tudi drugi, dodatni razlogi, pogojeni s potrebami v konkretnih kontekstih rabe.

In nazadnje, 6. poglavje z vidika besediloslovja povzema rezultate celotne študije.

SUMMARY

"TEXT AND BOUNDARY: A SIDEWAYS GLANCE AT TEXTUAL PHENOMENA IN JAPANESE"

This research study examines various textual phenomena in Japanese from the particular perspective of boundary. Explicitly signaled "boundaries" in general and "bracket structures" as their special case, are ubiquitous at all levels of linguistic structure. The layered structure of the Japanese sentence as described in detail by Minami Huzio can also be considered as a particular case of bracket structure.

Bracket structures are probabilistic in nature. The opening element of a bracket structure implies the existence of a closing element, not as an absolute, as with brackets in algebra for example, but with a certain probability.

Two co-occurring elements in certain linguistic structure do not by themselves constitute a bracket structure. A bracket structure can be identified only when the existence of one element (an opening element) implies the existence of the other (a closing element).

The following topics, related to various aspects of interaction between speaker/ writer and hearer/reader involving boundary, are examined in this study.

Chapter 1. introduces the notion of boundary, illustrated by different examples from artificial symbolic systems and from the Japanese language.

The ensuing chapters each deal with a particular problem.

Chapter 2. attempts to shed light on sentence formation of complex sentences from the point of view of relatedness of content and of content boundaries. It shows that the sentence is a rhetorical device which is an explicit marker of content boundaries at the textual level.

Chapter 3. examines the selection between Japanese demonstratives in context and the role of paragraph boundary. It is demonstrated that the paradigm of demonstratives is insufficient for a discussion of intratextual reference. Proxal and distal demonstratives are a part of a wider referential paradigm and their usage depends to a great extent on whether the reference is across content boundaries or within them.

Chapter 4. deals with the nature of topic seen from the context. In the later half, a possible pragmatic motivation for explicit signaling of topic in the middle of the coreferential chain is examined. Topic particle *wa* in narrative seems to act as a content boundary marker.

Then in Chapter 5., the role of modality-based bracket structure in speaker-hearer interaction is discussed. This chapter tries to reveal the processual aspect of language through an analysis of the hearer's perception and prediction of modal adverb (A) co-occurrence with utterance – final modality form (M). These A-M co-occurrences function as brackets and in the case of longer utterances the hearer relies on them to predict completion of the utterance. However, in shorter utterances this may not be the case, implying that A-M forms may serve other contextual purposes.

Finally, Chapter 6. summarizes the results of the entire study from the point of view of discourse research.

SUBJECT INDEX

AUTHOR INDEX