

Information structure in spoken Japanese

Particles, word order, and intonation

Natsuko Nakagawa

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Abstract

This thesis investigates the associations between **information structure** and linguistic forms in spoken Japanese mainly by analyzing spoken corpora. It proposes multi-dimensional annotation and analysis procedures for spoken corpora and explores the relations between **information structure** and particles, **word order**, and intonation.

Particles, **word order**, and intonation in spoken Japanese have been investigated separately in different frameworks and different subfields in the literature; there was no unified theory to account for the whole phenomena. This thesis investigated the phenomena as a whole in a consistent way by annotating all target expressions according to the same criteria and by employing the same analytical framework. Chapter 1 outlines the questions to be investigated and introduces the methodology of this thesis. Chapter 2 reviews the literature on Japanese linguistics as well as the literature on **information structure** in different languages. Chapter 3 proposes the analytical framework of the thesis. Major findings are discussed in Chapter 4, 5, and 6.

Chapter 4 analyzes the distributions of **topic** and case particles. It is made clear that so-called **topic** particles (*wa*, the zero particles, *toiuno-wa*, and *kedo/ga* preceded by **copula**) are mainly sensitive to the given-new taxonomy, whereas case particles (*ga*, *o*, and the zero particles) are sensitive to both focushood and grammatical function. While the distinction between *wa* and *ga* attract much attention in traditional Japanese linguistics, the distribution of different kinds of **topic** and case particles, including the zero particles, are analyzed in this thesis.

Chapter 5 analyzes **word order**: i.e., clause-initial, pre-predicate, and post-predicate noun phrase. Typical NPs appear either clause-initially or post-predicatively, while focal NPs appear pre-predicatively. Clause-initial and post-predicate NPs are different mainly in their uses in the given-new taxonomy. The previous literature investigated clause-initial, pre-predicate, and post-predicate constructions in different frameworks; however, there was no unified account for **word order** in Japanese. The thesis outlines **word order** in spoken Japanese in a unified framework.

Abstract

Chapter 6 investigates intonation. While the previous literature mainly concentrates on **contrastive focus**, this thesis discusses in terms of both **topic** and focus. It turns out that intonation corresponds to a unit of processing and argues that **information structure** influences the form of intonation units.

Chapter 7 discusses theoretical implications of these findings. Finally, Chapter 8 summarizes the thesis and points out some remaining issues and possible future studies.

1 Introduction

1.1 Aims of the study

The goal of this study is twofold. First, I will investigate the relationships between **information structure** and linguistic forms in spoken Japanese. Second, I propose a method to investigate the relations between **information structure** and linguistic forms in any language using corpora.

Speakers of Japanese, like speakers of many other languages, infer the knowledge of other people and express their assumptions about it using various linguistic and non-linguistic ways. Consider a piece of conversation of three people, A, B, and C from *the Chiba three-party conversation corpus* (Den & Enomoto 2007). In (1–A1), one of the participants, A, starts talking about *ano koohii-meekaa* ‘that coffee machine’. B in B2 to B4 explains why A started to talk about it; it is related to the previous **topic** (too many people gathered in a small room). C just adds weak backchannel response in C5. In A6–A7, A asks C whether she knows of the new coffee machine that arrived in building E. In C8–C11, C answers to A that C knows about it but has never tried it.


- (1) A1: *ano koohii-meekaa sugoi-yo-ne*
that coffee-maker great-FP-FP
‘That coffee machine is excellent, isn’t it?’
- B2: *koohii-meekaa-o mi-tai*
coffee-maker-ACC see-want
‘(I) wanna see the coffee machine.’
- B3: *tukat-teru-no-o mi-tai-tte iu-no-to*
use-PFV-NMLZ-ACC see-want-QUOT say-NMLZ-and
‘(They) want to see (us) use (the coffee machine), and’
- B4: *koohii nom-e-nai san-nin-gumi-mo ita-kara*
coffee drink-CAP-NEG three-CL.person-group-also exist-because
otya non-de-ta
tea drink-PROG-PAST

¹Some of the utterances were omitted for the sake of simplicity.

1 Introduction

- ‘since there were also three people who cannot drink coffee, they drank tea.’
- C5: un
uh-huh
‘Uh-huh.’
- A6: [to C] ii-too-no sit-teru:
 E-building-GEN know-PROG
 ‘(Do you) know (that) in Building E?’
- A7: ano **koohii-meekaa**
 that coffee-maker
 ‘That coffee machine.’
- C8: un un un un un
 yeah yeah yeah yeah yeah
 ‘Yeah yeah!’
- A9: tukat-ta koto aru
 use-PAST thing exist
 ‘Have (you) used (it)?’
- C10: atasi-sa: **are-ga-ne:** ki-te-kara-ne:
 1SG-FP that-NOM-FP come-and-since-FP
 ‘Since it arrived, I’
- C11: moo hotondo sagyoo sun-no-ga nooha-beya-ni
 already almost work do-NMLZ-NOM brainwave-room-DAT
 nat-tyat-ta-kara-ne:
 become-PFV-PAST-because-FP
 ‘almost always work in the brainwave room, so...’ (chiba0932:
 172.39-191.46)

From this short conversation, observers (namely, we) can infer that A in A1 assumed that the other participants already know about the great coffee machine that was introduced in their lab. One can also infer that B in B2–B4 already knows about the coffee machine. In A6–A7, A appears to think that C might not know about the coffee machine. However, C in C8 explicitly denies that A’s concern does not apply.

Why is it possible for us to infer the assumption of speakers about the knowledge of other participants? In  case, linguistic expressions such as *ano* (*koohii meekaa*) ‘that (coffee machine)’ in A1 and *sit-teru:* ‘(do you) know...?’ in A6 indicate A’s assumption about the other participants’ knowledge.

This study investigates more subtle linguistic expressions than these determiners in spoken Japanese: particles, **word order**, and intonation. Let us discuss the

distinction between the particles *ga* and *wa*, that has been discussed for a long time in the literature on Japanese linguistics. Examples (2-a) with the particle *ga* and (2-b) with *wa* express the same proposition ‘A/the dog is running’, where **definiteness** is not explicit in the original Japanese sentences. The expression *inu* ‘dog’ followed by *ga* in (2-a) can be interpreted to be either definite or **indefinite**, while that followed by *wa* in (2-b) can only be interpreted to be definite; from (2-b) we can infer that the speaker assumes the **hearer** already knows about the dog.

- (2) a. *inu-ga* *hasit-teiru*
 dog-NOM run-PROG
 ‘A/the dog is running.’
 b. *inu-wa* *hasit-teiru*
 dog-TOP run-PROG
 ‘The dog is running.’ (Constructed)

As will be discussed in Chapter 4, however, it is not the case that the NP coded by *wa* is always definite, nor is it the case that the NP coded by *ga* is always **indefinite**. What determines the usage of the particles? Moreover, the choice of particles interacts with other factors such as **word order** and intonation. This study investigates how **information structure** affects the choices of particles, **word order**, and intonation employing a corpus of spoken Japanese.

1.2 Background

Information structure in this study comprises “the utterance-internal structural and semantic properties reflecting the relation of an **utterance** to the **discourse** context, in terms of the **discourse** status of its content, the actual and attributed attentional status of the **discourse** participants, and the participants’ prior and changing attitudes (knowledge, beliefs, intentions, expectations, etc.)” (Kruijff-Korbayová & Steedman 2003: 250). I assume that **information structure** is a subordinate part of **discourse** structure, which is a clause-level unit and does not allow recursivity. Also, I suppose that **information structure** should be analyzed at the surface level rather than at the level of underlying semantics (or logical form).

There are two kinds of roots of studies on **information structure** (see Kruijff-Korbayová & Steedman (2003) for a useful survey). One started from studies on definite and **indefinite** descriptions by Russell (1905) and Strawson (1950; 1964). These studies triggered the discussion on **presupposition** and assertion, which

has been at issue until the present time. In particular, they have influenced contemporary scholars of logic, formal semantics, and generative grammar (Chomsky 1965; Jackendoff 1972; Selkirk 1984; Rooth 1985; Rizzi 1997; Erteschik-Shir 1997; 2007; Büring 2007; Ishihara 2011; Krifka & Misan 2012; Endo 2014). The other started from studies of the Prague School (Mathesius 1928; 1929; Sgall 1967; Firbas 1975). Their studies have especially inspired functional linguistics (Bolinger 1965; Halliday 1967; Kuno 1973b; Gundel 1974; Chafe 1976; 1994; Prince 1981; Givón 1983; Tomlin 1986; Lambrecht 1994; Birner & Ward 1998; 2009). Some scholars were influenced by both of these traditions (Vallduví 1990; Steedman 1991; Vallduví & Vilkuna 1998). Almost independent of this tradition of European and American linguistics, the so-called **topic** particle *wa* in Japanese, often as opposed to the **case particle** *ga*, has gathered attention of Japanese linguists for a long time (Matsushita 1928; Yamada 1936; Tokieda 1950/2005; Mikami 1953/1972; 1960; Onoe 1981; Kinsui 1995; Kikuchi 1995; Noda 1996; Masuoka 2000; 2012). In addition to the issue of the usage of *wa*, the discussion on *wa* also elicited the question of the nature of subject because, on the surface, *wa* frequently alternates with *ga*, the so-called subject particle. See Chapter 2 for details.

More recently, more studies have investigated actual productions and understandings of language than the acceptability judgements of constructed examples. Corpus-oriented studies (e.g., Calhoun et al. 2005; Götze et al. 2007; Chiarcos et al. 2011) inherit both of the traditions of **information structure**: the logical and the functional traditions. Other corpus-oriented studies such as Hajičová et al. (2000), annotating **Czech**, are based on the Prague School theory. There are also questionnaires for eliciting expressions related to **information structure** cross-linguistically (Skopeteas et al. 2006). Cowles (2003) and Cowles & Ferreira (2012) investigate **information structure** mainly by employing psycholinguistic experiments.

I am influenced most by the tradition of functional linguistics and corpus linguistics. Although I tried to include the work of other traditions as much as possible, sometimes readers of other traditions might have difficulty in understanding my assumptions. I assume that usage shapes a language (Givón 1976; Comrie 1983; 1989; Bybee & Hopper 2001) and am interested in how linguistic usage affects the shape of a language. In this study, I focus on the question of how the usage related to **information structure** affects linguistic form in Japanese.

1.3 Methodology

I investigate linguistic forms in spoken Japanese associated with **information structure** mainly by examining spoken corpora. It is well known that **information structure** phenomena are so subtle that slight changes in contexts can affect the judgement of the sentence in question; acceptability judgements from a single person (i.e., the author) are not reliable. This is the reason why I employ spoken corpora; the speakers produce utterances naturally without concentrating on **information structure** too much like linguists. Moreover, contexts are available in spoken corpora, which are crucial for observers to determine the **information structure** of a sentence. It is also well known, however, that **information structure** annotation is very hard. There are studies on annotating **information structure** in various corpora in different languages (Hajičová et al. 2000; Calhoun et al. 2005; Götze et al. 2007; Ritz et al. 2008; Chiarcos et al. 2011). Some use syntactic information to decide the **information structure** of a sentence (Hajičová et al. 2000); some use intonation (Calhoun et al. 2005); others use linguistic tests (Götze et al. 2007; Chiarcos et al. 2011). But many of the studies employ multiple features to decide the **information structure** of a sentence. For example, Götze et al. (2007), in annotating “aboutness topic”, not only employ tests such as whether the NP in question can be the answer to the question “let me tell you something about X”, but also employ morphological information of the NP such as referentiality, definiteness, genericity, etc. In the present work, I annotate multiple features of “topichood” and “focushood”, rather than annotating homogeneous “topic” and “focus”. I consider a **topic** a cluster of features of presupposed, evoked, definite, specific, **animate**, etc., and a **focus** as a cluster of features of asserted, brand-new, **indefinite**, non-specific, **inanimate**. I assume that they typically (frequently) have these features. Not all the features are necessarily present in topics or foci; there could be infrequent (i.e., atypical) topics which are **indefinite** or **inanimate**, or there could be foci which are definite or **animate**. See discussion in Chapter 3 for details.

I sometimes employ acceptability judgements and production experiments to support my argument. I believe that, in the future, it will be necessary to test all the hypotheses by multiple methods for a scientific investigation of language.

1.4 Overview

I will now outline the chapters of this book. In Chapter 2, I provide an overview of the previous studies on **information structure** in across languages. I also de-

1 Introduction

scribe the basic features of Japanese and review studies on Japanese related to this study. In Chapter 3, I outline the framework employed in the study; the notions of topic, focus, and features related to them. Moreover, I introduce the nature of the corpora, the annotation procedure, and the methods to analyze the results. The following three chapters analyze linguistic forms in spoken Japanese. Chapter 4 investigates particles, Chapter 5 analyzes word order, and Chapter 6 inquires into intonation. In Chapter 7, I summarize the study and discuss its theoretical aspects.

2 Background

2.1 Introduction

This chapter provides an overview of various definitions of (or notions frequently associated with) topics (§2.2) and foci (§2.3). In each section, I first introduce the definition of topics and foci to be used in this study. Then I review the literature. Topic is roughly equivalent to “psychological subject” (von der Gabelentz 1869), “theme” (e.g., Daneš 1970; Halliday 2004), “ground”, “background”, and “link” (Vallduví 1994), although there are many (sometimes crucial) differences among these. In the same manner, focus is roughly equivalent to “psychological predicate”, “rheme”, “foreground”, and “comment”. Gundel (1974) and Kruijff-Korbayová & Steedman (2003) provide a useful summary of the history of these notions.

In reviewing the literature, I emphasize two aspects: the importance of the definition of topics and foci proposed in the study and, at the same time, their heterogeneous characteristics. The present study argues that topics and foci in different languages form prototype categories with different features of different degrees. This position is similar to Firbas (1975) and Givón (1976), who viewed topic as a gradient notion, although the proposed features are not exactly the same. Also, I only assume a single layer of information structure rather than assuming multiple layers such as the topic-comment vs. focus-background layers. While many researchers hypothesize multiple layers of information structure, I instead suppose a flat layer of information structure with multiple features.

In §2.4, finally, I review the literature on Japanese particles, word order, and intonation.

2.2 Topic

In this section, I give a brief overview of the definitions of topic. The notion of topic is controversial, and the history is complicated. I classify these complicated notions into several representative categories in the following subsections. Before the overview, I first introduce the definition of topic in this study to make

the discussion clear.

2.2.1 The definition of topic in this study

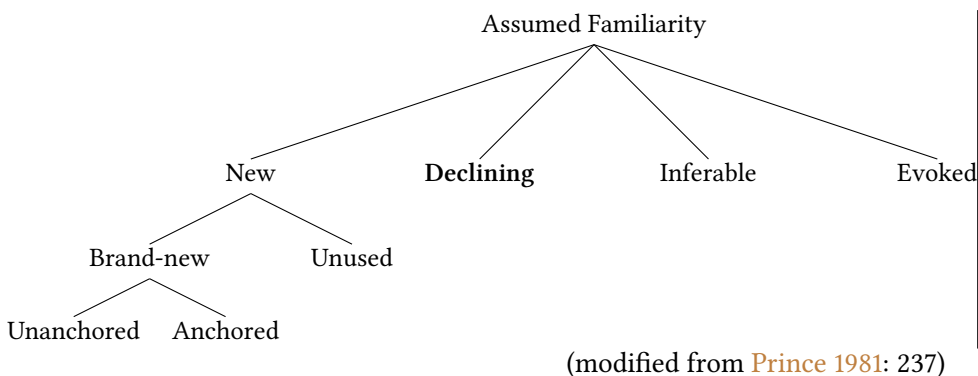
Since I assume that **information structure** is a cognitive notion, I define the **topic** from a cognitive standpoint. The definition of **topic** is stated in (1).

- (1) Topic is a **discourse** element that the speaker assumes or presupposes to be shared (known or taken for granted) and uncontroversial in a given sentence both by the speaker and the **hearer**.

This definition follows and elaborates the idea of topics (*daimoku-tai* ‘**topic** form’) in Matsushita (1928), who states that “the theme of judgement [**topic**] should not be changed before the judgement” (p. 774, translated by NN). Also, he states that the **topic** is “determinate” (p. 775).

In terms of the given-new taxonomy proposed by Prince (1981) shown in (2), topics defined in (1) include unused, declining (to be discussed below), **inferable**, and evoked elements (Lambrecht 1994: §4.4.2).¹ By the statement that topics are “shared”, I mean that topics are either unused, declining, **inferable**, or evoked.

(2)



A new element refers to an entity the speaker first introduces into the **discourse**; in other words, “[the speaker] tells the **hearer** to ‘put it on the counter’”

¹Inferable elements are further divided into containing and non-containing **inferable** elements, and evoked elements are divided into textually and situationally evoked elements. I omit these distinctions since they are irrelevant to the discussion.

(Prince 1981: 235). A brand-new element refers to a new entity that “the hearer may have had to create” (ibid.). There are two types of brand-new elements: anchored and unanchored. “A discourse entity is Anchored if the NP representing it is linked, by means of another NP, or ‘Anchor’, properly contained in it, to some other discourse entity” (op.cit.: 236). According to Prince, “a bus [...] is Unanchored, or simply Brand-New, whereas a guy I work with [...], containing the NP I, is Brand-new Anchored, as the discourse entity the hearer creates for this particular guy will be immediately linked to his/her discourse entity for the speaker” (ibid.). An unused element refers to an entity “the hearer may be assumed to have a corresponding entity in his/her own model and simply has to place it in (or copy it into) the discourse-model” (ibid.) such as *Noam Chomsky*. An NP refers to an evoked entity “if [the] NP is uttered whose entity is already in the discourse-model, or ‘on the counter’” (ibid.). “A discourse entity is Inferable if the speaker assumes the hearer can infer it, via logical-or, more commonly, plausible-reasoning, from discourse entities already Evoked or from other Inferables” (ibid.).

In addition, I put declining elements in the taxonomy. A declining element refers to an entity which has been mentioned a while ago but is assumed to be declining in the hearer’s mind because it has not been referred to for a while. Declining elements are assumed to be in semi-active state in terms of Chafe (1987; 1994). The referents of declining elements are in semi-active state especially through “deactivation from an earlier active state” (Chafe 1987: 29). Chafe’s concept of semi-active also includes inferable entities. Since I want to distinguish inferable from declining, I introduce a new term.

Note that the condition where the speaker assumes the element to be shared is a necessary but not a sufficient condition of topic; if the element in question is a topic, it is assumed by the speaker to be shared with the hearer, but it is not necessarily the case that all shared elements are topics. The topic element must also be assumed to be uncontroversial, and I argue that this is a necessary and sufficient condition for topic, (see §3.3.1 for details).

Also note that the definition of topic in (1) includes heterogeneous elements in (2). Therefore, definition (1) does not necessarily contradict the definitions proposed in the previous literature. Rather, it includes many of the previous definitions and restates them in terms of a cognitive viewpoint.

In the following section, I provide a brief overview of the notions of topics in the previous literature by comparing them with the notion I propose in the present study.

2.2.2 Aboutness

One of the representative definitions of **topic** is that **topic** is what the sentence is about. This definition is employed by various linguists such as Matsushita (1928); Kuno (1972); Gundel (1974); Reinhart (1981); Dik (1978); Lambrecht (1994), and Erteschik-Shir (2007). Topic as things under discussion (e.g., Heycock 2008) is also classified here. Here I will discuss Reinhart (1981) because this is one of the most detailed and influential works.

According to Reinhart (1981), inspired by Strawson (1964), topics should be characterized in terms of *aboutness*. More precisely, “an expression will be understood as representing the **topic** if the assertion is understood as intending to expand our knowledge of this **topic**” (Reinhart 1981: 59).² Moreover, the truth value of a sentence is assessed with respect to the **topic** (ibid.). She proposes some tests to identify a **topic** in a sentence. The first one is an *as for/regarding* test; an expression X is a **topic** if it is felicitously paraphrased as {*as for/regarding*} X (p. 63, see also Kuno (1972; 1976); Gundel (1974)). Therefore, *Matilda* in (3-a) and *your second proposal* (3-b) are topics.

- (3) a. **As for Matilda**, she can't stand Felix.
b. **Regarding your second proposal**, the board has found it unfeasible.
(Reinhart 1981: 59)

As she cautions, however, not all topics can be identified in this way because *as for* and *regarding* are typically used to change the current **topic** (Keenan & Schieffelin 1976; Duranti & Ochs 1979). For example, *as for this book* in (4) is awkward even though this is clearly a **topic**. This is because the book has already been the **topic** of the previous sentence.

- (4) Kracauer's book is probably the most famous ever written on the subject of the cinema. ??**As for this book**, many more people are familiar with its catchy title than[sic] are acquainted with its [turgid] text. (Reinhart 1981: 64)

Therefore, she proposes a “more reliable test”, which embeds the sentence in question in *about* sentences. This is exemplified in (5), where the book is correctly identified as a **topic**.

² Although Reinhart's idea of the definition of **topic** is basically from Strawson, the discussion in this work is based on Reinhart (1981). This is because she notes that her "presentation of [the criteria of topics] may not be fully loyal to [Strawson's] original intentions" since "[Strawson's] criteria are introduced in a rather parsimonious manner" (59).

- (5) He said {about/of} the book that many more people are familiar with its catchy title than are acquainted with its turgid text. (op. cit., 65)

To formalize this intuition, Reinhart introduces the notion of possible pragmatic assertions. It is assumed that “each declarative sentence is associated with a set of possible pragmatic assertions (PPA), which means that that sentence can be used to introduce the content of any of these assertions into the context set” (p. 80). The context set of a given discourse at a given point is a set of propositions that both the speaker and the hearer have accepted to be true at this point (Stalnaker 1978). The set of PPA’s of a given sentence S is defined in (6), where ϕ indicates the proposition expressed by S.

- (6) $PPA_{(S)} = \phi$ together with [$\langle \alpha, \phi \rangle$: α is the interpretation of an NP expression in S] (Reinhart 1981: 80-81)

Assuming (6), the topic expression of a sentence S in a context C is defined as in (7).

- (7) Topic is “the expression corresponding to α_i in the pair $\langle \alpha_i, \phi \rangle$ of $PPA_{(S)}$ which is selected in C”. (op. cit., 81)

This is achieved in the following steps: (i) “if possible, the proposition ϕ expressed in S will be assessed by the hearer in C with respect to the subset of propositions already listed in the context set under α_i ”, and (ii) “if ϕ is not rejected it will be added to the context set under the entry α_i ” (ibid.).

Since this definition of topic in terms of aboutness is attractive and seems to coincide with our intuition, many linguists adopt this definition (e.g., Lambrecht 1994; Erteschik-Shir 2007). However, I do not employ this definition although my criteria of topics in (1) and Reinhart’s (7) are apparently very similar and the elements covered by these two definitions overlap most of the time. Given that I am interested in finding topic expressions in corpora, aboutness is not clear enough for my purpose. For example, Vallduví (1994) presents the following hypothetical mini-conversation between a newly-appointed White House butler (H_1) and the Foreign Office Secretary after returning from a trip to Europe (S_0).

- (8) H_1 : I am arranging things for the president’s dinner. Anything I should know?
 S_0 : Yes. [The president]_{TOP} [hates the Delft china set]_{FOC}.

(Vallduví 1994: 9, 12)

In this example, Vallduví identifies *hates the Delft china set* as focus, whereas it passes the *about* test as shown in (9).

- (9) The Foreign Office Secretary said about **the Delft china set** that the president hates it.

Since I am assuming that topics are in complementary distribution with focus elements, the element in question is not a focus if it is a **topic**, and vice versa.

On the other hand, the *no-* and *aha-*tests proposed in §3.3.1 correctly identify *the president* as a **topic** and *the Delft china set* as a focus. As shown in (10-H₂) and (11-H₂), the **topic** *the president* cannot be argued against or repeated as news, whereas the focus *the Delft china set* can be.

- (10) H₁: I'm arranging things for the president's dinner. Anything I should know?
S₀: Yes. [The president]_{TOP} [hates the Delft china set]_{FOC}.
H₂: ?No, **the first lady** hates the Delft china set.
H'₂: No, the president hates **Rockingham Pottery**.
- (11) H₁: I'm arranging things for the president's dinner. Anything I should know?
S₀: Yes. [The president]_{TOP} [hates the Delft china set]_{FOC}.
H₂: ?Aha, *the president*.
H'₂: Aha, **the Delft china set**.

Therefore, I conclude that the definition (1) identifies a **topic** better than the **aboutness** test, although **aboutness** captures some aspects of our intuition about topics.

2.2.3 Evokedness

Evoked information is commonly called “given” or “old” information. However, as pointed out in Prince (1981), “given” and “old” are too ambiguous terms. Following Prince, I use the term “evoked information” to indicate the referent that has been mentioned in the previous **discourse** or has been physically present in the speaker's and the **hearer**'s attention and hence “in the consciousness of the addressee [(or the **hearer**)] at the time of **utterance**” (Chafe 1976: 30). The term “the focus (center) of attention”, “**anaphoric**”, “predictable” (Kuno 1972), and “active” (Portner 2007) are understood in the same way.

Most researchers agree that evoked information is not the **topic** itself (Reinhart 1981; Gundel 1988; Lambrecht 1994: *inter alia*). As it is well known, evoked elements can be focus instead of **topic** as shown in (12-B).

- (12) A: Who did Felix praise?
 B: [Felix praised]_{TOP} [himself.]_{FOC}
 (Reinhart 1981: 72, style modified by NN)

In (12-B), it is obvious that *himself* is evoked information since the referent is mentioned in the previous context and in the sentence in question itself. At the same time, it consists of focus because it is the answer to the *wh*-question (see also the discussion on focus in §2.3 below). Given that foci cannot be topics, *himself* in (12-B) is not a **topic**.

Moreover, as has been pointed out by many scholars (see Li 1976; Givón 1983; Halliday 2004: *inter alia*), topics are frequently evoked, but this is not always the case.

2.2.4 Subject

As pointed out in Li (1976), topics are frequently, but not always, subjects. For example, the whole **utterance** in (13-a-d) can be the answer to a question “what happened?”, which indicates that the subjects in these utterances are also part of focus, not **topic**.

- (13) What happened?
 a. [A man shot a lion.]_{FOC}
 b. [It is snowing.]_{FOC}
 c. [Someone came in.]_{FOC}
 d. [The Mets beat the A’s.]_{FOC}
 (Gundel 1974: 49, modified by NN)

Topics are not always subjects, either. Objects and other elements can be also topics. In (14), objects are topics. The **information structure** is annotated by the current author. It is necessary to specify the context to determine the detailed **information structure**.

- (14) a. [Beans]_{TOP} he won’t eat.
 b. [As for that dress]_{TOP}, I promise I won’t wear [it.]_{TOP}
 c. (What about) [beans]_{TOP}, does he like [them?]_{TOP}
 (Gundel 1974: 27, modified by NN)

However, it is also important to note that topics are frequently subjects (Li 1976).

2.2.5 Sentence-initial elements

Chomsky (1965) and Halliday (1967) characterize the **topic** as the sentence-initial element (more recently, see Hajičová et al. (2000)). To define the **topic** in terms of linguistic form pre-empts the goal of this study: i.e., to figure out the association between information structures (**topic** and focus) and linguistic forms (particles, **word order**, and intonation).

Moreover, there are cases where the sentence-initial elements are not topics. For example, the sentences in (13) in the last section are topicless sentences; therefore, the sentence-initial elements are not topics.

Also, topics sometimes do not appear sentence-initially.

- (15) (What about the proposal?) – [Archie rejected]_{FOC} [{it/the proposal}.]_{TOP}

We will see topics which appear after the predicate in Chapter 5. As will be discussed in Chapter 5, topics frequently appear sentence-finally in casual spoken Japanese and many other languages; and post-predicate topics have their own characteristics.

2.3 Focus

In this section, I review the definitions of (or the notions closely associated with) focus. Like **topic**, focus is also a controversial notion and the literature disagrees on the definition as well as the properties of focus. Here again, I categorize different notions of focus into several representative groups in the following subsections. But first, I introduce my definition of focus in order for the discussion to be clear. Then, I give an overview of each definition of focus in the literature.

2.3.1 The definition of focus in this study

Since I try to capture the phenomena of **information structure** in a single layer, I believe that **topic** and focus should be mutually exclusive rather than overlapping with each other as has been mentioned above. Therefore, I define the notion of focus as in (16) (see also the discussion in §3.3.2).

- (16) Focus is a **discourse** element that the speaker assumes to be news to the **hearer** and possibly controversial. S/he wants the **hearer** to learn the re-

lation of the **presupposition** to the focus by his/her **utterance**. In other words, focus is an element that is asserted.

Like (1), this definition also follows and elaborates the idea of focus (*heisetsu-tai* ‘plain form’) in Matsushita (1928). He states that “whereas the theme of judgement [**topic**] should not be changed before the judgement, materials to be used for the judgement [focus] are indeterminate, variate, and free since the speaker uses these materials at his/her own choice” (p. 774, translated by NN).

I believe the statement that the speaker “wants the **hearer** to learn the relation of the **presupposition** to the focus” in (16) is essentially the same as the definition of a comment in Gundel (1988), which states as follows.

- (17) A **predication**, P, is the comment of a sentence, S, iff in using S the speaker intends P to be assessed relative to the **topic** of S. (Gundel 1988: 210)

Lambrecht (1994) (based on Halliday 1967) also employs the same definition of focus as stated in (18).

- (18) [T]he focus of a sentence, or more precisely, the focus of the proposition expressed by a sentence in a given **utterance** context, is seen as the element of information whereby the **presupposition** and the assertion *differ* from each other. The focus is that portion of a proposition which cannot be taken for granted at the time of speech. It is the *unpredictable* or pragmatically *non-recoverable* element in an **utterance**. (Lambrecht 1994: 207, underlined by the original author)

Unpredictability or non-recoverability (see also Kuno 1972) is also very similar to definition (16).

I use the term *assertion* in the sense proposed by Stalnaker (2004). He argues that, among possible worlds, a single world is chosen by assertion. I consider this to be equivalent to “being news to the **hearer**.” The reason why I do not simply say “focus is the element being asserted” is that to single out a world from many possible worlds might be confused with **contrastiveness**. As will be discussed in §2.3.3, focushood and **contrastiveness** are similar but different notions.

As has been pointed out in many studies (e.g., Matsushita 1928; Chomsky 1965; Gundel 1974), the answer corresponding to a *wh*-question is a typical focus. The following examples are from Lambrecht (1994: 121). The interpretation of **information structure** is of the current author and might slightly differ from Lambrecht’s original intention.

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(19) Predicate focus

Q: What did the children do next?

A: [The children]_{TOP} [went to school.]_{FOC}

(20) Argument focus

Q: Who went to school?

A: [The children]_{FOC} [went to school.]_{TOP}

(21) Sentence focus

Q: What happened?

A: [The children went to school.]_{FOC}

Focus is news (or newsworthy in Mithun (1995)) from the hearer and can be repeated as what s/he learned from the current utterance. For example, in (22), the *teacher* John in (22-A) cannot be repeated as news by B, whereas (part of) the focus *teacher* can be repeated by B'.

(22) A: [{As for/Regarding} John]_{TOP}, [he]_{TOP} [is a teacher]_{FOC}.

B: ??Aha, John.

B': Aha, a teacher.

No tests based on Erteschik-Shir (2007) are also available. See discussion in §3.3.2. Identifying focus by *wh*-question-answer pairs ((19)-(21)) or the *aha* test (22) is based on the assumption that foci are news or newsworthy, while *no* tests like (12) in §3.3.2 are based on the assumption that foci can be controversial.

In the following sections, I review various notions associated with foci and how they relate to the discussion of foci in the present work.

2.3.2 Newness

Newness is known to correlate with focushood (Li 1976; Givón 1983; Halliday 2004: *inter alia*). Although different researchers use the term *new* to refer to different concepts, I use this term to indicate strictly “new” in terms of Prince (1981) or “what the speaker assumes he is introducing into the addressee’s consciousness by what he says” (Chafe 1976: 30). Other *newness*, what is called “relational new” in Gundel (1988), is excluded from the current discussion. According to Gundel & Fretheim (2006: 177), relational *newness* is described as follows.

(23) Y [focus] is new in relation to X [topic] in the sense that it is new information that is asserted, questioned, etc. about X. Relational [...] *newness* thus reflects how the informational content of a particular event or state

of affairs expressed by a sentence is represented and how its truth value is to be assessed.

The notion of “relational new” corresponds to focus in this study and the notion of comment in Gundel (1988).

The literature agrees that not all foci are new. As discussed in §2.2.3, focus can be an evoked element. (12), repeated here as (24), is an example of this case; *himself* in (24-B) is evoked because the referent “Felix” has already been mentioned in the preceding utterance (24-A), and, at the same time, it serves as focus because it corresponds to the answer part of *wh*-question in (24-A).

- (24) A: Who did Felix praise?
 B: [Felix praised]_{TOP} [himself.]_{FOC}
 (Reinhart 1981: 72, style modified by NN)

On the other hand, all new elements can be foci. It is well known that, in English, (specific or non-generic) indefinite noun phrases cannot be topics. For example, Gundel (1974), discussing the following examples, concludes that indefinite noun phrases cannot be topics. As shown in (25-a) and (26-a), indefinite noun phrases cannot be put in the frame *concerning* and *about*; nor can they appear in the frame *what about*.

- (25) a. *Concerning a French king, he married his mother.
 b. *What about a French king? – He married his mother.
 (Gundel 1974: 54)
- (26) a. *About a lion, Bill shot him.
 b. *What about a lion? – Bill shot him. (ibid.)

I argue that new elements that have been known to the hearer before the utterance, i.e., “unused” in terms of Prince (1981), can be either topic or foci. They are new in the sense that the speaker is introducing them into the hearer’s consciousness by what s/he says; but they are given in the sense that they are assumed by the speaker to be shared with the hearer. In Chapter 5, I argue that in fact unused elements have characteristics of both topics and foci.

2.3.3 Contrastiveness

Many studies, particularly in generative linguistics, associate focushood with contrastiveness (frequently accompanied with pitch peak). Here I base my discussion on Rooth (1985; 1992), who was inspired by von Stechow (1991), since his

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theory is one of the most influential studies on focus as contrastive.

In his theory, alternative semantics, where focus is related to the intuitive notion of contrast, Rooth argues that the function of focus is to evoke alternatives; in other words, the focused element is contrasted with the alternatives. For example, consider (27) in two cases where *Mary* is focused and *Sue* is focused.

(27) Mary likes Sue.

The former case evokes the set of propositions of the form ‘x likes Sue’ as formalized in (28-a), whereas the latter case evokes the set of propositions of the form ‘Mary likes y’, as formalized in (28-b).

(28) a. $\llbracket [_S \text{ [Mary]}_F \text{ likes Sue}] \rrbracket^f = \{\text{like}(x,s) \mid x \in E\}$, where E is the domain of individuals.

b. $\llbracket [_S \text{ Mary likes [Sue]}_F] \rrbracket^f = \{\text{like}(m,y) \mid y \in E\}$

(Rooth 1992: 76)

Among the members of these sets, Mary is chosen as the one who likes Sue in (28-a), and Sue is chosen as the one who Mary likes in (28-b).

Characterization and formalization of focus by alternative semantics is clear and seems to work well. However, characterizing foci as contrastive is problematic for our assumptions; whereas we have assumed that **topic** and focus are mutually exclusive, there can be both **contrastive topic** and **contrastive focus** as has been pointed out in [Vallduv & Vilkuuna \(1998\)](#). Especially problematic for us is the existence of contrastive topics. If **contrastiveness** is equal to focushood, one has to admit that **contrastive topic** is both **topic** and focus. Following [Vallduv & Vilkuuna \(1998\)](#), I argue that this is very confusing for a theory of **information structure** and it is more plausible to assume that **contrastiveness** is a feature independent of both topichood and focushood. For example, as will be discussed in Chapter 4, the particle *wa* in Japanese is sensitive to some properties of topichood, whereas the particle *ga* is sensitive to some properties of focushood. In addition to this, these two particles are also sensitive to **contrastiveness**; these particles are obligatory for **contrastiveness**, while, in other cases, they are optional. Still, contrastive *wa* and *ga* are sensitive to topichood and focushood, respectively. Therefore, this study assumes that **contrastiveness** is independent of **topic** and focus. However, it is highly likely that other languages work differently. Further study is needed to investigate whether **contrastiveness** is independent of **topic** and focus in all languages.

2.3.4 Pitch peak

Some studies assume that focus is a **pitch peak**. For example, (Chomsky 1970/1996: 100) states that “phrases that contain the intonation center **pitch peak** in the present work] may be interpreted as focus of **utterance**”. As Gundel (1988: 230) reports, the association between a **pitch peak** and focus is found in typologically, genetically, and geographically diverse languages and concludes that this association seems to be universal. According to her, a focus is given a **pitch peak** at least in **English**, **Guarani**, **Russian** and **Turkish** with the only exception of **Hixkaryana** (see also the references in her work and Büring (2007)).³

As has been pointed out in previous studies on other languages (e.g., Jackend-off (1972: §6.2)), however, I do not employ the definition of focus as **pitch peak** because the goal of this study is to investigate the association between **information structure** and linguistic forms including intonation; the definition of focus as **pitch peak** spoils the goal of our study. Moreover, I will argue in Chapter 6 that elements other than focus are given **pitch peak**. For example, a **topic** that is reintroduced in the **discourse** is produced prominently (see also Gundel 1999). It is also well known that **contrastiveness** correlates with **pitch peak**. Therefore, regarding focus as elements with **pitch peak** causes great confusion.

2.4 Characteristics of Japanese

In this section, I provide a rough overview of the typological characteristics of Japanese. Most of the literature on Japanese is based on written language; therefore, most of this section (except for sound parts such as intonation) is also based on written Japanese. I discuss the difference between written and spoken Japanese where necessary.

2.4.1 General characteristics

Japanese is an SOV language, with typical OV characteristics in terms of Dryer (2007); it has postpositions (which are called particles in this study), genitives precede nouns, **adverbial** subordinators appear after the verbs, main verbs precede auxiliary verbs, question particles and complementizer appear after the verbs, subordinate clauses precede main clauses, and relative clauses precede the nouns (Shibatani 1990; Masuoka & Takubo 1992). Moreover, nouns are preceded by adjectives and demonstratives, and verbs are followed by many kinds of suffixes

³See Downing (2012) for more exceptions.

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indicating tense, modality, negation, passive, causative, and so on. (29) shows some examples of Japanese sentences. “A” stands for the **agent-like argument** of **transitive** clauses; “S” stands for the only argument of **intransitive** clauses; and “P” stands for the patient-like argument of **transitive** clauses.

- (29) a. taroo-ga hanako-ni hon-o yat-ta
Taro-NOM Hanako-DAT book-ACC give-PAST
‘Taro gave a book to Hanako.’ (A + DAT + P + V)
- b. sono san-nin-no ookina otoko
that three-CL.person-GEN big man
‘those three big men’ (Adj + N)
- c. taroo-no hon
Taro-GEN book
‘Taro’s book’ (GEN + N)
- d. [taroo-ga kat-ta] hon
Taro-NOM buy-PAST book
‘the book Taro bought’ (Rel + N)
- e. ik-e-nai
go-CAP-NEG
‘cannot go’ (V + SFX1 + SFX2)

(Shibatani 1990: 257–258, glosses modified by NN)

The features of Japanese most relevant in this study are the order of the subject, the object, and the **verb**, the order of nouns and particles. Also, as will be discussed in 2.4.3, arguments such as subjects and objects can be ‘scrambled’; i.e., word orders other than the basic **word order** are found in both spoken and written Japanese.

The particles *ga* and *o*, which follow nouns, are considered to be a **nominative** particle and an **accusative** particle respectively in written Japanese, and accordingly Shibatani glossed them as such. As will be discussed below, however, the zero particles are extensively used in spoken Japanese and the characterization of *ga* as the **nominative** marker and *o* as the **accusative marker** does not necessarily reflect the exact properties of these particles. Since the literature is mainly based on written Japanese, I keep the glosses of NOM for *ga* and ACC for *o* in this chapter. In the same way, I will use TOP for *wa* since most literature agrees that *wa* is a **topic** marker (no matter what it means), although, again, the **zero particle** is extensively used in the spoken language. But keep in mind that the glosses are tentative. I will not use NOM ACC, and TOP in the following chapters; instead, I

just gloss *ga*, *o*, and *wa* for each particle.

Japanese extensively employs so-called zero pronouns. In (30), for example, pronouns such as ‘I’, ‘him’, and ‘it’ are not explicitly uttered.

- (30) a. *zyon-ga ki-ta-node, ai-ni it-ta*
 John-NOM come-PAST-since meet-DAT go-PAST
 “Since John came, (I) went to see (him),”
 b. *zyon-ga dekire-ba suru-desyoo*
 John-NOM can-if do-will
 “If John can (do it), (he) will do (it).” (Kuno 1973b: 17)

These omitted pronouns are sensitive to the **information status** of the referents (see Kuno 1978: Chapter 1).

The language has five vowels and 15 consonants (although the number may vary depending on the analysis). The syllable structures are relatively simple; a syllable basically consists of a consonant and a **vowel**, whereas long vowels, geminates, final nasal coda are possible. Also, /y/ ([j]) can appear between a consonant and a **vowel** as in *kyoo* ([kjo:]) ‘today’ as opposed to *koo* ([ko:]) ‘this way’. The **pitch accent** plays an important role. The systems of **pitch accent** vary among Japanese dialects, and here I review the accent system of Standard Japanese (spoken around Tokyo), which is to be investigated in the present study. First, in Standard Japanese, the **pitch** is either high or low, and the pitches of the first and the second syllables are different. If the first syllable is high, the second syllable is low, and vice versa. Second, the accent nucleus (indicated by ^ː) specifies where the **pitch** falls. For example, [ha^ːci] ‘chopsticks’ indicates that [ha] is high and [ci] is low. On the other hand, [haçi^ː] ‘bridge’ indicates that [ha] is low and [ci] is high. Words without nucleus accents are also possible as in the case of [haçi] ‘edge’, which is pronounced in the same way as ‘bridge’. The distinction between [haçi^ː] ‘bridge’ and [haçi] ‘edge’ can be made, for example, by the following particles without accents. For example, when *ga* ‘NOM’ follows [haçi^ː] ‘bridge’, the **pitch** of *ga* is low because the accent nucleus specifies where the **pitch** falls. On the other hand, when *ga* follows [haçi] ‘edge’, *ga* is produced in a high **pitch**. Thereby [haçi^ː] ‘bridge’ and [haçi] ‘edge’ can be distinguished from each other. In addition to phonemes and **pitch** accents, there are also issues on intonation, which will be discussed in the following section (§2.4.4) in more detail since it is one of the main topics of this study.

2.4.2 Particles

As mentioned above, nouns in Japanese are followed by various particles or postpositions. In general, they are believed to be clitics and indicate the status of a noun in a clause.⁴ In this section, I review the literature on *ga*, *o*, and *wa*, which are to be investigated in this study. Note again that the literature is mainly on written Japanese. In §2.4.2.7, I present a review of the literature on the zero particles, which are widely used in spoken Japanese in place of *ga*, *o*, and *wa*.

2.4.2.1 Case particles vs. adverbial particles

In the present study, I discuss two kinds of particles that attach to nouns: case and **adverbial** particles. Case particles such as *ga* and *o* code grammatical relations of nouns. For example, in (31), *ga*, following a noun *taroo*, codes **nominative case**, whereas *o*, following a noun *hon* ‘book’, codes **accusative case**.

- (31) taroo-**ga** hanako-ni hon-**o** yat-ta
 Taro-NOM Hanako-DAT book-ACC give-PAST
 ‘Taro gave a book to Hanako.’ (Shibatani 1990: 257)

Adverbial particles, on the other hand, sometimes follow and sometimes replace case particles and add additional meaning to the sentence. The **adverbial particle** discussed in this study is *wa*.⁵ *Wa* can replace *ga* and *o* and change the noun into “**topic**”. It sometimes replaces **with** and sometimes follows *ni* ‘DAT’. For example, each noun in (31) can be *wa*-marked in the following ways.

- (32) a. taroo-**wa** hanako-ni hon-o yat-ta
 Taro-NOM-TOP Hanako-DAT book-ACC give-PAST
 ‘Regarding Taro, he gave a book to Hanako.’
 b. hon-**wa** taroo-ga hanako-ni yat-ta
 book-TOP Taro-TOP Hanako-DAT give-PAST
 ‘Regarding the book, Taro gave it to Hanako.’
 c. hanako-(ni)-**wa** taroo-ga hon-o yat-ta
 Hanako-(DAT)-TOP Taro-TOP book-ACC give-PAST
 ‘Regarding Hanako, Taro gave a book to her.’

⁴Although the equal sign (=) is usually used for **clitic** boundaries, I use the hyphen (-) and do not distinguish clitics from affixes for the sake of simplicity.

⁵There are other **adverbial** particles such as *mo* ‘also’ and *dake* ‘only’, which also follow or replace case particles. As the glosses ‘also’ and ‘only’ suggest, they are translated like adverbs in **English**, which is part of the reason why they are called “**adverbial**” particles.

There are complex interactions between *wa*-marking and **word order** (e.g., Kuroda 1979), which is to be discussed in Chapter 5.

2.4.2.2 *Ga*

Almost all studies agree that *ga* in contemporary Japanese is a **case marker** that codes **nominative case** (e.g., Yamada 1936; Kuno 1973b; Tanaka 1977; Shibatani 1990). *Ga* is also said to code the “subject” (e.g., Kuroda 1979: 164). It has some important characteristics in addition to coding **nominative case**; it can code genitive and object (in terms of this study, P). I do not introduce these usages since they are irrelevant to the present work. See, for example, (Ono 1975; Nishida 1977; Yasuda 1977; Kuno 1973b; Shibatani 2001).

Recent studies are more interested in the mapping between surface form (such as *ga* and *o*) and the semantic (or deep) structure of predicates. See Kondo (2003) for the survey of such studies.

2.4.2.2.1 Exhaustive listing vs. neutral description Kuno (1973b) distinguishes two types of *ga*: exhaustive listing and neutral description. In terms of the present study, exhaustive listing corresponds to **argument focus** (or **narrow focus**), while neutral description corresponds to part of **predicate focus** and sentence focus (or **broad focus**), although whether the latter *ga* codes focus or not is controversial as will be discussed below. Examples (33-a-b) are instances of exhaustive listing and neutral description, respectively.

- (33) a. **Exhaustive listing**
 zyon-ga gakusei-desu
 John-NOM student-COP.PLT
 ‘(Of all the people under discussion) John (and only John) is a student.’
 ‘It is John who is a student.’
 b. **Neutral description**
 ame-ga hutte i-masu
 rain-NOM fall PROG-PLT
 ‘It is raining.’
- (Kuno 1973b: 38)

Kuno, following Kuroda (1979), proposes that *ga* of neutral description can only code the subject (As and Ss in this study) of action verbs, existential verbs, and adjectives/nominal adjectives that represent changing states, whereas *ga* of exhaustive listing can attach to any kinds of nouns. This is not the **topic** of the present

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work, which does not examine the associations between information structure and predicate types, although this is a very important topic. See Masuoka (2000: Chapter 4), which extensively discusses this issue.

2.4.2.2.2 Ga as focus marker Lastly but most importantly in the present work, *ga* is sometimes described as a focus marker. *Ga* of exhaustive listing in Kuno (1973b) corresponds to *ga* as a focus marker (Heycock 2008). *Ga* coding new (unpredictable) information (Kuno 1973a: Chapter 25) is also related to *ga* coding focus.

Noda (1995) classifies *ga* of exhaustive-listing into focus markers, or *toritate* particles, while he argues that *ga* of neutral description is a case marker.⁶ *Toritate* can be literally translated as ‘taking up’ and is intended to mean ‘to make something remarkable’. *Toritate* particles are defined as particles that make part of a sentence or a phrase remarkable and emphasize that part (Miyata 1948: 178). *Toritate* particles include *mo* ‘also’, *sae* ‘even’, *dake* ‘only’, etc., which are in general classified into focus markers in other languages. Therefore, I conclude that *toritate* particles, including *ga* with exhaustive-listing readings, correspond to focus particles.⁷

Ono et al. (2000) go further and claim that *ga* in natural conversation does not code As and Ss; rather, they claim that “*ga* is well characterized as marking that its NP is to be construed as a participant in the state-of-affairs named by the predicate in pragmatically highly marked situations” (p. 65). In other words, “*ga* is found in pragmatically highly marked situations where there is something unpredictable about the relationship between the *ga*-marked NP and the predicate such that an explicit signalling of that relationship becomes interactionally or cognitively relevant” (ibid.). Although it is not perfectly clear what they mean by “pragmatically marked situations”, part of what they mean is that *ga* functions as a focus marker because they use *ga* coding new or unpredictable information as a piece of evidence that supports their claim. In (34-b), for example, *ga* codes the answer to the question ‘what club (are you going to) join?’ in (34-a).

⁶Tokieda (1950/2005) classifies some uses of *ga* into “particles which represents limitation” (p. 188ff.), which are also close to focus markers.

⁷However, many researchers also classify the so-called topic marker *wa* into *toritate* particles; some of them only include contrastive *wa* (Okutsu 1974; 1986; Numata 1986), others include both contrastive and non-contrastive *wa* (Miyata 1948; Suzuki 1972; Teramura 1981; Noda 1995). Although I do not believe that *wa*, including contrastive *wa*, is a focus marker, the notions of focushood and contrastiveness are frequently confused, but should be discussed independently. Therefore, I regard *toritate* particles as focus markers in other languages.

- (34) a. nani-ni hai-n-da
 what-DAT enter-NMLZ-COP
 ‘What (club are you going) to join?’
 b. handobooru-ga ii-kana-toka omotte [...]
 handball-NOM good-Q-HDG think
 ‘(It’s) handball (I want to join), (I) think.’

(Ono et al. 2000: 70)

2.4.2.2.3 Remaining issues It is indeed the case that *ga* sometimes codes nouns other than **nominative** as shown in (35). (See Chapter 4 for detailed discussion.) In (35-a), *ga* follows the postposition *kara* ‘from (ABL)’; the noun cannot be **nominative**. In a similar manner, *ga* follows *to* ‘with (COM)’ in (35-b) and *made* ‘til (LIM)’ in (35-c).⁸

- (35) a. kore-kara-ga hontoo-no zigoku-da
 this-ABL-*ga* true-GEN hell-COP
 ‘From this the true hell starts.’ (Vegeta in *Dragon Ball*⁹)
 b. kotira-wa nihonsyu-to-*ga* au-desyoo
 this-TOP sake-COM-*ga* match-will
 ‘This one goes well with sake.’ (A review from *Tabelog*¹⁰)
 c. ie-ni kaeru-made-*ga* ensoku-desu
 home-DAT return-LIM-NOM excursion-COP.PLT
 ‘Until (you) arrive at home is the excursion. (Before you arrive at home, you are on the way of excursion.)’ (Common warning by school teachers)¹¹

As will be discussed in detail in Chapter 4, this type of *ga* codes focus rather than **nominative case**. However, it is too extreme to claim that all kinds of *ga* do not code **nominative**. For example, it is never possible to replace *o* in (31) with *ga* no matter how much *hon* ‘book’ is focalized. It is clear that *ga* sometimes codes **nominative**, sometimes codes a focus, and sometimes codes both. Also, as will be outlined below, the zero particles are extensively used in spoken Japanese.

⁸(35-b) is not acceptable for some people.

⁹Toriyama, Akira (1990) *Dragon Ball* 23, p. 149. Tokyo: Shueisha.

¹⁰<http://tabelog.com/ehime/A3801/A380101/38006535/dtlrvwlst/2992604/>, last accessed on 03/23/2015

¹¹I found 32,700 websites using this expression with Google exact search (searched on 06/17/2015).

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Therefore, the question is under what conditions *ga* codes focus, under what conditions it codes **nominative**, and when *ga* is used instead of the zero particles. Also, what motivates *ga* to code a focus? It is not appropriate to discuss whether *ga* codes a focus or **nominative case**. I discuss these issues in Chapter 4.

2.4.2.3 O

There are fewer studies on the particle *o* and, as far as I am aware, almost all studies agree that *o* is an **accusative marker** and codes the patient-like argument in a **transitive clause** (e.g., Yamada 1936; Shibatani 1990). In this section, there are some non-canonical usages of the particle *o*: coding time and place of transferring (Yamada 1936).

2.4.2.3.1 Remaining issues Both of these non-canonical usages of *o* are a matter of the mapping between surface forms and semantic structures, as I discussed in the paragraph on *ga* of “object” marking. Therefore, I consider these issues to be independent of issues of **information structure**.

Like *ga*, the zero particles are extensively used instead of *o* in spoken Japanese. It is therefore necessary to investigate the distribution of the zero particles and *o*. I propose the conditions for the zero particles and *o* in Chapter 4. I will give an overview of the literature on the zero particles in §2.4.2.7.

2.4.2.4 Wa

The **adverbial particle** *wa* has been widely discussed in the literature because the conditions on where it appears are very complex and subtle.

In the early literature of modern linguistics on Japanese, *wa* was confused with a **nominative** marker because most of the time *wa* codes so-called **nominative case** in place of *ga*. According to Aoki (1992: 2), who studied more than 10,000 examples of *wa* in novels and essays, 76.7% of *wa* codes **nominative case**, and 84.7% of *wa*-marked nouns code **nominative case**. Moreover, *wa* appears to “replace” *ga*. For example, the sentences in (36-a) with *wa* and (36-b) with *ga* are truth-conditionally equivalent, and replacing one particle with the other does not affect the truth value of the sentence.

- (36) a. zyon-wa gakusei-desu
John-TOP student-COP.PLT
‘John is a student.’

- b. zyon-ga gakusei-desu
 John-NOM student-COP.PLT
 ‘John is a student.’ (Kuno 1973b: 38)

In the same way, (37-a) and (37-b) are truth-conditionally equivalent.

- (37) a. ame-wa hutte i-masu-ga...
 rain-TOP fall PROG-PLT-though
 ‘It is raining, but...’
 b. ame-ga hutte i-masu
 rain-NOM fall PROG-PLT
 ‘It is raining.’ (ibid.)

Therefore, *wa* was considered to code **nominative case** like *ga*.

Yamada (1936: 472ff.) pointed out that *wa* should be classified as an **adverbial particle** (*kakari joshi*)¹² and should not be confused with case particles such as *ga*. However, since *wa* codes **nominative case** most of the time, *wa* has been analyzed as opposed to *ga*. The nature of *wa* has been so widely discussed, and I can only give a simplified overview of representative analyses of *wa* below, each of which captures a certain aspect of *wa*. Onoe (1977) is a useful survey of the history of studies on *wa*, and Noda (1996) is a good summary of contemporary studies. Here I focus on *wa*-marked nouns and put aside the other types of *wa*. For other types of *wa*, see, for example, Teramura (1991: Chapter 7).

The most popular analysis of *wa* is that *wa* is a **topic** marker, which was proposed by Matsushita (1928).¹³ However, the definition **topic** itself is controversial in the literature as we have seen in §2.2. So, the question of what “a **topic** marker” is still remains. I will outline various aspects of *wa* proposed in the literature.

2.4.2.4.1 Givenness The first characterization of *wa* is that *wa* codes given information (Chafe 1970: 233). Kuno (1973b) also makes a similar claim; *wa* codes **anaphoric** information, i.e., information that has been “entered into the registry of the present **discourse**” (45). According to Kuno (1973b), for example, (38-a) is unacceptable because *ame* ‘rain’ has not been entered into the present registry, whereas (38-b) is acceptable because *wa*-coded *ame* ‘rain’ has been registered. Note that the first-mentioned *ame* was coded by *ga* in (38-b).

¹²Yamada distinguishes *kakari joshi* from *fuku joshi*. Although the English term **adverbial particle** sounds closer to *fuku joshi*, I use the term **adverbial particle** to include both *kakari joshi* and *fuku joshi* because this distinction does not matter for now.

¹³According to Onoe (1977), this was first proposed in *Ayuishō* by Fujitani Nariakira (1778).

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- (38) a. *ame-wa hutte i-masu
rain-TOP fall PROG-PLT
'Speaking of rain, it is falling.'
- b. asa hayaku ame-ga huri dasi-ta... yoru-ni natte-mo
morning early rain-NOM fall start-PAST night-DAT become-also
ame-wa hutte i-ta
rain-TOP fall PROG-PAST
'It started raining early in the morning... Speaking of the rain, it was still falling even at night.'
(Kuno 1973b: 45)

The analysis that *wa* codes given information explains the fact that *wa* cannot attach to nouns such as *wh*-phrases like (39-a), quantified noun phrases like (39-b), and **indefinite** pronouns like (39-c). They represent new information and have not been entered into the registry of temporary **discourse**.

- (39) a. *dare-wa ki-masi-ta-ka
who-TOP come-PLT-PAST-Q
'Who came?'
(Kuno 1973b: 37)
- b. *oozei-no hito-wa paathii-ni ki-masi-ta
many-GEN person-TOP party-DAT come-PLT-PAST
'Speaking of many people, they came to the party.'
(op.cit.: 45)
- c. *dareka-wa byooki-desu
somebody-TOP sick-COP.PLT
'Speaking of somebody, he is sick.'
(ibid.)

Although I believe that Kuno's observation explains a condition of *wa*-coding well, his claim needs to be supported by more natural data because his grammatical judgements are not always agreeable to many native speakers of Japanese. Moreover, as will be discussed in Chapter 4, 78 (41.1%) out of 190 cases of *wa* codes new (non-**anaphoric**) information, i.e., nouns without antecedents in the previous contexts. Most of them are neither generic nor contrastive and need explanation. I will discuss the conditions of the use of *wa* in Chapter 4.

2.4.2.4.2 Generic *wa* Kuroda (1972) and Kuno (1973b) argue that generic nouns can be always coded by *wa*.¹⁴ According to Kuno (1972), this is because they are "in the permanent registry of **discourse**, and do not have to be reentered into the temporary registry for each **discourse**" (p. 41). For example, the sentences in (40) are acceptable in an out-of-the-blue context.

¹⁴Kuroda (1972) pays more attention to generic events rather than just nouns.

- (40) a. kuzira-wa honyuu-doobutu-desu
 whale-TOP mammal-animal-COP.PLT
 ‘Speaking of whales, they are mammals. (A whale is a mammal.)’
 (Kuno 1973b: 44)
- b. hito-wa sinu (mono-desu)
 person-TOP die (thing-COP.PLT)
 ‘Human beings die. (All humans are mortal.)’ (Constructed)

In Chapter 4, however, I will show that not all generic nouns can be felicitously coded by *wa* in an out-of-the-blue context. Instead, I propose that the generic condition of *wa*-coding is integrated into the givenness condition of *wa*.

2.4.2.4.3 Contrastive *wa* Kuno (1973b) distinguishes *wa* coding given (in his term, **anaphoric**) information from that coding contrastive information. He argues that the contrastive *wa* can code new (in his term, “non-**anaphoric**”) information as shown in the contrast between (41-a) and (41-b). According to Kuno, *oozei-no hito* ‘many people’ in (41-a) is new and non-contrastive; therefore, the sentence is not acceptable. On the other hand, *oozei-no hito* ‘many people’ in (41-b) is new but contrasted with *omosiroi hito* ‘interesting person’; in this case, the sentence is acceptable. The contrastive *wa* is typically accompanied by high **pitch**. Note that the acceptability judgements as well as examples are from Kuno and in particular (41-b) is not acceptable to some people (including the current author).

- (41) a. *oozei-no hito-wa paathii-ni ki-masi-ta
 many-GEN person-EM party-DAT come-PLT-PAST
 ‘Speaking of many people, they came to the party.’ (Non-contrastive)
- b. oozei-no hito-wa paathii-ni ki-masi-ta-ga
 many-GEN person-TOP party-DAT come-PLT-PAST-though
 omosiroi hito-wa hitori-mo i-mase-n-desi-ta
 interesting people-TOP single-also exist-PLT-NEG-PLT-PAST
 ‘Many people came to the party indeed, but there was none who was interesting.’ (Contrastive)
 (Kuno 1973b: 47)

The contrast between (42-a) and (42-b) is explained in the same way.

- (42) a. *ame-wa hutte i-masu
 rain-TOP fall PROG-PLT
 ‘Speaking of rain, it is falling.’ (Non-contrastive)

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- b. ame-wa hutte i-masu-ga taisita koto-wa ari-mase-n
rain-TOP fall PROG-PLT-though serious matter-TOP exist-PLT-NEG
'It is raining, but it is not much.' (Contrastive)
(Kuno 1973b: 46)

While some studies like Kuno (1973b) assume that the contrastive *wa* and non-contrastive *wa* are independent and mutually exclusive, others like Teramura (1991) speculate that they are governed by the same condition(s). Teramura (1991) claims that the basic property of *wa* is to contrast one with the other(s) and the non-contrastive *wa* appears when the contrasted elements are not noticed.

Hara (2008) shows that the contrastive *wa* always induces scalar implicatures as in (43-a) and proposes a formal analysis of the contrastive *wa*. Furthermore, Hara (2006) argues that the implicatures induced by the contrastive *wa* are conventional implicatures, rather than conversational implicatures.

- (43) a. nanninka-wa ki-ta
some.people-TOP come-PAST
'Some people came.'
(Implicature: it is possible that it is not the case that everyone came.)
b. #minna-wa ki-ta
everyone-TOP come-PAST
'Everyone came.'
(No implicature possible.)
(Hara 2006: 36)

The present study does not aim at investigating detailed characteristics of the contrastive *wa*; rather, I am more interested in capturing various aspects of *wa* as a whole, including contrastive *wa*, and giving a unified explanation of *wa*. Therefore, issues like the syntactic position of the contrastive *wa*, the interaction between contrast and negation or quantifiers, and their formal analyses are outside of the scope of this study. In Chapter 4, I will argue that the contrastive and non-contrastive *wa* can be explained consistently in a single principle along the lines of Teramura (1991).

2.4.2.4.4 Characterization of *wa* based on judgement types Kuroda (1972), inspired by Branz Brentano and Anton Marty, proposed the distinction between *wa* vs. *ga* based on the categorical vs. *thetic* judgements. According to Kuroda, "the categorical judgement is assumed to consist of two separate acts, one, the act of recognition of that which is to be made the subject, and the other, the act of af-

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the numbers are very small and it is inappropriate to generalize based on them, it is clear that Clancy and Downing's claim does not hold in my data.

Moreover, Watanabe (1989), analyzing corpora, argues that *wa* codes important and definite nouns, contrary to Clancy & Downing (1987). Therefore, it is necessary to re-examine their claim.

2.4.2.4.6 Isolation It has been pointed out that *wa* isolates the *wa*-marked nouns from the rest of a sentence. Onoe (1977) reports that this issue was observed in the 19th century in studies like *Colloquial Japanese* by Brown (1863) and *Japansche Spraakleer* by Hoffmann (1868). Onoe (1981: 103), supporting this view, argues that a sentence with *ga* as in (45-a) expresses a unified situation, whereas that with *wa* as in (45-b) isolates or separates the noun from the predicate, in this case *sora* 'sky' from *aoi* 'blue', and then associates these two.

- (45) a. *sora-ga aoi*
sky-NOM blue
'The sky is blue.'
- b. *sora-wa aoi*
sky-TOP blue
'The sky is blue.'

He further argues that *wa* "drastically confirms the **thetic** judgement 'the sky is blue'" (ibid.).

While I believe that this characterization captures some aspect of *wa*, it needs to be captured in a theory and supported by more data.¹⁵ For example, *ga* in (45-a) also separates *sora* from *aoi* because there is a phrase boundary. Where does the intuition of *wa*'s "isolation" come from? In Chapter 6, I argue that there is an intonation boundary between a **topic** and a focus; therefore, topics including *wa*-coded elements are intonationally separated from foci.

2.4.2.4.7 Remaining issues As I have mentioned above, the aim of this study is to give a consistent explanation of *wa*-coding, rather than to give a detailed model of some aspect of *wa*. The characteristics of *wa* summarized above reflect some aspects of *wa*. I will propose the conditions of *wa*-coding capturing *wa* as a whole. As I also stated above, the properties of predicates and sentence types are outside of the scope of this study. However, I believe that characterizing the particle *wa* will help us to understand other unexplained features in the future.

¹⁵Onoe seems to think that the existence of the contrastive *wa* supports *wa*'s "isolation" function. However, the connection between isolation and **contrastiveness** is not clear to me.

2.4.2.5 *Toiuno-wa*

In this section, I discuss the marker *toiuno-wa*, which is to be investigated in the present study. It consists of at least four morphemes as shown in (46).

- (46) *to iu-no-wa*
 QUOT call-one-*wa*

The first morpheme *to* is a quotation marker, and *iu* corresponds to ‘call’ (or, more closely, ‘heißen’ in **German**). (47) is an example of how *to* and *iu*, which is realized as *ii*, are used.

- (47) *hasi-wa tyuugoku-go-de nan-to ii-masu-ka*
 chopstick-TOP China-language-in what-QUOT call-PLT-Q
 ‘How do you call “chopsticks” in **Chinese**?’ (Masuoka & Takubo 1992: p. 81)

The morpheme *no* is a nominalizer which corresponds to ‘one’ (as in *this one*) in **English**. It can be used when restrictively modified nouns are repeated or are clear from the context (p. 160).

- (48) *kono seetaa-wa tiisai-node ookii-no-to kaete kudasai*
 this sweater-TOP small-because big-one-with exchange please
 ‘Since this sweater is too small, please exchange this with a bigger one.’
 (op. cit.: p. 160)

Masuoka & Takubo (1992) point out that the combination of noun + *to iu* + *mono* (‘thing’) is used when the speaker is talking about the category in general, rather than a specific referent of the noun. For example, *kyoosi* ‘teacher’ in (49-a) simply refers to specific teachers, whereas *kyoosi* followed by *-to iu mono* in (49-b) refers to teachers in general rather than specific teachers.

- (49) a. *sotugyoo-paatii-ni-wa kyoosi-ga 20-mei seito-ga*
 graduation-party-DAT-TOP teacher-NOM 20-CL student-NOM
 140-mei syusseki si-ta
 140-CL attend do-PAST
 ‘In the graduation party, 20 teachers and 140 students participated.’
 (Specific teachers)
 b. *kyoosi-to iu mono-wa tuneni aizyoo-o mot-te*
 teacher-QUOT call thing-TOP always love-ACC have-and

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seeto-o mitibika-nakere-ba nara-nai
student-ACC lead-NEG-COND become-NEG
‘Teachers always must lead their students with love.’ (Teachers in
general)

(op. cit.: p. 34)

This also applies to *no*; *no* also refers to some category in general rather than a specific entity. In fact, *mono* in (49-b) can be replaced with *no* without changing the meaning. The morpheme *wa* is the same *wa* discussed in the previous section.

Unless I am discussing the compositional meanings of *to iu no-wa*, I will put no space in *toiuno* because sometimes it is reduced into *(t)teno*, *t(y)uuno*, or even [tɯ:nə]. I separate *wa* to keep the relationships between *toiuno-wa* and *wa* transparent, although *wa* sometimes merges into *toiuno* and realizes as [tɯ:nəɪ], [tɯ:nəɪ], [tsu:nəɪ], etc.

Whereas other combinations such as *toiuno-ga* and *toiuno-o* are possible, I focus on *toiuno-wa* because other combinations are rare in the corpus. Since there are only a few studies on *toiuno-wa* itself, I also include studies on *toiu* (without *no-wa*) in the following overview.

2.4.2.5.1 Basic usage According to Takubo (1989), the combination of *toiu* and basic category nouns (such as *hito* ‘person’ and *mono* ‘thing’) is sometimes used to introduce proper names that the hearer is assumed not to know.

- (50) kinoo tanaka siroo-toiu hito-ni ai-masi-ta
yesterday Tanaka Shiro-called person-DAT meet-PLT-PAST
‘Yesterday I met a person called Shiro Tanaka.’ (Takubo 1989: p. 218)

Similarly, Nihongo Kijutsu Bumpô Kenkyû Kai (2009) describes *toiuno-wa* as “presenting an expression as a topic and explaining the meaning or attributing a noun to a specific referent” (p. 230). (51-a) exemplifies the former, and (51-b) exemplifies the latter.

- (51) a. dokukinhoo-toiuno-wa dokusen-kinsi-hoo-no ryaku-dearu
dokukinhoo-toiuno-wa monopoly-ban-law-GEN abbreviation-COP
‘The expression *dokukinhoo* stands for *dokusen-kinsi-hoo* (competition law).’
b. satoo-san-toiuno-wa eigyoo-bu-no satoo-san-desu-ka
Sato-HON-toiuno-wa sales-section-GEN Sato-HON-COP-Q

Sentences with *toiuno-wa* also express the topics' general properties or the judgement of what they should be. (52-a) is an example of the former, and (52-b) is that of the latter.

- 2.4.2.5.2 Characterization of *toiuno-wa* based on predication types Masuoka (2012), inspired by Sakuma (1941), analyzes the association between predication types and the marker *toiuno-wa* and concludes that *toiuno-wa* is a topic marker only for property predication (or individual-level predication), as opposed to event predication (or stage-level predication). Property predication states a property of a referent (Masuoka 1987; 2008a). The property is unbounded by space or time. Masuoka states that property predication corresponds to individual-level predication proposed in Carlson (1977).¹⁶ (53) exemplifies property predication. They are true regardless of time and space and hence they are unbound by time and space.

(i) a. That person is busy.
b. My friend {has been to / went to} France many times.
(Masuoka 2008b: 5–6, translated by NN)

Draft of January 14, 2019, 20:28

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- (53) a. Japan is an island country.
b. That person is kind.

(Masuoka 2008b: 4, translated by NN)

On the other hand, event **predication** describes an event bound by time and space like (54).

- (54) A child smiled. (op.cit.: 5)

This corresponds to stage-level **predication** in Carlson (1977).

To see that *toiuno-wa* is a marker only for property **predication**, compare the following examples. In (55-a), which expresses event **predication** bound by space and time, *toiuno-wa* cannot be felicitously used, while, in (55-b), which expresses property **predication** unbound by space and time, *toiuno-wa* can be used.

- (55) a. **satiko-toiuno-wa* uso-o tui-ta
Sachiko-*toiuno-wa* lie-ACC commit-PAST
'Regarding Sachiko, she lied.' (Masuoka 2012: 96)
b. *satiko-toiuno-wa* uso-tuki-da
Sachiko-*toiuno-wa* lie-commiter-COP
'Regarding Sachiko, she is a liar.' (Constructed)

2.4.2.5.3 Remaining issue Masuoka's characterization of *toiuno-wa* well captures an aspect of this marker. In the present work, I will discuss *toiuno-wa* from different perspectives and will not go into detail about **predication** types. I also aim at describing the relationships among other **topic** markers such as *wa* and *kedo/ga*, which is to be discussed below.

2.4.2.6 *Kedo* and *ga*

Sometimes conjunctions can be used as **topic** markers. The present study discusses *kedo* and *ga* preceded by a **copula**, both of which correspond to 'although' or 'whereas' in **English**. *Kedo* and *ga* are different mainly in register; *kedo* can be used in both casual and formal styles, while *ga* is mainly used in a formal style. *Ga* in (56-a) and *kedo* in (56-b), preceded by copulas, function as **topic** markers in the sense that they newly introduce topics in the beginning of a **discourse** or a paragraph, or they are used to state different aspects of the current **topic** (Koide 1984; Takahashi 1999). Intuitively, 'that issue' in (56-a) and 'Yamada' in (56-b) are considered to be newly introduced.

- (56) a. rei-no ken-desu-ga nantoka nari-sou-desu
 that-GEN issue-COP.PLT-though whatever become-will-COP.PLT
 ‘Regarding that issue, (I) guess (I) figured the way out.’
 b. yamada-no koto-da-kedo ano mama hot-toi-te ii-no-kana
 Yamada-GEN issue-COP that way leave-let-and good-NMLZ-Q
 ‘Regarding Yamada, is it OK to just leave him?’ (Niwa 2006: 283)

Note that the so-called **nominative** *ga* is different from the conjunctive *ga* in various ways. For example, the conjunctive *ga* does not directly follow nouns as shown in (56-a); nouns must be followed by the **copula** (*desu*) as shown in (56-a) and (57-a). On the other hand, the so-called **case marker** *ga* can directly follow nouns as shown in (57-b).

- (57) a. taroo-wa sensei-desu-ga hanako-wa kangosi-desu
 Taro-TOP teacher-COP.PLT-though Hanako-TOP nurse-COP
 ‘Taro is a teacher, while Hanako is a nurse.’ (Conjunctive *ga*)
 b. sensei-ga ki-masi-ta-yo
 teacher-NOM come-PLT-PAST-FP
 ‘The teacher has come.’ (Nominative *ga*)

Also note that *ga* and *kedo* as **topic** markers are different from conjunctive *ga* and *kedo*. Conjunctive *ga* and *kedo* by definition follow clauses instead of phrases; on the other hand, the **topic** marker *ga* and *kedo* cannot follow clauses. Since *kedo*- or *ga*-coded NPs like *rei-no ken* ‘that issue’ in (56-a) and *yamada-no koto* ‘yamada’s issue’ in (56-b) appear to be the predicate of copular sentences, there should be subjects of copular sentences. However, no subjects can be added in sentences like (56).

2.4.2.6.1 Remaining issue The characterization of *kedo* and *ga* as **topic** markers which introduce topics well predicts the distributions of these markers. In Chapter 4, I aim at capturing these markers as well as other **topic** particles from a unified point of view.

2.4.2.7 Zero particle

While overt particles almost always follow nouns in written Japanese, the zero particles are ubiquitous in spoken Japanese. All kinds of core arguments (A, S, and P) can be basically coded by the zero particles (\emptyset) as exemplified in (58).

- (58) **Ga vs. \emptyset**

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- a. taroo- $\{\emptyset/\text{ga}\}$ kaet-teru-no- $\{\emptyset/\text{o}\}$ sitte iru?
Taro- $\{\emptyset/\text{NOM}\}$ return-PROG- $\{\emptyset/\text{ACC}\}$ know be
'Do (you) know that Taro is back?' (A & P)
O vs. \emptyset
- b. ima kono hon- $\{\emptyset/\text{o}\}$ yon-deru-nen
now this book- $\{\emptyset/\text{ACC}\}$ read-PROG-PAR
'Now (I'm) reading this book.' (P)
Wa vs. \emptyset
- c. kimi- $\{\emptyset/\text{wa}\}$ dare-ga suki?
2SG- $\{\emptyset/\text{TOP}\}$ who-NOM like
'Who do you like?' (S)
(Shibatani 1990: pp. 367-368, glosses modified)

Although I employ the symbol \emptyset for a **zero particle** and use expressions like “zero-coding” and “the zero particles”, I do not claim the existence of \emptyset or the zero particles, which are just a matter of notation and are equivalent to “bare NPs” or “NPs are not followed by any particle”. For the sake of clarity, however, I rather use the symbol \emptyset and express bare nouns as “zero-coding”. Also, I do not get involved in the discussion of whether the zero particles are in fact zero or are simply omitted. I assume that each production of a **zero particle** in everyday usage is governed by unique and complex conditions. When somebody says “the particle X can be replaced with \emptyset in this context,” I consider it to mean “the conditions of producing X and \emptyset in this context are not predictable in the current model”.

In this section, I review conditions of zero-coding proposed in the literature. Note that other parts of §2.4.2 focus on written Japanese, while this part focuses on spoken Japanese. Shimojo (2006) and Fry (2001) are useful surveys of the previous literature and I rely on them to review the literature here.

2.4.2.7.1 Socio-linguistic factors Tsutsui (1984) points out that the zero particles are acceptable in less formal situations. Also, it is reported that the zero particles are used differently in different dialects (e.g., Sasaki 2006; Nakagawa 2013). I discuss the zero particles in casual forms spoken around Tokyo to control the effects of stylistic and dialect differences.

2.4.2.7.2 Word and sentence length Tsutsui (1984: 98ff.) also proposes that the zero particles following monosyllabic nouns are less natural than those following multisyllabic nouns. Fry (2001: 123) reports that 40% of the multisyllabic words

are zero-coded, while 27% of the monosyllabic words are zero-coded.¹⁷ Moreover, Jorden (1974: 44) has claimed that zero-coding is frequent especially in short sentences. Fry (2001: 122ff.), by comparing short utterances with less than 10 words and long utterances with more than or equal to 10 words, found that the zero particles appear significantly in short utterances. Henceforth, I focus on overt vs. zero particles following multisyllabic NPs in short sentences to avoid this factor.

2.4.2.7.3 Contrast and narrow focus Contrasted elements are always followed by *wa* (Tsutsui 1984: 53ff.). In (59-a), for example, *boku* ‘I’ and *biru* ‘Bill’ are contrasted, which cannot felicitously be followed by the zero particles.

- (59) a. boku-{*wa*/* \emptyset } oyoi-da-kedo biru-{*wa*/* \emptyset } oyoga-nakat-ta-yo
 1SG-{TOP/ \emptyset } swim-PAST-though Bill-{*wa*/ \emptyset } swim-NEG-PAST-FP
 ‘I swam, but Bill didn’t swim.’
 b. boku-{*wa*/ \emptyset } biiru-{*wa*/* \emptyset } nomu-kedo sake-{*wa*/* \emptyset } noma-nai
 1SG-{*wa*/ \emptyset } beer-{*wa*/ \emptyset } drink-though sake-{*wa*/ \emptyset } drink-NEG
 ‘I drink beer but not sake.’ (Modified from Tsutsui (1984: 54))¹⁸

As Tsutsui (1984: 93ff.) has also pointed out, the zero particles cannot felicitously be used in the narrow-focus context (the **argument focus** structure or “exclusivity” in Tsutsui’s term). Instead, overt particles are obligatory (see also Fujii & Ono (2000)). As shown in (60-B), where *suteeki* ‘steak’ is focused, for example, the overt particle *o* is natural, while the **zero particle** \emptyset is not.

- (60) A: Did you eat spaghetti in the restaurant?
 B: boku-wa suteeki-{*o*/* \emptyset } tabe-ta-n-da-yo
 1SG-TOP steak-{*o*/ \emptyset } eat-PAST-NMLZ-FP
 ‘I ate steak (not spaghetti).’ (Tsutsui 1984: 93, context added)

In a similar manner, *hon* ‘book’ in (61-B) can be naturally followed by *ga*, but not \emptyset because *hon* is narrow-focused.

- (61) A: Which book is interesting?

¹⁷However, his results are more complex; the difference between the zero-coding ratios of multisyllabic words and monosyllabic words are significant for As and Ss; but not for Ps.

¹⁸Many of Tsutsui’s examples employ formal and polite forms rather than casual forms. Therefore, I henceforth modified all of his examples cited in the present study into casual forms to exclude the effect of formality.

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- B: kono hon-{ga/*Ø} omosiroi-yo
this book-{ga/*Ø} interesting-FP
'This book is interesting.' (op.cit.: 94, context added)

Based on these facts, Shimojo (2006), following Lee (2002), proposes that the function of the zero particles is to “withhold[...] reference to other referents which are potentially related to the proposition denoted by the sentence” (p. 131).

On the other hand, Matsuda (1996) and Fry (2001) report the tendency that *wh*-word Ps (such as *nani* ‘what’ and *dare* ‘who’) are more likely to be zero-coded than non-*wh*-word Ps. Fry found that 71% of the *wh*-Ps are zero-coded, whereas 51% of the non-*wh*-Ps are zero-coded. As exemplified in (62), zero-coded *wh*-Ps are not rare.¹⁹

- (62) a. de satosi ima nani-Ø si-ten-no
then Satoshi now what-Ø do-PROG-Q
'So, what are you doing now, Satoshi?' (chiba1232:
349.08-349.98)
b. nani-Ø turu-no
what-Ø fish-Q
'What do you fish?' (chiba0732: 491.59-492.07)

The fact that *wh*-words are more likely to be zero-coded than non-*wh*-words contradicts Tsutsui’s observation because, in general, *wh*-questions are considered to be in **narrow focus**. Similarly, Niwa (2006: Chapter 10) reports that objects corresponding to the answer to *wh*-questions are acceptable, which is also considered to be in **narrow focus** and is a counter-example to Tsutsui’s claim. As shown in the example (63-A), the object *kootya* ‘tea’ corresponding to the answer to a *wh*-question can be coded by either *o* or Ø.

- (63) Q: Which do you wanna drink, coffee or tea?
A: zyaa kootya-{o/Ø} nomu-wa
then tea-o/Ø drink-FP
'Then, (I) drink tea.' (Niwa 2006: 291)

More complicatedly, *wh*-subjects can be zero-coded, while subjects corresponding to the answer to a *wh*-question cannot be zero-coded (Niwa 2006). As exemplified in (64), the *wh*-subject *dare* ‘who’ can be either zero-coded or *ga*-coded, but the subject corresponding to the answer cannot be felicitously zero-coded.

¹⁹However, I did not find any examples of *dare* as P in the *Chiba three-party conversation corpus*.

- (64) a. ima dare-{ga/Ø} ki-teta-no?
 now who-ga/Ø come-PFV-Q
 ‘Who came a moment ago?’
 b. taroo-{ga/?Ø} ki-teta-n-da
 Taro-{ga/Ø} come-PFV-NMLZ-COP
 ‘Taro came.’ (Niwa 2006: 291)

Fry (2003) reports that the ratio of the zero particles coding *wh*-words for As and Ss (25%) is lower than the ratio of zero-coding for non-*wh*-As and Ss (32%), although the difference is not significant in a χ^2 -test.

2.4.2.7.4 Word order Tsutsui (1984: 108ff.) argues that the zero particles can be used naturally “if the NP [...] is preceded by the subject of the sentence and immediately followed by the predicate” (p. 108). As instantiated in (65), Tsutsui claims that the zero-coded NP *eigo* ‘English’ in (65-a) is natural because it is preceded by the subject *boku* ‘I’ and immediately followed by the predicate *umai* ‘good’, while the zero-coding in (65-b) is unnatural because it is not immediately followed by the predicate.

- (65) a. boku-{wa/Ø} hanako-yori eigo-{ga/Ø} umai-yo
 1SG-{wa/Ø} Hanako-than English-{ga/Ø} good-FP
 ‘I’m better at English than Hanako.’
 b. boku-{wa/Ø} eigo-{ga/?Ø} hanako-yori umai-yo
 1SG-{wa/Ø} English-{ga/Ø} Hanako-than good-FP
 ‘I’m better at English than Hanako.’ (Tsutsui 1984: 110)

This is supported by Matsuda (1996) and Fry (2001). Fry (2001: 124), for example, found that 58% of the verb-adjacent Ps are zero-coded, whereas 41% of the non-verb-adjacent Ps are zero-coded.

Niwa (2006: 291ff.) points out that verb-adjacent NPs can be more naturally zero-coded when the NPs are non-topic (focus).²⁰ On the other hand, Niwa also found that clause-initial NPs can be naturally zero-coded when the NPs are topics. Compare (66) and (67). *Sugoi kawaii ko* ‘very cute girl’ in (66) is in focus because the NP is indefinite and is treated as news. In this case, the verb-adjacent NP can be felicitously zero-coded as in (66-a), whereas the non-verb-adjacent NP cannot naturally be zero-coded (66-b).

²⁰There may be elements in a sentence that are neither topic nor focus. The present study, however, assumes that all core arguments are either topic or focus; therefore, if an element is not a topic, it is assumed that it is a focus.

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- (66) a. oi keiri-ka-ni sugoi kawaii ko-{ga/Ø}
 hey accounting-section-DAT very cute girl-{ga/Ø}
 hait-ta-zo
 enter-PAST-FP
 ‘Hey, a very cute girl joined the accounting section.’
 b. oi sugoi kawaii ko-{ga/?Ø} keiri-ka-ni
 hey very cute girl-{ga/Ø} accounting-section-DAT
 hait-ta-zo
 enter-PAST-FP
 ‘Hey, a very cute girl joined the accounting section.’ (Niwa 2006: 293)

On the contrary, *ano ko* ‘that girl’ in (67) is topical because the NP is definite and the participants have discussed her. In this case, both the verb-adjacent and non-verb-adjacent NPs can be felicitously zero-coded.

- (67) (People have discussed a female newcomer *ano ko* ‘that girl’.)
 a. oi keiri-ka-ni ano ko-{ga/Ø} hait-ta-zo
 hey accounting-section-DAT that girl-{ga/Ø} enter-PAST-FP
 ‘Hey, that girl joined the accounting section.’
 b. oi ano ko-{ga/Ø} keiri-ka-ni hait-ta-zo
 hey that girl-{ga/Ø} accounting-section-DAT enter-PAST-FP
 ‘Hey, that girl joined the accounting section.’ (ibid.)

2.4.2.7.5 Types of predicates Tateishi (1989) argues that the zero particles are natural only inside V’. The subjects of a stage-level predicate or an **unaccusative** predicate can be naturally zero-coded because they are realized inside V’. On the other hand, the subjects of an individual-level predicate or an **unergative** predicate are realized outside V’ (see also Kageyama 1993: 56–57). As shown by the contrast between (68) and (69), the subjects of **unaccusative** predicates (68) can naturally be either zero- or *ga*-coded, while those of **unergative** predicates (69) can only be coded by *ga*; zero-coding results in anomaly.

- (68) Unaccusative predicate
 a. tanaka-san-{ga/Ø} nakunat-ta-no sira-nakat-ta
 Tanaka-HON-{ga/Ø} pass.away-PAST-NMLZ know-NEG-PAST
 ‘(I) didn’t know that Mr. Tanaka passed away.’
 b. terebi-no nyuusu-de tankaa-{ga/Ø} tinbotu suru tokoro
 TV-GEN news-at tanker-{ga/Ø} sink do place

mi-ta-yo

see-PAST-FP

‘(I) saw a tanker sinking in the TV news.’ (Kageyama 1993: 56)

(69) Unergative predicate

- a. kodomo-tati- $\{ga/?*\emptyset\}$ sawagu-no mi-ta koto nai
 child-PL- $\{ga/\emptyset\}$ mess.around-NMLZ see-PAST thing not.exist
 ‘(I’ve) never seen the children messing around.’
- b. kanzya- $\{ga/?*\emptyset\}$ abare-ta-no sit-te-masu-ka
 patient- $\{ga/\emptyset\}$ go.violent-PAST-NMLZ know-PROG-PLT-Q
 ‘Did (you) know that the patient went violent?’ (ibid.)

Yatabe (1999) points out that there are counter-examples to Tateishi’s generalization, citing an example from Niwa (1989). The predicate *happyoo suru* ‘give a presentation’ is an ergative predicate and it is possible to zero-code the agent of this action as shown in (70).

- (70) kondo gengo-gakkai-de yamada-san- $\{ga/\emptyset\}$ happyoo
 next.time linguistic-conference-LOC Yamada-HON- $\{ga/\emptyset\}$ presentation
 suru-n-da-tte
 do-NMLZ-COP-QUOT
 ‘I heard that Mr. Yamada is going to give a presentation in the next linguistic conference.’ (Niwa 1989: 49)

Note, however, that this example is topical zero-coding, rather than focal zero-coding and these two might be different from each other.

Yatabe also argues against Tateishi’s claim that zero particles cannot naturally follow the subject of an individual-level predicate. Although I do not get involved in this discussion because it is outside the scope of the present study, I suggest that this is also attributable to the distinction between the **topic** vs. focus zero particles.

2.4.2.7.6 Types of nouns The hierarchy of features proposed in Silverstein (1976: 1981) also plays a crucial role in zero-codings of spoken Japanese. Minashima (2001) reports that **indefinite** or **inanimate** objects are more likely to be zero-coded than definite or **animate** objects. The results in Fry (2001: 128ff.) support

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Minashima’s generalization.²¹ Kurumada & Jaeger (2013; 2015), by conducting experiments on speaker’s choice between overt vs. zero particles, also report that speakers are more likely to attach the overt particle (*o*) to **animate** objects. On the other hand, Fry (2001: 128ff.) reports that “strongly definite” subjects (proper nouns and personal pronouns) are more likely to be zero-coded than other kinds of subjects. Also, **animate** subjects are more likely to be zero-coded than **inanimate** subjects. Fry points out that this tendency follows the typological generalization proposed in Comrie (1979; 1983).

Niwa (2006) suggests that the predictability of nouns influences the coding of particles. Compare (71-a) and (71-b), for example. The only difference between these two examples is what might fall from the sky; in (71-a), rain might fall, while, in (71-b), hail might fall, which is more surprising. In (71-a), both the overt particle *ga* and the **zero particle** are acceptable. But, in (71-b), only the overt particle is acceptable.

- (71) (The sky looks threatening.)
- a. **ame**-{*ga*/Ø} huru-kamosirenai-n-da-tte
rain-{*ga*/Ø} fall-POT-NMLZ-COP-QUOT
‘I heard that it might rain.’
 - b. **hyoo**-{*ga*/Ø} huru-kamosirenai-n-da-tte
hail-{*ga*/Ø} fall-POT-NMLZ-COP-QUOT
‘I heard that it might hail.’
- (Niwa 2006: 290)

Kurumada & Jaeger (2013) argues that “Japanese speakers prefer to produce an object NP without case marking when grammatical function of a noun is made more predictable given the semantics of the noun (e.g., **animacy**) and the other linguistic elements in the sentence (e.g., plausibility of [grammatical-function]-assignment given the subject, object, and **verb**)” (p. 863, see also Kurumada & Jaeger (2015)). For example, doctors are more likely to do something to patients, rather than vice versa. Therefore, the case (72-a) is more predictable than the case (72-b), and *isya* in (72-b) is more likely to be overtly coded than *kanzya* in (72-a).

- (72) a. *isya*-ga **kanzya**-{*o*/Ø} byoositu-de teate si-ta
doctor-NOM patient-{*o*/Ø} hospital.room-in treat do-PAST
‘The/a doctor treated the/a patient in a hospital room.’

²¹In Fry’s data, zero-codings of **animate** and **inanimate** objects are not significantly different. He speculates that this might be because of the small number of **animate** objects in his corpus.

- b. kanzya-ga isya-{o/Ø} byoositu-de mat-ta
 patient-NOM doctor-{o/Ø} hospital.room-in wait-PAST
 ‘The/a patient waited for the/a doctor in a hospital room.’
 (Translated from Kurumada & Jaeger (2013: 860))

They argue that their study “constitutes strong support for the view that language production is optimized to maximize the efficiency of information transmission”, referring to Levy & Jaeger (2007) and Jaeger (2010).

2.4.2.7.7 Other pragmatic factors Makino & Tsutsui (1986) and Backhouse (1993) point out that NPs in interrogatives tend to be zero-coded. This is supported by Fry (2001), who studied a large corpus. For example, in (73) from the corpus of Fry (2001), *pen*, whose existence is in question, is zero-coded.

- (73) *nanka* kami-to pen-Ø aru?
 um paper-and pen-Ø exist
 ‘Um, do you have pen and paper?’ (Fry 2001: 120)

Sentences of this type have attracted particular attention because the **zero particle** in this sentence is not optional; *wa* and *ga* (and, of course, *o*) cannot be used in this context. According to Onoe (1987), these obligatory zero particles typically appear in sentences like the following.

- (74) a. *kore*-Ø *oisii-yo*
 this-Ø good-FP
 ‘This is delicious.’
 b. *huzi-san*-Ø *mi-eru?*
 Fuji-mountain-Ø see-CAP
 ‘Can you see Mt. Fuji? (Is Mt. Fuji visible to you?)’
 c. *rosia-go*-Ø *yom-eru?*
 Russia-language-Ø read-CAP
 ‘Can you read **Russian**? (Is **Russian** readable to you?)’ (Onoe 1987: 48)

Also, Tsutsui (1984: 118ff.) observes that the zero particles code information the **hearer** expects to hear. As shown in the contrast between (75) and (76), the **zero particle** (as well as *ga* in this case) can naturally code *basu* ‘bus’ (75) if the speaker and the **hearer** are waiting for a bus and hence the **hearer** expects to hear the word *basu* ‘bus’; on the other hand, zero-coded *basu* (76) is unnatural because the **hearer** does not expect to hear *basu*.

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- (75) Situation: the speaker and the **hearer** are waiting for a bus, and the speaker sees the bus coming.
a basu-{ga/Ø} ki-ta
oh bus-{ga/Ø} come-PAST
'Oh here comes a bus.' (Tsutsui 1984: 120)
- (76) Situation: the speaker sees a bus coming in a place where there is no bus service.
a basu-{ga/*Ø} ki-ta
oh bus-{ga/Ø} come-PAST
'Oh here comes a bus.' (ibid.)

Some researchers argue that **discourse** structures affect the selection of *wa* vs. Ø. Suzuki (1995), analyzing casual interviews, claims that “relatively speaking, zero-marked phrases tend to represent minor **[discourse]** boundaries in contrast to major boundaries represented by *wa*-phrases” (p. 615). On the other hand, Kurosaki (2003), investigating scenarios of TV dramas, argues that the zero particles are employed to introduce new topics (see also Niwa 2006), which implies that the zero particles appear at major **discourse** boundaries. For now, I suppose that it is extremely difficult to identify **discourse** boundaries in a reliable way, let alone the difference between major and minor boundaries. Therefore, we need to wait for breakthroughs in this area.

2.4.2.7.8 Remaining issues As we can see from the outline of studies on the zero particles, factors that affect zero- vs. overt-codings are complex, and some results are contradictory. A theory that explains zero-coding is necessary. I propose a unified theory that predicts zero-coding in terms of **information structure** based on Nakagawa (2013). Along the lines of Comrie (1979; 1983), I propose a frequency account of zero- vs. overt-codings of particles. I believe that this account is congruent with the theory proposed in Levy & Jaeger (2007); Kurumada & Jaeger (2013) and Kurumada & Jaeger (2015).

2.4.3 Word order

While Japanese basic **word order** is APV (or SOV in more popular terminology), other variations are also possible. Example (77-a) shows the basic **word order**, and examples (77-b–f) show other possibilities. According to Shibatani (1990: 260), not all possibilities are equally natural in out-of-the-blue contexts, as shown by ‘?’ before the sentence.

- (77) a. taroo-ga hanako-ni sono hon-o yat-ta
Taro-NOM Hanako-DAT that book-ACC give-PAST
'Taro gave a book to Hanako.' (A + DAT + P + V)
- b. hanako-ni taroo-ga sono hon-o yat-ta
Hanako-DAT Taro-NOM that book-ACC give-PAST
(DAT + A + P + V)
- c. sono hon-o taroo-ga hanako-ni yat-ta
that book-ACC Taro-NOM Hanako-DAT give-PAST
(P + A + DAT + V)
- d. taroo-ga sono hon-o hanako-ni yat-ta
Taro-NOM that book-ACC Hanako-DAT give-PAST
(A + P + DAT + V)
- e. ?hanako-ni sono hon-o taroo-ga yat-ta
Hanako-DAT that book-ACC Taro-NOM give-PAST
(DAT + P + A + V)
- f. ?sono hon-o hanako-ni taroo-ga yat-ta
that book-ACC Hanako-DAT Taro-NOM give-PAST
(P + DAT + A + V)
(Shibatani 1990: 260)

In spoken Japanese, NPs (and adverbs) sometimes appear post-predicatively as exemplified in (78-b).

- (78) a. taroo-ga ki-ta
Taro-NOM come-PAST
'Taro came.' (S + V)
- b. ki-ta-yo taroo-ga
come-PAST-FP Taro-NOM
'Lit. Came, Taro.' (V + S)
(Shibatani 1990: 258–259)

Different theories are interested in different aspects of **word order** phenomena in Japanese. Generative linguists and psycholinguists, as far as I can see, are mainly interested in 'scrambling': **word order** variations of subjects, objects, datives, and possibly other arguments, all of which appear before the predicates. More recently, generative linguists have also been interested in 'left periphery', which is tightly connected with **information structure**. Some construction grammarians study dative-alternation-like phenomena in Japanese.²² Functional lin-

²²I do not discuss the dative alternation in this study. See Nakamoto et al. (2006), who found that

guists and, more recently, **interactional** linguists are interested in post-predicate constructions, partially because they are mainly working on spoken language, and post-predicate constructions in Japanese only appear in spoken language. On the other hand, traditional Japanese linguists have not discussed the **word order** phenomena that I am interested in (except for Noda (1983)). Instead of **word order** variations, they concentrate on **affix** ordering and dependency relations (see e.g., Saeiki (1998)).

I outline previous studies on basic **word order** and other variations in the following sections. Note that different approaches are skewed to different sections for the reasons stated above.

2.4.3.1 Basic word order

As far as I can tell, all the Japanese linguists agree that the basic **word order** in Japanese is SOV (APV in terms of this study). For example, Shibatani (1990) states that “Japanese is an ‘ideal’ SOV (Subject-Object-Verb) language in the sense that the **word order** of ‘dependent-head’ is consistently maintained with regard to all types of constituent” (p. 257).

- (79)
- | | | |
|----|---|-------------------|
| a. | taroo-ga ki-ta
Taro-NOM come-PAST
‘Taro came.’ | (S + V) |
| b. | taroo-wa ki-ta-ka
Taro-TOP come-PAST-Q
‘Did Taro come?’ | (S (Topic) + V) |
| c. | taroo-ga hon-o kat-ta
Taro-NOM book-ACC buy-PAST
‘Taro bought a book.’ | (A + P + V) |
| d. | taroo-ga hanako-ni hon-o yat-ta
Taro-NOM Hanako-DAT book-ACC give-PAST
‘Taro gave a book to Hanako.’ | (A + DAT + P + V) |
| e. | taroo-ga nani-o kat-ta-ka sira-nai
Taro-NOM what-ACC buy-PAST-Q know-NEG
‘(I) don’t know what Taro bought.’ | (Clause + V) |

a choice between DAT+P+V and P+DAT+V is determined by the meaning of a sentence as a whole. More specifically, they showed that P+DAT+V is preferred for caused motion. On the other hand, their results also show that “there is an overall tendency for Japanese speakers to prefer [DAT+P+V] order to [P+DAT+V]” (p. 1). They argue that “the strength of the preference is not constant among different supralelexical meanings” (ibid.).

(Shibatani 1990: 257–258)

Chujo (1983) conducted a sentence-comprehension experiment and reports that it takes longer to judge the grammaticality of PAV order than APV order.²³ It is also confirmed that the order PAV is more difficult to process than the basic order APV in other experiments such as phrase-by-phrase reading tasks (Miyamoto & Takahashi 2001), eye-movement experiments (Mazuka et al. 2001), and ERP experiments (Ueno & Kluender 2003).

In my data from *the Corpus of Spontaneous Japanese*, which is to be explained in the next chapter, 39 examples appear in APV order, whereas 9 examples appear in PAV order. Therefore, APV is the basic (most frequent) word order in the corpus.²⁴ Note, however, that these numbers are very small compared to examples where a single full NP appears in a clause; 644 examples appear in the SV order, 336 examples appear in the PV order (without A), and 526 examples appear in the DAT + V order.²⁵ Infrequency of two or more full NPs within the same clause has already been reported in Japanese (Matsumoto 2003) and other languages (Du Bois 1987; Dryer 1997), which is also supported in my data.

2.4.3.2 Clause-initial elements

Although NPs that appear clause-initially can also be called “preposed” or “scrambled” NPs, I call them clause-initial NPs because terms like “preposing” and “scrambling” assume the movement of NPs. Some even call all clause-initial NPs “topicalized” NPs, but I do not employ this term either because the term already attributes a special function to the clause-initial NPs. On the other hand, the term “clause-initial” does not assume movements nor any functions of clause-initial NPs.

2.4.3.2.1 Topic Functional linguists and recent generative grammarians who are working on cartography agree that topic-like NPs appear clause initially. As has traditionally been pointed out, topics, which correlate with given information, tend to appear clause-initially (Mathesius 1928; Firbas 1964; Daneš 1970; Kuno 1978). These topics function as “anchors” that associates the previous and up-coming utterances. Generative grammarians (e.g., Endo 2014) assume the universal hierarchy (80) proposed in Rizzi (2004) and argue that Japanese also fol-

²³There is one exceptional case; if P is human and is not followed by the particle *o*, the time difference between APV and PAV disappears.

²⁴Other non-verb-final orders such as VAP or AVP are extremely rare.

²⁵However, the AV pattern appears only in 8 examples.

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lows this hierarchy. In generative grammar, it is assumed that a language (structure) is uniform unless there is strong counter-evidence (the Uniformity Principle: Chomsky 2001: 2).

(80) Force Top* Int Top* Focus Mod* Top* Fin IP (Rizzi 2004: 242)

“Force” stands for clause types such as declarative, interrogative, and imperative; “Top” for **topic**, “Int” for higher *wh*-elements (Rizzi 2001); “Mod” for modifier such as adverbs; and “Fin” for finiteness.

Ferreira & Yoshita (2003) conducted a **production experiment** and found that Japanese speakers produced given arguments before new arguments, especially “when the previous mention of the given argument involved the same lexical content” (p. 688). Imamura (2017) employed the *Balanced Corpus of Contemporary Written Japanese* (BCCWJ) and concludes that “the direct objects in OSV [non-canonical “scrambled” **word order**] and *wa*-marked entities are generally given information. Yet, **word order** changes from SOV [canonical **word order**] to OSV do not influence the cataphoric prominence of a referent” (p. 78).

2.4.3.2.2 Weight Another important factor that affects **word order** is the weight of NP. Yamashita & Chang (2001) pointed out that in Japanese, heavy NPs tend to precede light NPs, whereas, in SVO languages like **English**, light NPs are reported to precede heavy NPs (e.g., Arnold et al. 2000). They also report that topics and subjects tend to precede other NPs and the weight and topic-hood of a NP competes to decide the order of NPs (see also Kondo & Yamashita 2008).

2.4.3.2.3 Remaining issue The previous literature agrees that topics, correlating with given information, appear clause-initially. This is also motivated from a cognitive perspective. The results of Chapter 5, however, show that not all given elements appear clause-initially. Moreover, there are post-predicate elements which correspond to topics in Japanese. It is therefore also necessary to explain why some topics appear after the predicate. In Chapter 5, I will show that sharedness, rather than givenness in general, affects **word order** in Japanese and that **activation status** determines whether NPs appear clause-initially or post-predicatively. Also, whether the referent in question is mentioned in the following **discourse** or not affects **word order** in addition to the effect of particles, contrary to the finding of Imamura (2017).

2.4.3.3 Post-predicate elements

I call NPs that appear after the predicate post-predicate or postposed NPs. As has been stated earlier, they appear mainly in the spoken language. Whereas adverbs and noun-modifying phrases are also postposed frequently in conversation, the present study only discusses postposed NPs, which are exemplified in (81).

- (81) a. yurusite kun-nai-yo syatyoo-ga
allow give-NEG-FP president-NOM
'(He) would not allow (us to do such a thing), the president.' (Ono & Suzuki 1992: 431)
- b. omosiroi-kamo haikai-ga
interesting-may.be background-NOM
'It's interesting, the background.' (Nakagawa et al. 2008: 9)

2.4.3.3.1 Afterthoughts Some researchers consider postposed elements to be "afterthoughts" (Shibatani 1990: 259): a clarification for an omitted element. Kuno (1978); Hinds (1982) and Ono & Suzuki (1992) also make a similar point. However, it has been pointed out that some postposed elements are produced in a coherent intonation contour without pause (Ono & Suzuki (1992: 436); Ono (2007: §2)), which suggests the possibility that the speaker does not have time to plan to produce the postposed part; rather, the postposed part has been planned as such.

2.4.3.3.2 Non-focus Takami (1995b), modifying Kuno (1978), proposes that non-focus NPs can be postposed. When the focus NPs are postposed, the sentences are not acceptable, as shown in (82), where the *wh*-word *nani* 'what' in (82-a) and *mizu* 'water' in (82-b) are considered to be foci.

- (82) a. *ato iti-nen-de teinen-nan-desu-ka dare-ga
remaining one-year-within retiring-COP-PLT-Q who-NOM
'Is (he) going to retire within a year, who?' (Takami 1995b: 160)
- b. ??boku-wa nomi-tai mizu-ga
1SG-TOP drink-want water-NOM
'I want to drink, water.' (op.cit.: p. 161)

Takami (1995a) argues that the NPs in the following examples can be postposed because they are not the most important information, although they are part of focus.

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- (83) a. akegata yatto umare-masi-ta **otoko-no ko-ga**
dawn finally born-PLT-PAST male-GEN child-NOM
'At dawn, (he) was finally born, a male baby.'
- b. taroo-wa hanako-ni katte yat-ta-yo **zyuk-karatto-no**
Taro-TOP Hanako-DAT buy give-PAST-FP 10-carat-GEN
daiya-no yubiwa-o
diamond-GEN ring-ACC
'Taro gave Hanako, a 10-carat diamond ring.' (Takami 1995a: 236)

I suppose that Takami's important information is equal to focus. In (83), part of the focus is postposed, but it is not "the most focalized part"; so the sentences in (83) are acceptable. Therefore, Takami's generalization that foci (or the most focalized part) cannot be postposed still holds.

Fujii (1991) argues that pragmatically important parts (such as focus and contrast) are uttered first, which results in postposed constructions. I consider this argument to be similar to Takami's argument and include Fujii in this section of postposed elements as non-focus.

2.4.3.3.3 Emphasis Hinds (1982) argues that some postposed elements add emphasis to the **utterance**. Ono & Suzuki (1992: 437) also point out postposed elements that "strengthen the speaker's stance toward the proposition."

Although it is not clear how to identify "emphasis", their argument is important at least in two ways. First, when the postposed elements are produced in a coherent contour with the predicate, they are similar to final particles such as *ne* and *yo*. For example, in (84), the **postposed element** *watasi* 'I' follows the final particle *yo*.

- (84) sukii itte ki-masi-ta-yo **watasi**
ski go come-PLT-PAST-FP 1SG
'(I) went skiing, me.' (Ono & Suzuki 1992: 438)

Given that final particles can appear in a row (e.g., *oisii yo ne* 'good, isn't it?'), it is no wonder that postposed elements behave like final particles and add some kind of the speaker's attitude toward the proposition like final particles.

Second, as Ono & Suzuki (1992) pointed out, the implicatures of some **postposed construction** are dramatically different from the corresponding pre-predicate constructions. For example, compare (85-a) and (85-b). They are composed of exactly the same elements; only the orders are different. In (85-a), *sore* 'that' is postposed; in (85-b), *sore* is in the basic position. Therefore, they are expected

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disagreement to an assessment and a refusal to a request are complex, indirect, and are uttered with delay. Levinson (1983: 332ff.) compares preferred vs. dispreferred organizations to unmarkedness vs. markedness in morphology.

Based on this argument, Tanaka (2005) found that the preferred second part begins with the predicate, followed by NPs (and other adverbs and **adverbial** clauses), while the dispreferred second part ends with the predicate, preceded by NPs (and other elements). Tanaka argues that this contrast is observed because the predicate expresses the conclusion such as agreement, disagreement, acceptance, and refusal.

Let us take a closer look at the following example of an assessment-agreement sequence. In (86), Chikako (C), Keiko (K), and Emiko (E) are talking about current fashion trends, which have been revived from their youth. First, Chikako comments that the current fashion is exactly the same as the fashion trends of their youth. Then Keiko immediately agrees with Chikako by uttering the predicate followed by an NP. Note that the sign “=” indicates that there is no pause between utterances.

- (86) C: ima-no katati-to mattaku onnazi.=
 now-GEN form-COM exactly same
 ‘(It’s) exactly the same shape as the ones in vogue now.’
 K: =onnazi-yo ↓ =eri-mo
 same-FP collar-also
 ‘(It’s) the same, the collar too.’
 E: [a! honto:..
 oh really
 ‘Oh re::ally.’ (Tanaka 2005: 406)

On the other hand, in the next example of a dispreferred second part, the speaker delays the predicate expressing refusal by putting a lot of NPs and adverbs before the predicate. Before the second part (87),²⁶ the speaker was asked about the content of an advertisement in a magazine.

- (87) a. sono <nakami>-made tyotto-ne
 its content-even a.bit-FP
 ‘When it comes down to its contents, sort of..’

²⁶I modified the transcription symbol “- (hyphen)” to “~ (tilde)” because hyphens are used to express morphological boundaries in this study. The tilde (originally, a hyphen) indicates a sudden stop of an **utterance** (typically a word) on the way to utter it. I will not explain other transcription symbols here because they are irrelevant to the current discussion. For more detail on transcription symbols, see Jefferson (2004) and Hepburn & Bolden (2013).

- b. **kookoku-no~ gn >ga-tte-no-wa** tyotto
 advert-GEN DF NOM-QUOT-NMLZ-TOP a.bit
 ‘when it comes to (the content) of the advert, sort of..’
- c. **kotira-de-wa**
 here-LOC-TOP
 ‘on our side..’
- d. **wakara-nai** -n-desu-keredomo<, .hhhh
 know-NEG-NMLZ-PLT-though
 ‘(we) have no knowledge of’ (op.cit.: 413)

The speaker could have simply said “we have no knowledge of (it)” because all other NPs are clear from the context. However, the speaker chose to utter NPs (and adverbs) instead of omitting them presumably to delay the conclusion.

2.4.3.3.6 Remaining issue Postposed constructions are well studied in various theories. However, few studies examine the difference between postposed NPs and other NPs such as clause-initial and pre-predicate NPs. Tanaka (2005) does not explain why speakers sometimes produce post-predicate elements and sometimes not. In Chapter 5, I will investigate these three kinds of NPs in terms of **information structure**, especially **activation cost**. Also, I will discuss the possible *raison d’être* of post-predicate elements.

2.4.3.4 Pre-predicate elements

I call NPs that appear immediately before the predicate pre-predicate elements. The discussion of the basic **word order** implies that Ps most frequently appear pre-predicatively and that this is the basic order. Therefore, I assume that almost all theories assume that Ps appear pre-predicatively as basic **word order** and I provide a review of other characteristics of NPs that appear pre-predicatively.

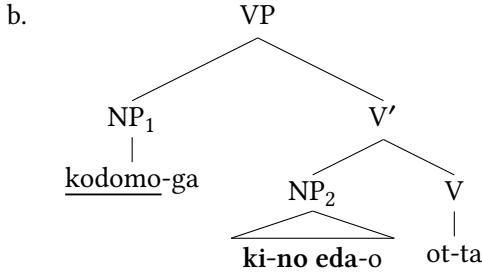
2.4.3.4.1 Unaccusativity Since Perlmutter (1978), it is widely assumed that there are two types of **intransitive** verbs: **unergative** verbs, which involve an agent, and **unaccusative** verbs, which involve only a patient (theme). Especially among generative linguists, it is also assumed that the argument of an **unergative verb** syntactically appears in the same position as the subject (A) of **transitive** clauses, while the argument of an **unaccusative verb** appears in the same position as the object (P) of **transitive** clauses. Kageyama (1993), who applied this idea to Japanese, provides rich examples to support this analysis of the surface structures of Japanese sentences. As can be seen in examples (88) to (90), the argument of

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an **unergative verb** *otoko-no ko* ‘boy’ in (89) appears in the same position as the subject (A) of a **transitive verb** *kodomo* ‘child’ in (88), whereas the argument of an **unaccusative verb** *ki-no eda* ‘tree branch’ in (90) appears in the same position as the object (P) of a **transitive verb** *ki-no eda* in (88).

(88) Transitive verb

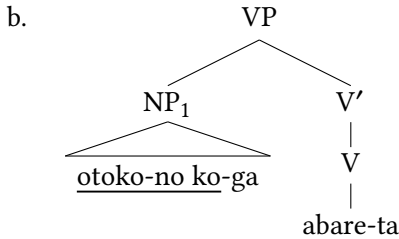
- a. kodomo-ga ki-no eda-o ot-ta
 child-NOM tree-GEN branch-ACC break-PAST
 ‘A child broke a tree branch.’



(Kageyama 1993: 46)

(89) Intransitive (Unergative) verb

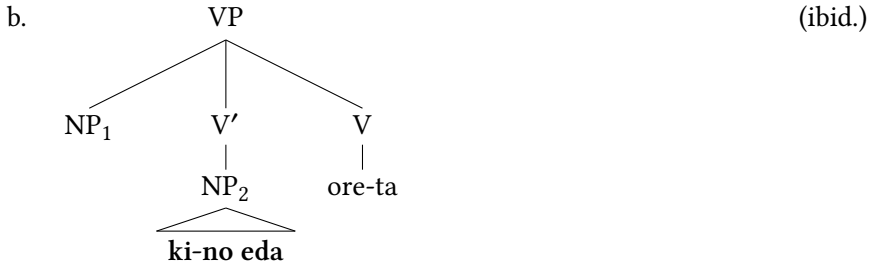
- a. otoko-no ko-ga abare-ta
 male-GEN child-NOM go.violent-PAST
 ‘A boy went violent.’



(ibid.)

(90) Intransitive (Unaccusative) verb

- a. ki-no eda-ga ore-ta
 tree-GEN branch-NOM break-PAST
 ‘A tree branch broke.’



The important point for our interest is that the argument of **unaccusative** verbs and the object (P) of **transitive** verbs structurally appear closer to the **verb**; i.e., they appear pre-predicatively since Japanese is basically a **verb-final language**.

2.4.3.4.2 Focus Kuno (1978) and Takami (1995a) point out that pre-predicate elements are focus (“most important information”). Endo (2014: §4.2.) also states that foci appear pre-predicatively. Compare the following examples. In (91-A), where ‘Boston’ appears pre-predicatively preceded by ‘Hanako’, responding only to Boston is felicitous as in (91-A), while responding only to Hanako is not as in (91-A’).

- (91) Q: ziroo-wa **hanako-to bosuton-ni** it-ta?
 Jiro-TOP Hanako-with Boston-DAT go-PAST
 ‘Did Jiro go to Boston with Hanako?’
 A: un **bosuton-ni** it-ta-yo
 yeah Boston-DAT go-PAST-FP
 ‘Yeah, I went to Boston.’
 A’: *un **hanako-to** it-ta-yo
 yeah Hanako-with go-PAST-FP
 ‘Yeah, I went with Hanako.’ (Kuno 1978: 52)

In (92), on the other hand, where ‘Hanako’ appears pre-predicatively preceded by ‘Boston’, responding only to Hanako is a natural answer as in (92-A’), while responding only to Boston is not as in (92-A).

- (92) Q: ziroo-wa **bosuton-ni hanako-to** it-ta?
 Jiro-TOP Boston-DAT Hanako-with go-PAST
 ‘Did Jiro go to Boston with Hanako?’
 A: *un **bosuton-ni** it-ta-yo
 yeah Boston-DAT go-PAST-FP
 ‘Yeah, I went to Boston.’

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A': un hanako-to it-ta-yo
yeah Hanako-with go-PAST-FP
'Yeah, I went with Hanako.'
(Kuno 1978: 54)

This implies that focus appears pre-predicatively. The results reported in Chapter 5 basically support this observation.

2.4.3.4.3 Remaining issue The observations discussed in the literature above imply that Ps, the arguments of the **unaccusative** verbs, and foci appear pre-predicatively. The results in Chapter 5 show that both patienthood and **newness** contribute to **word order** in Japanese. The next question is what kind of theory allows both patient and new elements to appear pre-predicatively. Throughout this study, I aim at showing the plausibility of the theory that captures multiple variables at the same time, i.e., the theory of competing motivations (Du Bois 1985).

2.4.4 Intonation

I employ the term intonation and prosody roughly in the same way. Here I outline studies on associations between intonation and some functions including **information structure**. For detailed phonetic descriptions and analyses of Japanese intonation, see Beckman & Pierrehumbert (1986); Pierrehumbert & Beckman (1988); Sugito (1994b); Venditti (2000); Igarashi et al. (2006); Igarashi (2015). Also, I only discuss a unit smaller than a clause; I do not discuss **discourse** structure although there are many interesting interactions between intonation and **discourse** structure (e.g., Nakajima & Allen 1993; Venditti & Swerts 1996; Murai & Yamashita 1999; Koiso et al. 2003; Okubo et al. 2003; Koiso & Ishimoto 2012). I focus on studies on intonation units and **information structure**.

2.4.4.1 Definition of intonation unit

Before reviewing the previous literature, I briefly discuss how an **intonation unit** is defined. The definition of an **intonation unit** makes use of a labeling system for Japanese prosodic information called X-JToBI, which has already been annotated in *the Corpus of Spontaneous Japanese*. I discuss X-JToBI in the following paragraph, then I will introduce intonation units.

2.4.4.1.1 X-JToBI and intonational phrases X-JToBI (Maekawa et al. 2002; Igarashi et al. 2006) is based on J-ToBI proposed in Venditti (1997; 2000), which itself

is modified from ToBI (Tones and Break Indices), a labeling system for English prosody (Silverman et al. 1992; Pitrelli et al. 1994; Beckman & Elam 1997).

Here I mainly discuss the break indices (BI) tier of X-JToBI since this is the most relevant feature for intonation units. The BI labelings are determined by human annotators and represent the strength of prosodic boundaries (Maekawa et al. 2002; Igarashi et al. 2006). BI labelings basically consist of 1, 2, and 3.²⁷ 1 corresponds to a word boundary, 2 corresponds to an accentual-phase boundary, and 3 corresponds to an intonational-phase boundary. An intonational phrase consists of more than or equal to one accentual phrase. An accentual phrase consists of a pitch contour with a single F_0 peak. Intonational-phase boundaries are the place where a pitch reset occurs; if the pitch range of the current accentual phrase is smaller than the next accentual phrase, an intonational-phase boundary is identified in the current accentual-phase boundary.

I introduce an example of an intonational-phase boundary (the label 3), which is the most relevant to our study. Figure 2.1 shows the pitch contour of the utterance (93).

- (93) aoi yane-no ie-ga mieru
 blue roof-GEN house-NOM visible
 ‘A house with the blue roof is visible.’

The vertical lines in the figure across the pitch contour indicate the peak and the bottom of F_0 . A contour with a single pitch peak corresponds to a single accentual phrase. Comparing the first (aoi ‘blue’) and the second (yane-no ‘roof-GEN’) accentual phrases, the pitch range of the second accentual phrase is smaller than the first one; i.e., downstepping occurs in the second accentual phrase. Downstepping, a.k.a. catathesis, is “a phonological process by which the [pitch] range is compressed after a lexical accent” (Venditti (2000: 17), see Poser (1984); Beckman & Pierrehumbert (1986); Pierrehumbert & Beckman (1988); Kubozono (1993)). In Figure 2.1, the first accentual-phase boundary is not an intonational-phase boundary. On the other hand, comparing the second (yane-no ‘roof-GEN’) and the third (ie-ga ‘house-NOM’) accentual phrases, the second pitch range is smaller than the third one. Therefore, the second accentual-phase boundary is an intonational-phase boundary.

2.4.4.1.2 Intonation unit Based on X-JToBI, Den et al. (2010) and Den et al. (2011) propose the definition of intonation unit, which I will employ in this study.

²⁷In addition, there are diacritics m , $-$, p . There are also labels for disfluency; word fragments, fillers, and so on. See Igarashi et al. (2006) for detailed description.

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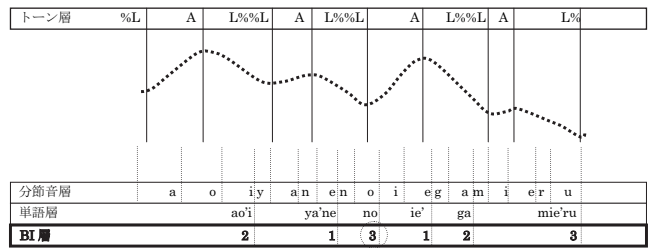


Figure 2.1: An example of annotation of BI (Igarashi et al. 2006: 412)

They call it short utterance-unit as opposed to long utterance-unit, but I use the term “**intonation unit** (IU)” throughout since I do not discuss long utterance-units. An intonation-unit boundary is identified where there is an **intonational phrase** (the boundary labelled as 3 in CSJ) discussed above, a clause boundary,²⁸ or a pause equal to or more than 0.1 seconds. As discussed in Enomoto et al. (2004), it is difficult for human annotators to agree in deciding intonation-unit boundaries based on the system proposed in Du Bois et al. (1992) and Iwasaki (2008). Den and his colleagues made it possible to identify intonation units in **spontaneous speech** consistently across annotators.

In the following section, however, I review studies on various kinds of intonation units including those of Du Bois et al. (1992); Maekawa et al. (2002); Iwasaki (2008); Den et al. (2011). Also, whereas prominence marking, down-stepping, and boundary **pitch** movements are more popular topics than intonation units, I review those studies in relation to the current study. See Venditti et al. (2008) for an overview of such studies.

2.4.4.2 Intonation units and related phenomena

In this section, I present a review of the literature on the association between prosodic units and related characteristics of language. Note again that the review includes various kinds of prosodic units based on slightly different definitions, although they agree in many cases.

2.4.4.2.1 Prominence and downstepping Prominence and **downstepping** are crucial features in determining intonation units. It is well known that a focus

²⁸To be more precise, this is a long utterance-unit boundary. See Den et al. (2011) for the definition of this unit.

receives prominence (**pitch peak**). Pierrehumbert & Beckman (1988: 99–101) report that “sequences with focus on the noun almost always had an **intermediate phrase** [i.e., **intonational phrase**] boundary between the **adjective** and the noun[...] an **intermediate phrase** boundary blocks catathesis [i.e., **downstepping**]” through production experiments, where subjects were asked to produce a sequence of an **adjective** and a noun with different focus positions. Target sentences and contexts Pierrehumbert and Beckman used are like the one in (94). The capital letters indicate that those words are in focus, and the bold-faced letters indicate that they are the targets of analysis.

- (94) Q: [In America,] are there sweet beans or carrots like there are in Japan?
 A: amai NINZIN-wa ari-masu-ga **amai MAME**-wa
 sweet carrot-TOP exist-PLT-though sweet bean-TOP
 ari-mase-n
 exist-PLT-NEG
 ‘There are sweet CARROTS, but there aren’t sweet BEANS.’
 (Pierrehumbert & Beckman 1988: 59)

Pierrehumbert and Beckman showed that there is an **intonational phrase** (i.e., **intermediate phrase**) boundary between the **adjective** (*amai* ‘sweet’ in (94-A)) and the noun (*mame* ‘bean’ in (94-b)) when the noun is focused as in (94). Although the results are complicated, they conclude that their generalization applies to both accented and unaccented words.²⁹

2.4.4.2.2 Focus projection There has been a cross-linguistic question of how human beings distinguish **broad focus** and **narrow focus**: the issue of focus projection. This has been investigated based on **English**, **German** and **Dutch** (Selkirk 1984; Gussenhoven 1983). Ito (2002), who investigated this question in Japanese, compared the response time and acceptability of each of the intonation types in (95-A1-A3) followed by a **broad focus** question like (95-Q). The capital letters indicate the phrases whose **pitch range** is expanded.

²⁹Kubozono (2007) compared two definitions of **downstepping** (syntagmatic and paradigmatic) and investigated whether a **pitch reset** occurs before the focus. He found conflicting results; from a syntagmatic perspective, the focus receives higher **pitch** than the preceding phrase, which indicates that **downstepping** is blocked. From a paradigmatic perspective, on the other hand, he had to conclude that **downstepping** is not blocked before the focus. The present study employs the definition of syntagmatic **downstepping** and assumes that the conclusions in Pierrehumbert & Beckman (1988) and Kubozono (2007) do not contradict each other. See Kubozono (2007) for detailed discussion on this issue.

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- (95) Q: yokoyama-kun-wa boonasu morat-tara doo suru-no
 Yokoyama-HON-TOP bonus get-COND how do-Q
 ‘What will Mr.Yokoyama do when he gets a bonus?’
- A1: kare-wa DAIBINGU-o HAZIMERU-n-da-yo
 3SG-TOP diving-ACC begin-NMLZ-COP-FP
 ‘He starts (scuba) diving.’
- A2: kare-wa DAIBINGU-o hazimeru-n-da-yo
 3SG-TOP diving-ACC begin-NMLZ-COP-FP
 ‘He starts (scuba) diving.’
- A3: kare-wa daibingu-o HAZIMERU-n-da-yo
 3SG-TOP diving-ACC begin-NMLZ-COP-FP
 ‘He starts (scuba) diving.’ (Ito 2002: 412)

Ito found that “though dual prominence [like (95-A1)] is preferred for answers to **broad focus** questions, utterances with a single intonational prominence on the object [like (95-A2)] may be comprehended equally quickly as those with dual prominence” (op.cit.: 413), whereas A1 is significantly more acceptable than A2. Also, she reports that the response time and acceptability of the A3-type do not significantly differ from those of A1 and A2. She concluded that “it is possible that the relation between argument structure and intonational focus marking is not universal” (ibid.).

Kori (2011) investigated intonation of broad and **narrow focus** and reports that, by default, only the first word receives **pitch peak** and the following word is suppressed, although some speakers put prominence on the second word too. (96-a) is the target sentence that he asked participants to read aloud and (96-b-c) are contexts. In (96-b-c), both *aoi* ‘blue’ and *mahuraa* ‘scarf’ are focused because both of them contrast with ‘red’ and ‘gloves’ or ‘sweater’, respectively. In (96-d), *aoi* ‘blue’ is narrowly focused because only *aoi* ‘blue’ contrasts with ‘red’ and ‘scarf’ is not contrasted.

- (96) a. **aoi mahuraa**-dat-ta-n-desu
 blue scarf-COP-PAST-NMLZ-COP.PLT
 ‘(It) was a blue scarf.’
- b. I ordered red gloves, but I received a **blue scarf**. (Broad focus)
- c. I ordered a red sweater, but I received a **blue scarf**. (Broad focus)
- d. I ordered a red scarf, but I received a **blue scarf**. (Narrow focus)

Kori concludes that the default intonation for **broad focus** is to suppress the second word (*mahuraa* ‘scarf’ in this case) because most of the participants produced

the sentences as such, although some participants chose the sentence with prominence both on *aoi* ‘blue’ and *mahuraa* ‘scarf’ when they were asked to choose a good sentence.

2.4.4.2.3 Functional and cognitive motivations for intonation units Iwasaki (1993), applying the style of IU identification proposed in Du Bois et al. (1992) and Chafe (1994) to Japanese, argues that a Japanese **intonation unit** corresponds to a phrase rather than a clause, while Chafe (1987; 1994) reports that an **English** IU often corresponds to a clause. According to Iwasaki’s survey, **clausal** IUs in Japanese are 42.2%, whereas phrasal IUs are 57.8%. Their **intonation unit** is a “stretch of speech uttered under a single coherent **intonation contour**” (Du Bois et al. 1992: 17). Iwasaki (1993: 39) states that the beginning of an IU “is often, though not always, marked by a pause, hesitation noises, and/or resetting of the baseline **pitch** level”, whereas the ending of an IU “is often, again though not always, marked by a lengthening of the last syllable.” Iwasaki (1993) provides (97) as an example of intonation units in Japanese corresponding to a phrase. Each line in (97) corresponds to a single **intonation unit** and (97-a-e) as a whole consist of a single proposition “I heard that broadcast at home with my family.”

- (97) a. atasi-wa-ne:*
ISG-TOP-FP
‘I, you know...’
b. uti-de kii-ta-no-ne?
home-LOC hear-PAST-NMLZ-FP
‘heard at home, you know...’
c. sono are-wa-ne?
that that-TOP-FP
‘that thing, you know...’
d. hoosoo-wa-ne?
broadcast-TOP-FP
‘that broadcast, you know,’
e. kazoku-de.
family-with
‘with my family.’ (Iwasaki 1993: 40)

The **pitch** and intensity of (98) are shown in Figure 2.2 from Iwasaki (2008: 109), where he explains the same example with the figure. The IU (98-a) ends with a final **vowel** lengthening, whereas boundary **pitch** movements are observed in the ending of IUs (98-b-d), which are indicated by “?”. (98-e) ends with a final

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lowering, indicated by “.”.

Iwasaki divided the kinds of “functional components” into four types.

(98) **Four functional components**

- a. **Lead (LD)** such as fillers, which have no substantial meaning
- b. **Ideation (ID)**, which conveys the content of speech
- c. **Cohesion (CO)** such as conjunctives and *wa*, which relates the previous and the current IUs
- d. **Interaction (IT)** such as *ne* ‘FP’ and *yo* ‘FP’, which is associated with communication

Based on this, he showed the similarities among IUs. For example, (99-a) is an IU which only contains an NP followed by particles, and (99-b) is an IU which only contains a VP also followed by particles. The structures of these two IUs are essentially the same in terms of functional components, although they are different in terms of grammatical structure.

- (99) a. [mami-ni-dake] [-wa] [-ne]
Mami-DAT-only -TOP -FP
ID **CO** **IT**
- b. [ik-ase-ta-rasii] [-no] [-yo]
go-CAUS-REP -NMLZ -FP
ID **CO** **IT**
- ‘(I heard that she) let only Mami go.’

Iwasaki analyzed his data based on his classification and found that more than 80% of the IUs consist of two or less functional components. He states that “this might be due to the limitation of work that the speaker can handle within one IU. [...] Japanese speakers [...] are faced with a constraint which permits them to exercise up to two functions per **intonation unit**” (p. 49).

On the contrary, Matsumoto (2000: 68) reports that “one clause comprises an average of 1.2 IUs” and argues that “the clause is the syntactic exponent of Japanese substantive IU”. Instead, she proposes the “one new NP per IU” constraint in Japanese, comparing it to the one new idea at a time constraint in Chafe (1987; 1994). However, Matsumoto (2003: §5.6) also reports that one new or given NP per IU is preferred in Japanese conversation. Therefore, new as well as given NPs appear in an **intonation unit** without other NPs.

Nakagawa et al. (2010) focused on the difference between phrasal IUs and **clausal** IUs and analyzed them in terms of **information structure**. They measured

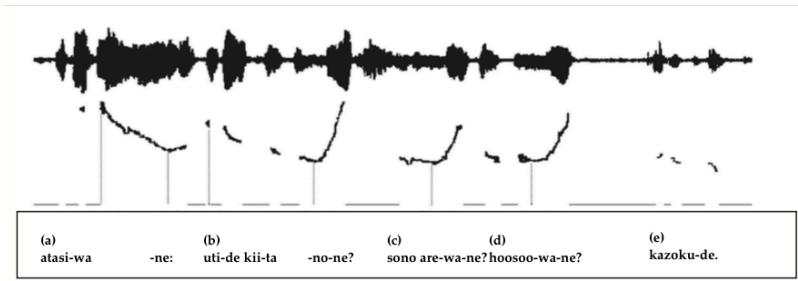


Figure 2.2: An example of an intonation unit (Iwasaki 2008: 109)

referential distance and persistence (Givón 1983) and concluded that one of the functions of phrasal IUs is to introduce or re-introduce important topics in **discourse**. They compare this function of phrasal IUs to left-dislocations observed in many languages.

2.4.4.2.4 Remaining issues Most studies on phonetics and phonology concentrate on foci rather than topics. Among foci, most of the studies (except for those on focus projection) concentrate on **narrow focus** rather than **broad focus**. Moreover, almost all of them are experimental studies rather than corpus studies. On the other hand, I focus here on the difference between broad foci and topics in **spontaneous speech**, although I also employ a **production experiment**.

Functionalists such as Iwasaki (1993); Matsumoto (2000; 2003) and Nakagawa et al. (2010) have methodological issues since they rely on the impressionistic definition of intonation units. This study, on the contrary, is based on strict definitions of intonation units and aims at revealing associations between intonation and **information structure**.

The results in Chapter 6 show that an **intonation unit** corresponds to a unit of **information structure** such as **topic** and focus, which frequently but not always overlaps with a unit of syntactic structure.

2.4.4.3 Pause

Sugito (1994a) showed that pauses appear before **pitch reset** by means of a perceptual experiment. She recorded trained announcers reading news and had subjects listen to the recording. She found that, when pauses were eliminated, subjects perceive the voice as though two people were overlapping with each other where there are **pitch** resets and there are supposed to be pauses. According to her, it is in fact impossible to reset **pitch** without pauses and vocal cords are tensed 0.1

seconds before speech production. Therefore, I assume that pauses correlate with pitch reset.

2.5 Summary

In this chapter, I outlined the previous literature on topics and foci, and the characteristics of Japanese related to this study, and enumerated the remaining questions to be investigated.

In Chapters from 4 to 6, I investigate the associations between information structure and particles, word order, and intonation in spoken Japanese. Before this, I introduce the framework this study employs in the next chapter.

3 Framework

3.1 Introduction

In this chapter I describe the framework I employ here. First, in §3.2, I introduce the theory of **conceptual space** assumed throughout. Then, I define the concepts of '**topic**' and 'focus' I adopt, as well as describe the features which have been proposed to be associated with **information structure** phenomena (§3.3). Finally, §3.4 explains the characteristics of the corpus to be investigated and how to annotate features correlating with **topic** and focus.

To investigate cognitive motivations of some linguistic category (e.g., **topic** and focus), it is possible to use a variety of clues such as generalizations about typological tendencies, models of language processing, theories of language change and language contact, language acquisition process, and language production data, as well as traditional grammaticality and acceptability judgements of sentences. This study mainly employs language production data (a.k.a. corpora) and the acceptability of sentences because these two directly reflect the intuition and cognition of adult native speakers of Japanese. Sometimes I also use production experiments to obtain enough data under controlled contexts. It is necessary to investigate other kinds of clues such as typological tendencies, language processing models, and language acquisition processes of many other languages to reveal how cognition is reflected in human language in general. I hope that this study contributes to this larger goal.

This study restricts itself to investigating only standard Japanese, since large spoken corpora are available in this language. There are few empirical studies on **information structure** in spoken Japanese, while there are at least preliminary empirical studies in other languages, such as some European languages and languages in Africa (e.g., Cowles 2003; Dipper et al. 2004; 0207; Ritz et al. 2008; Skopeteas et al. 2006; Cook & Bildhauer 2011; Chiarcos et al. 2011). Another reason is that a large spoken corpus of standard spoken Japanese is available. The corpus is called *the Corpus of Spontaneous Japanese* (CSJ) and is morphologically analysed and annotated with a variety of information such as accentual phrases, intonation, parts of speech, dependent structures in addition to basic transcrip-

tions of speech (Maekawa 2003; Maekawa et al. 2004). I will describe characteristics of the corpus in §3.4.3.

3.2 Conceptual space and semantic maps

Throughout this study, I assume a theory of **conceptual space** (Croft 2001; Haspel-math 2003). A **conceptual space** is a multi-dimensional model of concept sensitive to some linguistic function(s). As Croft (2001: 93) states, “**conceptual space** is a structured representation of functional structures and their relationships to each other. [...] Conceptual space is also multidimensional, that is, there are many different semantic, pragmatic, and discourse-functional dimensions that define any region of **conceptual space**”. It is claimed to be universal. An example of **conceptual space** is shown in Figure 3.1. This is a **conceptual space** of parts of speech. The horizontal dimension given in capital letters indicates “the constructions used for the propositional acts of reference, modification, and **predication**” (Croft 2001: p. 93). The vertical dimension indicates the semantic classes of “the words that fill the relevant roles in the propositional act constructions” (op.cit.: 94).

Whereas “the **conceptual space** is the underlying conceptual structure, [...] a **semantic map** is a map of language-specific categories on the **conceptual space**” (p. 94). While **conceptual space** is supposed to be universal, semantic maps are language-specific. Figure 3.2 is an example of a **semantic map** of parts of speech specific to Japanese. The dimensions are suppressed for the purpose of convenience. The figure shows that nouns such as *hon* ‘book’ accompany *no* to modify another noun and *da* for **predication**. Adjectives such as *yasu* ‘cheap’ accompany *i* for both modification and **predication**. Some nominal adjectives between ‘book’ and ‘cheap’ such as *heewa* ‘peace(ful)’ and *kenkoo* ‘health(y)’ accompany both *no* and *na* for modification and *da* for **predication**. They are different from but similar to nouns such as ‘book’. Some nominal adjectives such as *atataka* ‘warm’ and *tiisa* ‘small’ accompany both *na* and *i* for modification, and ‘warm’ allows both *da* and *i* to follow in **predication**. This indicates that they are similar to adjectives rather than nouns. The nominal **adjective** *kirei* ‘pretty’ is in between; it only allows *na* for modification and *da* for **predication**.

“The hypothesis of typological theory, including Radical Construction Grammar, is that most grammatical domains will yield universals of the form-function mapping that can be represented as a coherent **conceptual space**” (p. 96), which is explicitly stated in (1).

- (1) **Semantic Map Connectivity Hypothesis:** any relevant language-specific

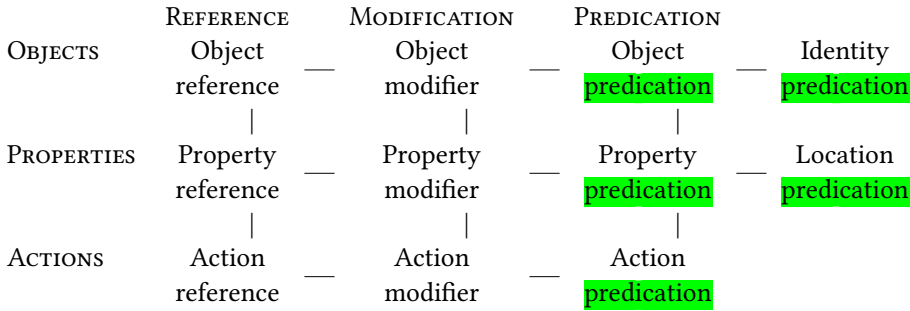


Figure 3.1: Conceptual space for parts of speech (Croft 2001: 92)

		MODIFICATION	PREDICATION
OBJECTS	‘book’	<i>no</i>	<i>da</i>
⋮	‘peace(ful)’	<i>no/na</i>	<i>da</i>
⋮	‘health(y)’	<i>no/na</i>	<i>da</i>
⋮	‘pretty’	<i>na</i>	<i>da</i>
⋮	‘warm’	<i>na/i</i>	<i>da/i</i>
⋮	‘small’	<i>na/i</i>	<i>i</i>
PROPERTIES	‘cheap’	<i>i</i>	<i>i</i>

Figure 3.2: The semantic map for the Japanese Nominal, Nominal Adjective, and Adjective constructions (Croft 2001: 95)

and construction-specific category should map onto a **connected region** in **conceptual space**. (ibid.)

Japanese parts of speech in Figure 3.2 support this hypothesis. For example, morphemes such as *no* and *na* map onto different but connected regions on the **conceptual space**. If the **adjective** suffix *i* could also attach to *hon* ‘book’, but not to *kirei* ‘pretty’, for example, this would be a counter-example to the hypothesis.

There are also conceptual spaces for **information structure**, and I aim here to describe semantic maps of **information structure** in Japanese. In terms of the theory of **conceptual space**, each feature that has been proposed to correlate with **information structure** (to be discussed in the next section) is considered to be a dimension of the **conceptual space**. Hence, the question I am pursuing here can be restated as follows: what dimensions Japanese is sensitive to, and how linguistic forms (i.e., particles, **word order**, and intonation) in Japanese map onto the **semantic map** of **information structure** in Japanese.

In the following section, I outline the definitions of **topic** and focus I adopt

and the features correlating with **topic** and focus which are considered to be dimensions of **conceptual space** for **information structure**.

3.3 Topic, focus, and correlating features

It has been pointed out that there is a correlation between a **topic** and a referent that is activated, definite, specific, **animate**, agent, and **inferable**, and between a focus and a referent that is inactivated, **indefinite**, non-specific, **inanimate**, and patient (Givón 1976; Keenan 1976; Comrie 1979; 1983). They form a prototype category; e.g., topics are typically (i.e., frequently) but not always definite or **animate**, and foci are typically but not always **indefinite** or **inanimate**. I propose that the feature *presupposed* is a necessary feature of **topic**, while the feature *asserted* is a necessary feature of focus. On the other hand, other features correlate with **topic** and focus respectively but are not necessarily topics or foci themselves. The features correlated with **topic** and focus are summarized in (2).

	topic	focus
a.	presupposed	asserted
b.	evoked	brand-new
c.	definite	indefinite
d.	specific	non-specific
e.	animate	inanimate
f.	agent	patient
g.	inferable	non- inferable

As will be shown in the following chapters, **topic** and focus are heterogeneous and have complex features proposed in (2).

In this section, I will define each term in (2).

3.3.1 Topic

A linguistic form is considered to represent a **topic** if it has the characteristics as in (1) in §2.2.1, here repeated as (3).

- (3) Topic is a **discourse** element that the speaker assumes or presupposes to be shared (known or taken for granted) and uncontroversial in a given sentence both by the speaker and the **hearer**.

Since the proposition that “the speaker assumes or presupposes to be shared both by the speaker and the **hearer**” is too long and complicated, this statement

is sometimes shortened to “shared by the speaker and the **hearer**” to mean the same thing. Remember that the statement is always the speaker’s assumption and hence avoids the paradox pointed out in [Clark & Marshall \(1981\)](#). The **topic** is by definition presupposed to be shared both by the speaker and the **hearer**. By “**topic** is shared”, I mean that topics are either evoked, **inferable**, declining, or unused in terms of the given-new taxonomy (2) in §2.2.1. By “**topic** is presupposed”, I mean that the speaker assumes that the **hearer** takes it for granted that the referent or the proposition being mentioned is known or accepted both by the speaker and the **hearer**. See also the discussion in §2.2.1.

Also, the notion of *uncontroversial* is important; topics cannot be questioned or argued against in a normal manner. For instance, **English** noun phrases preceded by *as for* or *regarding* cannot be questioned or argued against. Assuming that expressions like *regarding* and *as for* introduce **topic** expressions ([Kuno 1972; 1976; Gundel 1974](#)), this supports the idea that topics cannot be questioned or argued against. In (4), for example, *John* preceded by *as for* or *regarding* cannot be felicitously argued against as shown in (4-B2, B2’), whereas *a teacher*, which is considered to be focus, can be argued against as in (4-B2’’).

- (4) A1: Do you remember the guys we met at the last night’s party? Their names are Karl and John, I guess. Karl is doing linguistics at the grad school of our university. I forgot what languages he speaks.
 [{As for/Regarding} John]_{TOP}, [he]_{TOP} [is a teacher]_{FOC}.
 B2:??No, **Rob** is a teacher.
 B2’?:No, {as for/regarding} **Rob**, he is a teacher.
 B2’’:No, John is **an engineer**.

In other words, **topic** expressions cannot be corrected by the next speaker in a normal manner. I call this type of test the *no*-test (see also the lie-test in [Erteschik-Shir \(2007: 39\)](#)).

Careful readers might think that it is perfectly natural to produce an **utterance** like (5) which is very similar to (4-B2), speculating that the *no*-test is a flawed test. The capital letters in (5) indicates that those words are stressed.

- (5) B2: No, ROB is a teacher, not JOHN.

However, this does not mean that the test is flawed. Note that the participants of this conversation would not be satisfied only with (5); John’s information needs to be provided. Therefore, a “complete” conversation is something like (6).

- (6) A1: [{As for/Regarding} John]_{TOP}, [he]_{TOP} [is a teacher]_{FOC}. (= (4))

3 Framework

- B2: No, ROB is a teacher, not JOHN. (=5)
A3: Then what is John?
B4: I guess he is an engineer.

This suggests that once B says *no*, s/he must provide an alternative to the focus (as long as s/he knows). I am inclined to label *ROB* in (6-B2) as focus and think that the existence of examples like (5-B) does not invalidate the *no*-test.

It is also unnatural to overtly receive topics as news because overt acceptance indicates that they could be controversial. For instance, as shown in (7-B2), topics cannot be repeated as news by the next speaker who has heard the **utterance** (7-A1), whereas there is no problem to repeat the focus as news as in (7-B2').

- (7) A1: [{As for/Regarding} John]_{TOP}, [he]_{TOP} [is a teacher]_{FOC}.
B2:??Aha, **John**.
B2': Aha, **a teacher**.

I call this test the *aha*-test. The *aha*-test is a natural consequence of the fact that the truth value of a sentence is assessed with respect to **topic** (Strawson 1964).

Let us see specific examples of topics. For instance, as will be shown in Chapter 4, preposed zero-coded elements (elements without any overt particles) correspond to topics in Japanese because the referent that the preposed element refers to is presupposed to be shared between the speaker and the **hearer** as *nezumi* 'mouse' in (8), where Ø indicates "a **zero particle**".

- (8) Context: Y and H are roommates, who are bothered by a mouse running in their room and eating their leftovers. The cat they keep finally caught the mouse while H was out. When H is back, Y wants to let H know this news.

Y: **nezumi**-Ø *neko-ga* *tukamae-ta-yo*
 nezumi-Ø *cat-ga* *catch-PAST-FP*
 'The cat caught (the) mouse.'

The referent 'mouse' is interpreted as shared between the speaker and the **hearer**; when the mouse is not shared between the speaker and the **hearer** as in (9), the **utterance** is infelicitous as shown by the contrast between (9-Y) and (9-Y').

- (9) Context: Y and his cat is relaxing in the living room. H comes into the room.
H: Anything fun today?

- Y: ??**nezumi**-Ø *neko-ga* *tukamae-ta-yo*
mouse-Ø cat-*ga* catch-PAST-FP
Intended: ‘The cat caught a mouse.’ (= (8-Y))
- Y’: *neko-ga* **nezumi**-Ø *tukamae-ta-yo*
cat-*ga* mouse-Ø catch-PAST-FP
‘The cat caught a mouse.’

When the mouse is not shared between the speaker (Y) and the **hearer** (H), the preposed *nezumi* ‘mouse’ is infelicitous as in (9-Y), while *nezumi* in the pre-predicate position is felicitous as in (9-Y’).

Some readers might think that preposed zero-coded elements do not necessarily correspond to topics; Instead, readers might suspect that they correspond to foci because *nezumi* ‘mouse’ in (8) is somehow “new” to the **discourse**, or, more precisely, it is not activated before the time of **utterance** (8-Y). However, as discussed below, foci are not subject to a constraint such that their referent must be assumed to be shared by the speaker and the **hearer**. Typically, foci are **indefinite** referents that are not shared as specified in (2). Since the preposed zero-coded elements in Japanese do not refer to **indefinite** referents, as shown in (9), I categorize them as topics.

3.3.2 Focus

A linguistic form is considered to represent focus if it has the characteristics given in (16) in §2.3.1, repeated here as (10) for convenience.

- (10) Focus is a **discourse** element that the speaker assumes to be news to the **hearer** and possibly controversial. S/he wants the **hearer** to learn the relation of the **presupposition** to the focus by his/her **utterance**. In other words, focus is an element that is asserted.

A focused **discourse** element is news in the sense that the **hearer** is assumed not to know the relationships between the element and the **presupposition**. For example, consider the following example (11).

- (11) Q: Who broke the window?
A: *hanako-ga* *wat-ta-n-da-yo*
Hanako-*ga* break-PAST-NMLZ-COP-FP
‘HANAKO broke (it).’
Presupposition: “x broke the window.”
Assertion: “x = Hanako”

In (11-A), *hanako* is shared in the sense that her existence and identity are known by the speaker and the **hearer**. However, *hanako* is also news in relation to the **presupposition** “x broke the window” at the time of **utterance** (11-Q). The speaker of (11-A) lets the **hearer** learn the proposition that is assumed to be news: “x = Hanako.” *Hanako* is the focus because this is the part where the assertion is different from the **presupposition**.

I also emphasize that the speaker thinks that the focus might be *controversial*. This implies that another participant of the conversation can potentially argue against the focus statement. Therefore, the focus can be felicitously negated by the next speaker, whereas the **topic** cannot. This is exemplified in (4), repeated here as (12).

- (12) A: Do you remember the guys we met at the last night’s party? Their names are Karl and John, I guess. Karl is doing linguistics at the grad school of our university. I forgot what languages he speaks.
 [{As for/Regarding} John]_{TOP}, [he]_{TOP} [is a teacher]_{FOC}.
 B: ??No, **Rob** is a teacher.
 B’: ??No, {as for/regarding} **Rob**, he is a teacher.
 B’’: No, John is an **engineer**.

As shown in (12), (part of) the focus *a teacher* can be negated felicitously, whereas the **topic** *John* cannot be negated felicitously. The concept of controversialness is more hearer-oriented and **interactional** than the previous notions such as assertions, unpredictability, and unrecoverability. See also the discussion in §2.3.

3.3.3 Information structure in a sentence

Here I discuss types of **information structure**. Following Lambrecht (1994), I distinguish three types of information structures within a sentence: **predicate-focus structure** (topic-comment structure), **sentence-focus structure**, and **argument-focus structure**.

In the **predicate-focus structure** or the topic-comment structure, the predicate is the focus, as the name suggests. The predicate may include the complement of the predicate. This is exemplified in (13-A) for **English**, where the capital letters represent prominence in **English**.

- (13) Predicate-focus structure
 Q: (What did the children do next?)
 A: [The children]_T [went to SCHOOL]_F. (Lambrecht 1994: p. 121)

(14-A) is an example of **predicate-focus structure** in Japanese.

- (14) Q: What is Hanako doing?
 A: [**Hanako**-wa]_T [syooasetu-o yon-deru]_{F-yo}
 Hanako-wa novel-o read-PROG-FP
 ‘Hanako is reading a novel.’

In the **sentence-focus structure**, the whole sentence is focused. This is exemplified in (15-A) for **English**, where, again, the capital letters indicate stress.

- (15) Sentence-focus structure
 Q: What happened?
 A: [The CHILDREN went to SCHOOL]_F! (Lambrecht 1994: p. 121)

A Japanese example of sentence-focus structure is shown in (16-A).

- (16) Sentence-focus structure
 Q: What happened?
 A: [hanako-ga syooasetu(-o) yon-deru]_{F-yo}
 Hanako-ga novel-o read-PROG-FP
 ‘Hanako is reading a novel!’

In sentence-focus structure, there is no explicit **topic** and all the arguments (e.g., *the children* and *school* in (16-A)) are part of the focus. However, if one assumes stage topics (Erteschik-Shir 1997; 2007), the distinction between the predicate-focus and the sentence-focus structures may not be clear. In (17-a), for example, *kyoo* ‘today’ might function as a **topic** in the sense that the truth value of the sentence is evaluated with respect to the specific time ‘today’ (although, in this study, I do not examine stage topics in detail).

- (17) a. [**kyoo**-wa]_T [hanako-ga syooasetu(-o) yon-deru]_{F-yo}
 today-wa Hanako-ga novel(-o) read-PROG-FP
 ‘Today Hanako is reading a novel.’
 b. [**Hanako**-wa]_T [syooasetu-o yon-deru]_{F-yo}
 Hanako-wa novel-o read-PROG-FP
 ‘Hanako is reading a novel.’

Note that, in terms of **information structure**, (17-a) is similar to (17-b), which has **predicate-focus structure**. The predicate-focus and sentence-focus structures are similar in that the predicate is in the domain of focus. For this reason, I sometimes put the predicate-focus and sentence-focus structures into the same category and

refer to them as **broad focus** structures.

In the **argument-focus structure**, elements other than predicates are focused. This is exemplified in (18-A) for **English** and (19-A) for Japanese. This structure is sometimes referred to as the **narrow focus** structure as opposed to **broad focus** structure because the domain of focus is limited to arguments or other elements except for predicates.

(18) Argument-focus structure

Q: Who went to school?

A: [The CHILDREN]_F [went to school]_T. (Lambrecht 1994: p. 121)

(19) Argument-focus structure

Q: Who is reading a book?

A: [hanako-ga]_F [syooosetu(-o) yon-deru]_{T-yo}

Hanako-ga book(-o) read-PROG-FP

‘Hanako is reading a book.’

I distinguish between two types of components constituting an **information structure**: **discourse** element and **discourse** referent, each of which is defined as in (20):

- (20) a. **(Discourse) element**: A unit of linguistic form (including zero **pronoun**) that is uttered by the participants in **discourse**.
b. **(Discourse) referent**: An entity or proposition that a **discourse** element refers to (if a referent is a proposition, it is also called **proposition**).

3.3.4 Other features correlating with topic/focus

This section discusses the definition of features which have been proposed to correlate with **topic** and focus. Although I do not necessarily annotate all the features in my corpus, I discuss all of them since, in some place or other, they are relevant to my proposals.

3.3.4.1 Activation cost

The **activation cost** of a referent is the assumed cost for the **hearer** to activate the referent in question. An active referent is a referent that the speaker assumes to be in the attention of the **hearer** (and hence the **activation cost** is low), while an inactive referent is a referent that the speaker does not assume to be in the

attention of the **hearer** (and hence the **activation cost** is high) (see also Chafe 1994: inter alia).¹ Typically, referents are assumed to be brought to the **hearer**'s attention by mentioning them or putting them in the **hearer**'s area of visual perception.

A **topic** referent is often, but not always, activated in the **hearer**'s mind. In (8), the referent 'mouse' is not necessarily considered to be active in H's mind. Although the mouse kept bothering Y and H sometimes when they were in their room, it is not appropriate for the speaker to assume that the mouse is in H's attention anymore in school when the speaker happened to talk to H.

According to Dryer (1996), focus is an element that is not activated. While this generalization well captures the view that the focus is the stressed linguistic element, I will not employ this definition of focus in this study because if *nezumi* 'mouse' in (8) is focus, one has to come up with an explanation for why it is assumed to be shared between the speaker and the **hearer**, which is typically not the case with focus. According to my account, on the other hand, *nezumi* 'mouse' in (8) is **topic** because the characteristics are in accordance with **topic** correlation features in (2) and a special account for why *nezumi* 'mouse' is shared is not necessary. For detailed discussion of the relationships between focus and stress, see Lambrecht (1994: Chapter 5).

A focus referent, on the other hand, is typically assumed not to be active in the **hearer**'s mind. As Lambrecht (1994) has pointed out, the most frequent focus structure is **predicate-focus structure** as in (21-A,B), where elements included in the **predicate focus** are typically not active in the **hearer**'s mind.

- (21) Q: What did you guys do today?
A: [watasi-wa]_T [tomodati-to resutoran-de supagetii tabe-ta]_{F-yo}
1.SG-wa friend-with restaurant-LOC spaghetti eat-PAST-FP
'I ate spaghetti with (a) friend in (a) restaurant.'
B: [boku-wa]_T [uti-de hon yon-de-ta]_{F-yo}
1.SG-wa home-LOC book read-PROG-PAST-FP
'I was reading (a) book at home.'

In (21), it is reasonable to assume that Q did not have 'friend', 'restaurant', 'spaghetti', 'home', and 'book' in his/her attention at the time of **utterance** (21-Q).

There is another type of **activation status**: *semi-active*. I use the term *declining* specifically for the referent that has been active but starts to decline because other referents are also activated. Declining elements are in **semi-active state**.

¹I am using the term *attention* rather than *consciousness* because I believe the speaker's ability to evaluate the **hearer**'s state of mind is eventually related to joint attention (Tomasello 1999).

3.3.4.2 Definiteness

A definite referent is a referent that is unique in the domain of **discourse**, while an **indefinite** referent is a referent that is not unique in the domain of **discourse**.

The claim that “**topic** is a **discourse** element that the speaker assumes or presupposes to be shared (known or taken for granted) and uncontroversial in a given sentence both by the speaker and the **hearer**” in (3) might lead to the interpretation that the **topic** is definite. As has been pointed out in the literature (Givón 1976; Keenan 1976; Comrie 1979; 1983), topics tend to be definite. However, this is not a necessary nor sufficient feature of topics. Let us discuss the following example (22).²

- (22) Context: Y told H that he had never seen and eaten mangoes. H told Y that they are delicious. Several days later, Y finally ate a mango.

Y: **mangoo** konoaida miyako-zima-de tabe-ta-yo
 mango the.other.day Miyako-island-LOC eat-PAST-FP
 ‘(I) ate (a) mango (we talked about) in Miyako island the other day.’

In (22) ‘mango’ is **indefinite** because the mango Y ate is not unique in the domain of **discourse**; H cannot uniquely identify which mango Y ate.³ However, the element *mangoo* ‘mango’ is preposed because it has been discussed and hence is assumed to be shared between the speaker and the **hearer**. This makes it possible for *mangoo* to appear clause-initially as will be discussed in Chapter 5. I include this type of example in the category of unused, extending the term “unused” in Prince (1981).

However, some **indefinite** referents are more difficult to interpret as topics than others. For example, expressions such as *dareka* ‘somebody’ and *oozee-no hito* ‘many people’ are poor candidates for **topic** than others judging from the fact that they cannot be followed by *wa*, but can be followed by *ga* in Japanese as shown in (23) (Kuno 1973b: p. 37 ff.). As will be shown in Chapter 4, *wa* codes the element whose referent is assumed to be active in the **hearer**’s mind; *wa* codes active topics. On the other hand, as will also be shown in Chapter 4, *ga* codes focus elements.

- (23) a. **dareka**-{??wa/ga} byooki-desu

²I am grateful to Yoshihiko Asao for pointing out this type of example.

³Yuji Togo and one of the reviewers (Morimoto) cast doubt on my claim that *mangoo* in (22) is **indefinite**. Rather, they suggest that it could be generic. I am reluctant to accept this view because this *mangoo* seems to refer to a specific (non-generic) mango that Y ate, as indicated by the past tense of the predicate *tabe-ta* ‘eat-PAST’.

somebody-wa/ga sick-COP.PLT

‘Speaking of somebody, he is sick.’

- b. **oozee-no hito-{??wa/ga}** paatii-ni ki-masi-ta

many-GEN person-wa/ga party-to come-PLT-PAST

‘Speaking of many people, they came to the party.’

A focus referent, on the other hand, tends to be **indefinite** rather than definite (Givón 1976; Keenan 1976; Comrie 1979; 1983; Du Bois 1987). As has been mentioned above, the most frequent focus structure is **predicate-focus structure** exemplified in (21) and it is reasonable to assume that Q in (21) cannot identify the referents included in the **predicate focus** such as ‘friend’, ‘restaurant’, ‘spaghetti’, and ‘book’.

It is natural for **topic** referents to be frequently realized by definite noun phrases. The participants typically talk about the person or the thing whose identity is known by them. Or sometimes they talk about people or something in more general terms. This is an exceptional case known as a generic referent and requires a special account. On the other hand, it is natural for focus referents to be frequently realized by **indefinite** noun phrases because, intuitively, an element that is not known by the **hearer** in relation to a **presupposition** is typically not shared between the speaker and the **hearer**.

3.3.4.3 Specificity

A specific referent is fixed, namely, the speaker has one particular referent in his/her mind; while a non-specific referent is not fixed, i.e., the speaker does not have one particular referent in mind (Karttunen 1969; Enç 1991; Abbott 1994). **Turkish** unambiguously codes specific and non-specific objects: if the NP is coded by the **accusative case marker** **-(y)i** (or **-(y)u**), it is interpreted as specific as in (24-a), while, if the NP is not overtly coded, it is interpreted as non-specific as in (24-b).

- (24) a. Ali bir piyano-yu kiralamak istiyor
Ali one piano-ACC to.rent wants
‘Ali wants to rent a certain **piano**.’
b. Ali bir piyano kiralamak istiyor
Ali one **piano** to.rent wants
‘Ali wants to rent a (non-specific) **piano**.’ (Enç 1991: p. 4-5)

Specific referents like ‘**piano**’ in (24-a) are fixed in the sense that the speaker wants to rent a particular **piano** in his/her mind. Non-specific referents like ‘**pi-**

ano in (24-b) are not fixed in the sense that the speaker does not care which **piano** s/he could rent; any **piano** works in (24-b).

Topics are frequently but not always specific. Consider the following example (25), which is slightly modified from (22).

- (25) Context: Y told H that he had never seen and eaten mangoes. H told Y that they are delicious. Several days later, Y finally got a chance to eat a mango.

Y: **mangoo** raisyuu miyako-zima-de taberu-yo
 mango next.week Miyako-island-LOC eat-FP
 ‘(I will) eat (a) mango (we talked about) in Miyako island next week.’

In this case, *mangoo* is non-specific because speaker Y does not know which mango he will eat. However, it is the **topic** at the same time for the same reason discussed in association with (22).

There is a concept that is related to but distinct from non-specificity: genericity. Generic referents do not represent an individual entity, but do represent a concept or a category. On the other hand, non-specific referents still represent an individual entity. According to Kuno (1972), generic referents are always available to be **topic**. In (26), the element *kuzira* corresponds to a generic referent as the **topic**.

- (26) **kuzira**-wa honyuudoobutu-desu
 whale-*wa* mammal-COP.PLT
 ‘A whale is a mammal.’ (Kuno 1972: p. 270)

When participants talk about generic referents, the referent that is presupposed to be shared is the concept itself. Therefore, generic referents are always shared (unless the **hearer** has never heard the expression in question). As will be shown in Chapter 4, however, *wa* codes the element whose referent is assumed to be active or semi-active **inferable** in the **hearer**’s mind and not all generic elements can be coded by *wa*.

Foci, on the other hand, can be either specific or non-specific, but tend to be non-specific. In (27-A), the speaker may or may not have a particular book in his/her mind.

- (27) Q: What are you going to do tomorrow?
 A: [I]_T’m going to [read a **book** tomorrow]_F.

In the example above, the specificity of the book in question is not important.

Instead, the whole event of reading a book is more relevant to the question.

3.3.4.4 Animacy

An **animate** referent is a living entity such as human beings, cats, and dogs, while an **inanimate** referent is a non-living entity such as computers, books, and love. Snakes, bugs, plants, and flowers are somewhere in between.

Topic tends to be **animate**, while focus tends to be **inanimate** (Givón 1976; Keenan 1976; Comrie 1979; 1983; Du Bois 1987). Although this study does not discuss **animacy** very much, it is relevant to some aspects of the distinction between zero vs. overt particles, as briefly mentioned in Chapter 4.

3.3.4.5 Agentivity

I employ the prototypes of the agent and the patient discussed in Dowty (1991: *inter alia*). An agent is a referent that typically has volition, has sentience, causes an event or change of state in another participant, or moves. On the other hand, a patient is a referent that typically undergoes a change of state, corresponds to an incremental theme, is causally affected by another participant, or stationary relative to movement of another participant.

Agentivity or subjecthood is often discussed in association with **topic** (Li 1976: *inter alia*). However, it is inaccurate to assume that a **topic** is limited to an agent or that an agent is always the **topic**. It is important to keep in mind that **topic** correlates with agent or subject but being an agent or subject itself is neither a necessary nor sufficient condition to be **topic**. Focus, on the other hand, correlates with patients. In the same way as **topic**, however, it is inaccurate to assume that all foci are patients. The relationships between **topic**/focus and **agentivity** are discussed in Chapter 4, in association with the distinction between zero vs. overt particles.

3.3.4.6 Inferability

The term *inferable* is borrowed from Prince (1981) though many other scholars have discussed similar concepts (e.g., Haviland & Clark 1974; Chafe 1994). A **discourse** referent is **inferable** “if the speaker assumes the **hearer** can infer it, via logical – or, more commonly, plausible – reasoning, from [**discourse** referents] already [active] or from other inferables” (Prince 1981: p. 236).⁴ A referent is **inferable** typically through the part-whole or metonymic relationships between the

⁴The terms are replaced according to this study’s terminology.

referent and another referent that has been already active. Inferable referents can be a **topic** by being assumed to be shared between the speaker and the **hearer**, or can be focus.

3.4 Methodology

In this section, I will discuss the methods in this study, based on the definitions and assumptions of the **topic** and the focus specified in the last section. This study employs acceptability judgements, production experiments, and corpus annotation, to be discussed in the following sections.

3.4.1 Topic and focus in acceptability judgements

In acceptability judgements, I sometimes employ the *hee* test, where the element in question is focus if it can be repeated after the expression *hee* ‘really’, while it is not if it cannot. See also the discussions in §2.2.1, 2.3.1, 3.3.1, and 3.3.2. The *hee*-test is exemplified in (28).⁵

- (28) Taro:kinoo-sa [ore]_T [hebi mi-ta-n-da]_F-yo
 yesterday-FP 1SG snake see-PAST-NMLZ-COP-FP
 ‘Yesterday [I]_T [saw a snake]_F!’
 Jiro: hee, {??kinoo / ??taroo / hebi (mi-ta-n-da)}!
 really yesterday / Taro / snake (see-PAST-NMLZ-COP)
 ‘Really, yesterday? / you? / (saw) a snake?’

Let us assume that in (28–Taro) it is presupposed that something happened to Taro yesterday. Since something must always happen to Taro all the time, this **presupposition** is appropriate even in an out-of-the-blue context. Therefore, *ore* ‘1SG’ is interpreted as **topic**, while *hebi mi-ta-n-da* ‘snake see-PAST-NMLZ-COP’ is interpreted as focus in this particular context. Given this situation, the **hearer** of (28–Taro) can respond to this **utterance** as in (28–Jiro): while the focus part *hebi mi-ta-n-da* ‘snake see-PAST-NMLZ-COP’ can be felicitously repeated followed by *hee* ‘really’, the **topic** part *ore* ‘1SG’, which corresponds to *taroo* in (28–Jiro), cannot be repeated felicitously. Topics are identified negatively in this test. The assumption of this *hee* test is that topics can never be taken as “news” or “a surprise” since they are assumed to be shared between the speaker and the **hearer**, while foci are expected to be “news” or “a surprise” to the **hearer**.

⁵ Read Jiro’s **utterance** in (28) with exclamative intonation. Question intonation always works regardless of whether the element in question is **topic** or focus.

The expression *kinoo* ‘yesterday’ cannot be repeated either. I assume that this is because *kinoo* ‘yesterday’ is also a part of **presupposition**. However, I am neutral as to whether or not *kinoo* ‘yesterday’ is a **topic** in the same sense that *ore* ‘1SG’ is a **topic**. It is a kind of stage **topic** discussed in 3.3.3. In this study I restrict myself to investigating elements which constitute arguments of sentences and do not discuss much about the stage topics in detail.

In grammaticality judgements, contexts will be provided in order for topics to be typical topics (presupposed, definite, etc.) and for foci to be typical foci (asserted, **indefinite**, etc.). Examples of contexts which prompt different focus structures are provided in (29) to (31), where the target expression is *koinu(-o) yuzut-ta* ‘gave a/the puppy’.

- (29) **Predicate-focus context:** Yesterday the speaker and his/her friend found an abandoned puppy on the street. The speaker brought it to his/her home. Today, the speaker tells the friend what happened to the puppy.
 A: sooieba [koinu]_T [yuzut-ta]_{F-yo}
 by.the.way puppy give-PAST-FP
 ‘By the way, (I) gave the puppy (to somebody).’
- (30) **Sentence-focus context:** the speaker and his/her friend are working in an animal shelter. The friend was absent yesterday and wants to know what happened yesterday.
 A: kinoo-wa [koinu yuzut-ta]_{F-yo}
 yesterday-wa puppy give-PAST-FP
 ‘Yesterday (we) gave a puppy.’
- (31) **Argument-focus context**
 Q: What did you give to him?
 A: [koinu-o]_F [yuzut-ta]_{T-yo}
 puppy-o give-PAST-FP
 ‘(I) gave the/a puppy.’

In predicate-focus contexts like (29), typically the referent of the **discourse** element in question has already appeared in the context preceding the target expression; in this example, *koinu* ‘puppy’ has appeared in the context and the speaker and the **hearer** share the identity of the puppy. Therefore, *koinu* ‘puppy’ is easily presupposed and is interpreted as **topic**. The speaker intends to tell the **hearer** what happened to the puppy because this news is not shared with the **hearer**. The readers may wonder why I do not simply use a question like ‘what hap-

pened to the puppy?', which typically prompts **predicate-focus structure**. This question, however, strongly favours omitting the element *koinu* 'puppy' because it appears in the immediate context. This is the reason why the context which prompts **predicate-focus structure** like (29) appears to be complicated.

In sentence-focus contexts like ((30)), on the other hand, typically the referent is not shared; in A of (30), *koinu* 'puppy' appears out-of-the-blue. The whole **utterance** is interpreted as news or focus. In this case, A of (30) can be easily preceded by questions like 'what happened yesterday?'.

Argument-focus contexts like (31) are typically *what-* or *who-*questions that prompt a single argument as answer. In (31), the question prompts *koinu* 'puppy' as answer. 'A gave (something)' is presupposed.

3.4.2 Assumptions in experiments

In production experiments, I asked Japanese native speakers to read aloud sentences preceded by different contexts: the context where the sentence is interpreted as different types of focus structures. The contexts that prompt different types of focus structures are designed in the same way as discussed in the last section.

3.4.3 Corpus annotation and analysis

In analyzing **spontaneous speech**, it is relatively difficult to apply the definition of the **topic** and the focus discussed above because clean contexts are not available in contrast to the case with constructed examples. For this reason, I will provide the definitions of **topic** and focus for the corpus investigation based on the assumptions concerning **topic** and focus discussed in §3.3. The basic idea is that, since it is difficult to determine whether some **discourse** referent is presupposed or not, I will use **information status** to approximate the given-new taxonomy (§3.4.3.3) of the referent instead of the *presupposed* vs. *asserted* distinction. The **activation status** of the referent in question is approximated by whether the referent has an **antecedent** or not.

Firstly, I will discuss the characteristics of the corpus (§3.4.3.1) and the procedure of annotating **anaphoric** relations (§3.4.3.2). Then the annotations of relevant features will be discussed (§3.4.3.3).

3.4.3.1 Corpus

This study investigates 12 core data of simulated public speaking from *the Corpus of Spontaneous Japanese* (CSJ; Maekawa 2003; Maekawa et al. 2004). The data list and basic information are summarized in Table 3.1. The data to be investigated are randomly chosen out of 107 core data of simulated public speaking. Simulated public speaking is a type of speech where the speakers talk about everyday topics such as ‘my most delightful memory’ or ‘if I live in a deserted island’. I use the RDB version of CSJ (Koiso et al. 2012) to search the corpus.

Table 3.1: Corpus used in this study

ID	Speaker gender (age)	Theme	Length (sec)
S00F0014	F (30-34)	Travel to Hawaii	1269
S00F0209	F (25-29)	Being a pianist	619
S00M0199	M (30-34)	Kosovo War	580
S00M0221	M (25-29)	Working at Sarakin	654
S01F0038	F (40-44)	Luck in getting jobs	628
S01F0151	F (30-34)	Trek in Himalayas	765
S01M0182	M (40-44)	Boxing	644
S02M0198	M (20-24)	Dog’s death	762
S02M1698	M (65-69)	Dog’s death	649
S02F0100	F (20-24)	Rare disease	740
S03F0072	F (35-39)	A year in Iran	816
S05M1236	M (30-34)	Memories in Mobara	832

The core data of CSJ has rich information of various kinds. I used the information in (32) to generate information relevant for this study.

- (32)
- a. Utterance time
 - b. Dependency relation
 - c. Phrase & clause boundary
 - d. Intonation

Relevant variables will be explained in each section.

3.4.3.2 Annotation of anaphoric relations

The information of **anaphoric** relations is used to identify **topic** and focus. Anaphoric relations are identified in the following way. The basic procedures have been proposed in [Iida et al. \(2007\)](#) and [Nakagawa & Den \(2012\)](#).

- (33) a. **Identification of grammatical function, **discourse** elements, and zero pronoun**
 b. **Classification of **discourse** elements:** Discourse elements are classified into categories based on what they refer to.
 c. **Identification of **anaphoric** relations:** The link between the anaphor and the **antecedent** is annotated.

First, I identified the grammatical function of clauses (a in (33)), namely A, S, vs. P. This is necessary in order to determine **discourse** elements and zero pronouns to be investigated. In Japanese, pronouns such as *watasi* ‘1SG’, *anata* ‘2SG’, and *kare* ‘3SG’ are rare; the most frequent **pronoun** is the zero **pronoun**. In (34), for example, the speaker indicated by \emptyset_{Sp} and ‘the dog’ indicated by \emptyset_i are zero pronouns, assuming that they appear immediately before the predicates. As shown in (34-d), two zero pronouns \emptyset_{Sp} and \emptyset_i can appear in the same clause; still, native speakers have no trouble in understanding the **utterance**.

- (34) a. yo-nen-kan amerika-de sigoto-o \emptyset_{Sp} si-teru aida
 four-year-for America-LOC work-o \emptyset_{Sp} do-PROG during
 ‘While (I) was working for four years,’
 b. aa zutto kono inu_i-to issyoni eii \emptyset_{Sp} sun-de
 FL all.the.time this dog-with together FL \emptyset_{Sp} live-and
 ‘(I) lived with this dog all the time.’
 c. sikamo oo tabi-o \emptyset_{Sp} suru toki-mo
 moreover FL travel-o \emptyset_{Sp} do time-also
 ‘Moreover, also when (I) travel,’
 d. kuruma-ni \emptyset_{Sp} \emptyset_i nose-te
 car-LOC \emptyset_{Sp} \emptyset_i put-and
 ‘(I) put (the dog) in my car.’
 e. ee amerika-o tabi \emptyset_{Sp} si-ta-to
 FL America-ACC travel \emptyset_{Sp} do-PAST-Q
 ‘(I) traveled America.’ (S02M1698: 182.88-195.87)

I identified 7697 **discourse** elements (5234 NPs, 655 overt pronouns, and 1808 zero pronouns) from the corpus.

Second, I classified **discourse** elements into 13 categories depending on what they refer to b in (33): common referent, connective, speaker, **hearer**, time, filler, exophora, question, quantifier, degree words, proposition, and other. Although there are many categories, only common referents are relevant for the purpose of this study. Other categories were annotated for future studies. Also, I limit my analyses to A, S, P, and Ex (to be discussed below). Datives are also added for comparison. This process leaves us 2301 elements (1662 NPs, 80 overt pronouns, and 559 zero pronouns). However, I occasionally use data which include other kinds of elements for detailed analysis.

Third, I identified the **anaphoric** relation for each **discourse** element (c in (33)). A unique ID number is given for the set of **discourse** elements which refer to the same entity. In (35), for example, *syoo-doobutu* ‘a small animal’ in line a, \emptyset in line c, e, and f refers to the small animal introduced in line a. All of them are given the ID number 1 because they refer to the same entity. The element *syoo-doobutu* ‘a small animal’ is called the **antecedent** of the **anaphor** \emptyset in line c. In the same way, the element \emptyset in line c is the **antecedent** of the **anaphor** \emptyset in line e. The element *watasi* refers to another entity, the speaker, and is given another ID number 2.

		ID
(35)	a. <i>syoo-doobutu-ga koo tyokotyoko-to</i> <i>ki-ta-n-desu-ne</i> ‘A small animal came (towards us) with small steps.’	1
	b. <i>de saisyo koo</i> ‘and at first, so...’	–
	c. <i>ano sotira-no soto-no-hoo-kara</i> \emptyset <i>nozoi-ta-mon-desu-kara</i> ‘uh it looked at us from that direction, so’	1
	d. <i>watasi-wa saisyo</i> ‘At first, I...’	2
	e. \emptyset <i>risu-kana-to omot-ta-n-desu</i> ‘(I) thoguht that it was a squirrel.’	1
	f. [...] <i>sat-to</i> \emptyset <i>nige-tyai-masi-te</i> ‘it quickly ran away, and’	1

(S00F0014: 619.51-631.71)

Using the **anaphoric** relations and various information in the corpus, I generated other relevant features to be discussed in the next section.

3.4.3.3 Annotation of topichood and focushood

3.4.3.3.1 Approximation to the given-new taxonomy The status of a referent in the given-new taxonomy is approximated by whether the expression referring to the referent has an **antecedent** or not. An expression that has an **antecedent** is called an **anaphoric** element, while an expression that does not have an **antecedent** is called a **non-anaphoric** element. I use the term **information status** to refer to the status of a referent being **anaphoric** or non-**anaphoric**. Note that the terms **anaphoric** vs. non-**anaphoric** are used in Chapter 4, 5, and 6 only to refer to corpus counts. The referent of an **anaphoric** elements is assumed to be either evoked or declining in terms of the given-new taxonomy and active or semi-active in terms of **activation status**. On the other hand, the referent of a non-**anaphoric** elements is **inferable**, unused, or new in terms of the given-new taxonomy and semi-active or inactive in terms of **activation status**. I prefer to use the terms of the given-new taxonomy over **activation status** because they are more fine-grained. The correspondence among activation statuses, the given-new taxonomy, and corpus annotations are shown in Table 3.2. The distinction between **inferable**, declining, unused, and brand-new is judged manually when necessary. By “shared”, I mean the referent is evoked, declining, **inferable**, or unused in terms of the given-new taxonomy.

Table 3.2: Activation status, the given-new taxonomy, and corpus annotation

Activation status	The given-new taxonomy	Corpus annotation
Active	Evoked	Anaphoric
Semi-active	Declining	
Semi-active	Inferable	Non- anaphoric
Inactive	Unused	
Inactive	Brand-new	

3.4.3.3.2 Grammatical function Following Comrie (1978) and Dixon (1979), I distinguish S, A, and P in grammatical function. S is the only argument of **intransitive** clause, A is the **agent-like argument** of **transitive clause**, and P is the patient-like argument of **transitive clause**. For now, I simply distinguish A and P based on whether the argument in question is or can be coded by *ga* or *o*. When it can be coded by *ga*, it is A; when it can be coded by *o*, it is P. Furthermore, I

sometimes distinguish agent S and patient S if needed.

In addition to S, A, and P, I identify non-argument elements (Ex). Non-argument elements are those which appear to be part of the clause but do not have direct relationships with the predicate. A typical example is shown in (36).

- (36) *zoo-wa hana-ga nagai*
 elephant-*wa* nose-*ga* long
 ‘The elephant, the nose is long (The elephant has a long nose).’ (Mikami 1960)

As exemplified in (36), the element *zoo* ‘elephant’ is considered to be Ex. *Hana* ‘nose’ is the only argument of the predicate (S), and *zoo* ‘elephant’ does not have direct relationships with the predicate *nagai* ‘long’; still, *zoo* ‘elephant’ looks like part of the clause and needs a label, which happens to be “Ex”.

Although Ex is frequently coded by so-called **topic** markers such as *wa* and *toiuno-wa*, *wa*- and *toiuno-wa*-coded elements are not always labelled as Ex. If they are considered to be S, A, or P, they are labelled as such. For example, in the case where *hana* ‘nose’ is coded by *wa* like (37), *nose* is labelled as S, instead of Ex.

- (37) *zoo-no hana-wa nagai*
 elephant-GEN nose-*wa* long
 ‘The elephant’s nose is long.’

3.4.3.3.3 Other features Ideally, it is necessary to annotate all the variables proposed in (2), but it is impossible to annotate all of them, partially because of the limitation of time and labor and partially because of the lack of clear criteria to annotate them consistently. For example, **definiteness** and specificity are difficult to annotate consistently. Multiple annotators are needed for reliable and objective analyses. Animacy could be simpler, but I have not annotated this feature throughout the corpus due to the limitation of time and labor. The previous literature indicates that these features play little role in Japanese grammar. These features will be discussed when necessary.

3.5 Summary

In this chapter, I discussed the framework employed in this study and the method of corpus annotation and analysis. In the next three chapters, different aspects

3 Framework

of spoken Japanese grammar (i.e., particles, word order, and intonation) will be analyzed based on the framework and methodology discussed in this chapter.

4 Particles

4.1 Introduction

In this chapter, I will describe so-called **topic** particles coding different kinds of topics (§4.2) and so-called case particles coding different kinds of foci and grammatical functions (§4.3). Table 4.1 summarizes kinds of so-called **topic** particles and case particles coding topics and focus in different statuses of the given-new taxonomy. The **activation status** is also specified in the table to show the correspondence, although I mainly use the terms of the given-new taxonomy. The shaded cells indicate that they are indistinguishable with each other in the annotation proposed in §3.4 Different **topic** particles attach to elements in different statuses of the given-new taxonomy, while case particles are not sensitive to the given-new taxonomy. Instead, case particles are sensitive to the grammatical functions and the broad vs. **narrow focus** distinction, which is summarized in Table 4.2. The morpheme *cop* indicates **copula**.

Table 4.1: Topic particle vs. activation status and the given-new taxonomy

Activation status	Given-new taxonomy	Topic	Focus
Active	Evoked	<i>toiuno-wa, wa, Ø</i>	case particles, Ø
Semi-active	Inferable	<i>wa, Ø</i>	
Semi-active	Declining	<i>cop-kedo/ga, Ø</i>	
Inactive	Unused		
Inactive	Brand-new	–	

I argue that these tables are a kind of **semantic map** (Croft 2001; Haspelmath 2003). By arguing that Tables 4.1 and 4.2 are examples of semantic maps, I postulate that the scales of the given-new taxonomy (the column) and the **topic** vs. focus distinction (the row) in Table 4.1 and the contrast vs. non-contrast distinction (the column) and the grammatical function (the row) in 4.2 are cognitively real and continuous in the way they are ordered in the tables. This argument and the Semantic Map Connectivity Hypothesis (1) in §3.2 lead us to our hypotheses (1).

Table 4.2: Case particle vs. grammatical function

	A	S		P
		Agent	Patient	
Non-Contrastive Focus	<i>ga</i>	<i>ga</i>	<i>ga</i> , \emptyset	\emptyset
Contrastive Focus or Formal Speech	<i>ga</i>	<i>ga</i>	<i>ga</i>	<i>o</i>

- (1) **Semantic Map Connectivity Hypothesis of Information Structure:** Since the scales of given-new taxonomy and the **topic** vs. focus distinction in Table 4.1 and the contrast vs. non-contrast distinction and the grammatical function in 4.2 are cognitively continuous, the particles map onto a connected region in the **conceptual space**.

The semantic maps in Table 4.1 and 4.2 support hypothesis (1), because all of the particles are in connected regions. In the following sections, I will show the details of the distributions of these particles with specific examples.

4.2 So-called topic particles

As shown in Table 4.1, evoked elements are coded by *toiuno-wa* or *wa*, while **inferable** elements are coded by *wa*. Declining and unused elements are coded by a **copula** followed by *kedo* ‘though’ or *ga* ‘though’. The **zero particle** (indicated by \emptyset) can code elements in the given-new taxonomy. The statuses in the given-new taxonomy have corresponding activation statuses in the **hearer**’s mind assumed by the speaker. I propose that **inferable** and declining elements and unused and brand-new elements are in different activation statuses in the assumed **hearer**’s mind.

Table 4.3 and Figure 4.1 show the distributions of elements in different **information status** coded by different particles in our corpus. Overall, the **topic** particles *toiuno-wa* and *wa* code a higher ratio of **anaphoric** elements than the case particles *ga* and *o*. The particles *mo* and *ni* are included here for comparison. In the corpus, the markers *wa*, *toiuno-wa*, and *mo* are the most frequent **topic** markers and *ga*, *o*, and *ni* are the most frequent case markers (except for *no* ‘GEN’). Note that “**anaphoric**” in the present work just means “the element in question has the co-referential **antecedent**” and “non-**anaphoric**” means “it does not.” Elements with bridging antecedents are included in “non-**anaphoric**.” See §3.4.3.2

for the details of the procedure of annotation. A linear mixed effects model was employed to predict **information status**.¹ I included particles (*toiuno-wa*, *wa*, *mo*, *ga*, *o*, *ni*), **word order** (nth in CSJ, see §5.1 for the definition of this annotation), and intonation (phrasal vs. **clausal** IU, see §6.1 for the definitions) as fixed effects, and speakers (TalkID) as a random effect. The model with the effects of particles, **word order**, and intonation is significantly different from the model without each of those effects (likelihood ratio test, $p < 0.001$ a model without particles, $p < 0.01$ one without **word order**, and $p < 0.05$ without intonation).² The least-squares mean for each level of the particles was calculated, and the pairwise comparisons among particles were conducted. The results of this pairwise comparison is shown in Table 4.4, which only includes the pairs of interest and those whose p-values are less than 0.5.³ The contrast of *ga* – *o*, whose estimate is -0.465 , indicates that the least-squares mean of the odds ratio of **anaphoric** elements coded by *ga* is significantly less than the least-squares mean of the odds ratio of those coded by *o*; in other words, **anaphoric** elements are more likely to be coded by *o* than by *ga*. Similarly, **anaphoric** elements are more likely to be coded by *wa* than by *ga*, by *ni*, and by *mo*. The difference between the particles *o* and *wa/toiuno-wa* is not statistically significant. As will be discussed in 4.4.2, this is because *wa* (and presumably *toiuno-wa*) prefers to code **anaphoric**. As over **anaphoric** Ps. Also, the difference between *toiuno-wa* and *ga* is not statistically significant because of the effect of intonation; most of the *toiuno-wa* coded elements are in phrasal IUs (see Chapter 6).

The statistical analysis shows that *toiuno-wa* codes as high a ratio of **anaphoric** elements as *wa* does. However, detailed qualitative analysis in §4.2.1 reveals that in fact the referents of *toiuno-wa*-coded elements are evoked; the referent of non-**anaphoric** elements coded by *toiuno-wa* has been introduced implicitly in the previous contexts. On the other hand, the referent of *wa*-coded elements have not necessarily been introduced in the previous contexts; they can be **inferable** elements. The zero marker \emptyset does not appear frequently enough in the corpus because CSJ consists of formal speech. As has already been pointed out in Tsutsui (1984) and discussed in §2.4.2.7, zero markers tend not to appear in formal speech. There are not enough examples for the **copula** followed by *ga* or *kedo* (7 examples) and I refrain from generalizing by this small amount of data. Instead, I will employ grammatical judgements and analyze these examples qualitatively,

¹I used R for the statistical analysis of the study. <https://www.r-project.org> The packages lme4 and lsmeans were employed.

²The effects of **word order** and intonation will be discussed in Chapters 5 and 6, respectively.

³The p-values are adjusted using the Tukey method for comparing a family of multiple estimates.

which is also supported by the observations in the previous literature.

I also calculated the persistence of each element. Persistence, which is proposed in Givón (1983) to measure topichood, is the number of times the referent is mentioned after it is mentioned by the expression in question. The persistence of elements is shown in Table 4.5. The table shows the count of persistent and non-persistent elements; the persistent elements are mentioned at least once in the following discourse after it is mentioned, while non-persistent elements are not mentioned in the following discourse. See §3.4.3.2 for the procedure of annotation. A linear mixed effects model was applied to predict persistence (persistent vs. non-persistent). I used particles (*toiuno-wa*, *wa*, *mo*, *ga*, *o*, *ni*), word order (nth in CSJ), and intonation (phrasal vs. clausal IU) as fixed effects and speakers (TalkID) as a random effect. The model with the effects of particles, word order, and intonation is significantly different from the model without either of the effects of particles and word order (likelihood ratio test, $p < 0.001$ a model without particles, $p < 0.01$ the model without word order). However, the model with the effects of particles, word order, and intonation is not significantly different from the model without the effect of intonation ($p = 0.423$). The least-squares means were calculated, and the pairwise comparisons among particles were conducted. The results of this pairwise comparison are shown in Table 4.6, which only includes the pairs of interest and those whose p-values are less than 0.5. Although the effect of particles is significant, this effect mainly appears to come from the contribution of *ni* in contrast with *toiuno-wa*, *wa*, and *o*, which is not of interest in the present work. One notable contrast is the effect of *toiuno-wa* in contrast to *ga*. The result suggests that *toiuno-wa* is more likely to code persistent elements than *ga*. Figure 4.2 shows how many times the referent in question is mentioned after the NPs or pronouns coded by each particle were mentioned. Numbers more than or equal to 5 are compressed as “5+”.

Table 4.3: Particle vs. information status

	<i>toiuno-wa</i>	<i>wa</i>	<i>mo</i>	<i>ga</i>	<i>o</i>	<i>ni</i>
Anaphoric	39 (57.4%)	112 (58.9%)	45 (38.1%)	172 (38.1%)	163 (47.9%)	179 (40.2%)
Non-anaphoric	29 (42.6%)	78 (41.1%)	73 (61.9%)	280 (61.9%)	177 (52.1%)	266 (59.8%)
Sum	68	190	118	452	340	445

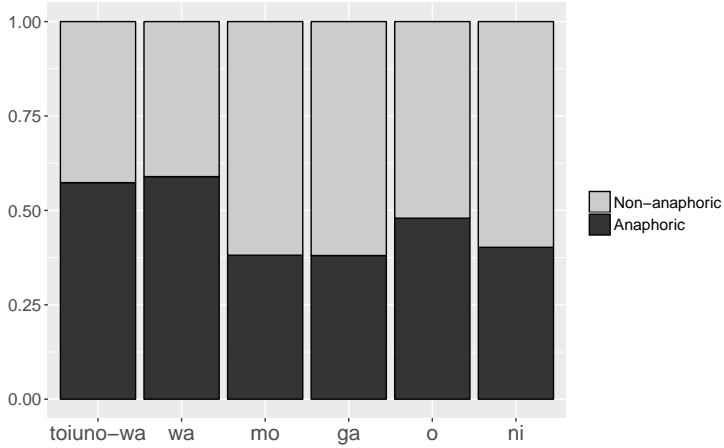


Figure 4.1: Particle vs. information status (ratio)

Table 4.4: The results of pairwise comparison among the least-squares means (information status)

contrast	estimate	SE	z.ratio	p.value	
ga - o	-0.465	0.149	-3.120	0.022	*
ga - wa	-0.748	0.182	-4.096	< 0.001	***
ga - toiuno-wa	-0.659	0.274	-2.409	0.153	
o - wa	-0.282	0.193	-1.463	0.688	
o - toiuno-wa	-0.194	0.282	-0.688	0.983	
ni - wa	-0.661	0.184	-3.602	0.004	**
wa - toiuno-wa	0.089	0.293	0.302	1.000	
wa - mo	0.759	0.244	3.107	0.023	*

($0 \leq \text{'***'} \leq 0.001 \leq \text{'**'} \leq 0.01 \leq \text{'*'} \leq 0.05 \leq \text{'.'} \leq 0.1 \leq \text{' ' } 1$)

Table 4.5: Particle vs. persistence

	<i>toiuno-wa</i>	<i>wa</i>	<i>mo</i>	<i>ga</i>	<i>o</i>	<i>ni</i>
Persistent	45 (66.2%)	107 (56.3%)	53 (44.9%)	209 (46.2%)	175 (51.5%)	184 (41.3%)
Non-persistent	23 (33.8%)	83 (43.7%)	65 (55.1%)	243 (53.7%)	165 (48.5%)	261 (58.7%)
Sum	68	190	118	452	340	445

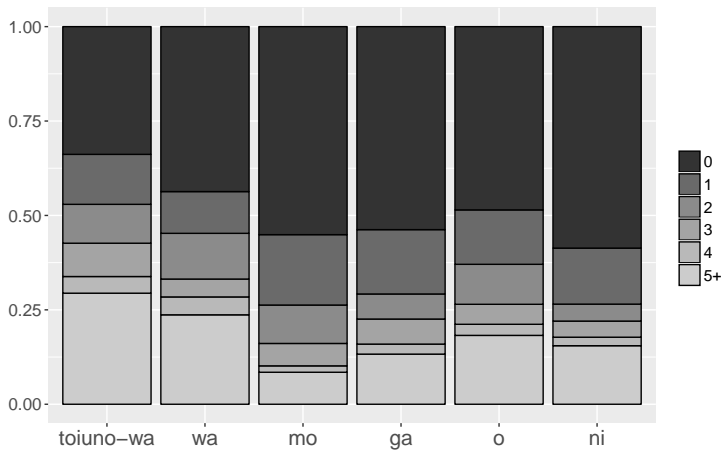


Figure 4.2: Particle vs. # of mention (ratio)

Elements coded by so-called **topic** markers cannot be repeated as news, as shown in the hypothetical conversation between A and B in the following examples. As in (2) and (3), the *toiuno-wa*-coded elements *mooningu thii* ‘morning tea’⁴ and *eberesuto-kaidoo* ‘the Everest Trail’ cannot be repeated as news, while the case-marker-coded elements *kootya-ka koohii-ka* ‘tea or coffee’, *tibetto* ‘Tibet’, *nepparu* ‘Nepal’, and *koeeki-ro* ‘trading road’ can be repeated as news.

- (2) A: (i) kono **mooningu-thii-tteno-wa**
this morning-tea-*toiuno-wa*

⁴As discussed in §4.2.1, there are some formal variations of *toiuno-wa*; *tteno-wa* is one of these variations.

Table 4.6: The results of pairwise comparison among the least-squares means (persistence)

contrast	estimate	SE	z.ratio	p.value	
ga - o	-0.215	0.146	-1.473	0.6817	
ga - wa	-0.349	0.178	-1.960	0.3657	
ga - toiuno-wa	-0.802	0.281	-2.856	0.0491	*
o - wa	-0.134	0.187	-0.714	0.9804	
o - toiuno-wa	-0.587	0.287	-2.044	0.3171	
o - ni	0.440	0.148	2.978	0.0345	*
ni - wa	-0.574	0.180	-3.189	0.0179	*
ni - toiuno-wa	-1.027	0.282	-3.642	0.0037	**
wa - toiuno-wa	-0.453	0.302	-1.501	0.6635	

(0 ≤ ‘****’ ≤ 0.001 ≤ ‘***’ ≤ 0.01 ≤ ‘**’ ≤ 0.05 ≤ ‘.’ ≤ 0.1 ≤ ‘ ’ 1)

‘(In) this morning tea (time)’

(ii) ma **kootya-ka koohii-ka-tteiuno-o**

FL black.tea-or coffee-or-QUOT-o

erab-eru-n-desu-keredomo

choose-can-NMLZ-PLT-though

‘(you) can choose tea or coffee.’ (S01F0151: 297.23-300.44)

B: hee, {??moo-ningu-thii(-wa)/ **kootya-ka koohii-o**}

Oh, {morning tea/tea or coffee}

(3) A: (i) kono **eberesuto-kaidoo-toiuno-wa**

this Everest-road-QUOT-wa

‘This Everest Trail is’

(ii) **tibetto-to nepaaru-no kooeki-ro-ni-mo** nat-te

Tibet-and Nepal-GEN trade-road-for-also become-and

ori-masi-te

PLT-PLT-and

‘also used for trading between Tibet and Nepal.’ (S01F0151: 105.73-110.29)

B: hee, {??eberesuto-kaidoo(-wa)/**tibetto-to/nepaaru-to / kooeki-ro-ni(-mo)**}

Oh, {Everest Trail/Tibet/Nepal/trading road}

As shown in (4), the element *thii-taimu* ‘tea time’ coded by the **copula** + *kedo*⁵ or the *wa*-coded element *takai tokoro* ‘places of high elevation’ cannot be repeated as news, while the *ga*-coded elements can be repeated as news.

- (4) A: (i) de kono **thii-taimu-nan-desu-keredomo**
and this tea-time-NMLZ-COP.PLT-though
‘And at this tea time,’
(ii) kono hyookoo-no **takai tokoro-de-wa**
this elevation-GEN high place-LOC-*wa*
koozanbyoo-toiu hizyooni **kikennna kanoosee-ga**
altitude.sickness-QUOT very dangerous possibility-NOM
aru-node
exist-because
‘this place of high elevation, there is a possibility of altitude
sickness, so...’
(iii) ee **mizu-ga** hizyooni zyuuyooni nari-masu
FL water-NOM very important become-PLT
‘water is very important.’ (S01F0151: 339.78-349.56)
B: hee, {??**thii-taimu**/??**takai tokoro-de/kikennna kanoosee-ga/mizu-ga**}
Oh, {tea time/on places of high elevation/the possibility of danger/water}

As indicated in Table 4.1 and will be discussed below, brand-new elements can never be coded by **topic** markers; they can never be assumed to be shared between the speaker and the **hearer**. Non-**anaphoric** elements coded by **topic** markers are **inferable**, declining, or unused, as will be discussed in the following sections. For example, as in (5), it is unacceptable for **topic** markers to code brand new elements *oozei-no hito* ‘many people’ out of the blue.

- (5) ***oozei-no hito-wa** paathii-ni ki-masi-ta
many-GEN person-*wa* party-DAT come-PLT-PAST
‘Speaking many people, they came to the party.’ (Kuno 1973b: 45)

Similarly, it is unacceptable for other **topic** markers to code these elements, whereas *ga* can code them.

- (6) **oozei-no hito**-{??**toiuno-wa**/??**da-kedo**/??**Ø**/**ga**} paathii-ni
many-GEN person-{*toiuno-wa*/COP-*though*/Ø/*ga*} party-DAT

⁵Again there are some variations of this marker and I will discuss this in §4.2.3.

ki-masi-ta
 come-PLT-PAST
 ‘Many people came to the party.’

While *oozei-no hito* ‘many people’ in (6) was unanchored in terms of Prince (1981), *taroo-no otoosan* ‘Taro’s father’ in (7) is anchored. The element coded by a **topic** marker is still not acceptable in an out-of-the-blue context.

- (7) a! **taroo-no otoosan**-{*toiuno-wa/wa/da-kedo/Ø*} asoko-de
 oh! Taro-GEN father-{*toiuno-wa/wa/COP-though/Ø*} there-LOC
 tabako sut-teru-yo
 cigarette smoke-PROG.PLT-FP
 ‘Taro’s father is smoking over there.’

Therefore, **topic** markers in Japanese are sensitive to the given-new taxonomy rather than **definiteness** and identifiability.⁶

Finally, as will be discussed in detail in §4.2.4, an element coded by a **zero particle** (Ø) that precedes other arguments and is uttered in a coherent **intonation contour** cannot be repeated as news and hence considered to be presupposed to be shared.

- (8) Context: Y and H are roommates, who are bothered by a mouse running around their room and eating their leftovers. The cat they keep finally caught the mouse while H was out. When H is back, Y wants to let H know this news.

Y: **nezumi-Ø** neko-ga tukamae-ta-yo
 nezumi-Ø cat-ga catch-PAST-FP
 ‘The cat caught (the) mouse.’

H: hee, {*nezumi, neko(-ga)*}
 Oh, {mouse, cat(-ga)} (= (8) in §3.3.1)

In the following sections, I analyze each **topic** marker in detail.

4.2.1 *Toiuno-wa*

In this section I will show that *toiuno-wa* codes elements of referents which are evoked through explicit or implicit introduction of the elements or availability in the universe of **discourse**.

⁶I suppose that the **zero particle** is acceptable because the **zero particle** in this case is ambiguous between **topic** and focus coding.

There are phonetic variations of *toiuno-wa*: *(t)teno-wa*, *t(y)uuno-wa*, *teiuno-wa*, etc. I put them into the same category as *toiuno-wa* and assume that they are the same except for stylistic difference.

4.2.1.1 Evoked elements tend to be coded by *toiuno-wa*

Toiuno-wa typically codes evoked elements. As exemplified in (9) and (10), the antecedents of the *toiuno-wa*-coded elements, *un* ‘luck’ in (9) and *tiryoo-hoo* ‘treatment methods’ in (10), are mentioned in the immediately preceding contexts.

- (9) a. syokugyoo-ni taisite-no un-toiu koto-o tyotto o-hanasi
 job-to towards-GEN luck-QUOT thing-o a.bit PLT-talk
 si-tai-to omoi-masu
 do-want-QUOT think-PLT
 ‘I’d like to speak a bit about the role of luck in one’s career.’
 b. de **un-toiuno-wa** maa iroirona un-ga aru-to
 then luck-*toiuno-wa* FL various luck-ga exist-QUOT
 omou-n-desu-keredomo
 think-NMLZ-PLT-though
 ‘I guess there are various kinds of lucks...’ (S01F0038: 0.53-8.70)
- (10) a. de sono byooki-wa gen’in-ga humee-de
 and that disease-wa source-ga unknown-COP
 ‘And the source of that disease was unknown, and’
 b. tiryoo-hoo-mo kakuritu-si-tei-mas-en-desi-ta
 treatment-method-also establish-do-PFV-PLT-NEG-PLT-PAST
 ‘The treatment methods had not been established.’
 c. sono **tiryoo-hoo-toiuno-wa** yuiitu ... suteroidozai-de
 that treatment-method-*toiuno-wa* only ... steroid-by
 sinkoo okur-aseru koto-dake-desi-ta
 progress delay-CAUS thing-only-PLT-PAST
 ‘The only way to treat is just to delay the progress of the disease
 using steroid, which I cannot use.’ (S02F0100: 294.39-308.12)

Non-**anaphoric** elements coded by *toiuno-wa* are considered to be evoked through implicit introduction of an element or by the physical context. In (11), *supootu-kansen* ‘sport watching’ is non-**anaphoric** but the speaker mentioned that he watched a world title match. Thus ‘sport watching’ is considered to be evoked when the speaker mentioned ‘sports watching’ with *toiuno-wa* coding in line c.

- (11) a. ee sekai-taitoru-sen-o-desu-ne ee terebi-de mi-masi-ta
 FL world-title-fight-o-PLT-FP FL TV-by watch-PLT-PAST
 ‘(My friend and I) watched a world title match on TV.’
 b. ...
 c. watasi-zisin gu -wa ee amari koo **supootu-kansen-teiunowa**
 1SG-self FRG -wa FL not.really FL sport-watching-toiuno-wa
 tyotto si-nakat-ta-n-desu-ne
 FL do-NEG-PAST-NMLZ-PLT-FP
 ‘I myself hadn’t watched any kinds of sports.’ (S01M0182:
 52.77-79.62)

Similarly, in (12), *taitoru* ‘title (in **piano** competitions)’ is a **non-anaphoric element** but the speaker was talking about ‘awards’ in the preceding context and ‘title’ can be considered to have been evoked at the time of **utterance** (12-e).

- (12) a. I have been participating in various **piano** competitions
 b. So far the best award I received was the fourth best place in the
 China-Japan International Competition.
 c. Beyond that, I would like to receive higher awards.
 d. ano doositemo kore-wa yappari piano-o kokorozasu mono-ni
 FL anyhow this-wa anyway piano-o orient people-for
 totte-wa
 in.terms.of-wa
 ‘This, for those who want to make name as a pianist,’
 e. kono **taitoru-tteiuno-wa** sugoku ookii-node
 this title-toiuno-wa very big-because
 ‘titles matter a lot, so...’ (S00F0209: 507.13-529.76)

In another example like (13), *toiuno-wa*-coded elements are considered to be evoked through “common sense”. (13) is the beginning of the talk but the speaker mentions *ningen* ‘human being’ with *toiuno-wa* coding. This is because people can always talk about human beings even in out-of-the-blue contexts. Therefore, “human beings” are always available as **topic**. *Tuuno-wa* is a variation of *toiuno-wa*.

- (13) **ningen-tuuno-wa** hizyooni ano umaku deki-teru doobutu-da-to
 human-toiuno-wa very FL well created-PFV animal-COP-QUOT
 omoi-masu-ne
 think-PLT-FP

‘I think that human beings are well-created.’
(S02M1698: 6.99-11.00)

Readers might think that (13) is acceptable because ‘human being’ is generic rather than evoked in the physical context. However, I do not employ this account for the following two reasons: (i) being generic is a characteristic across all *toiuno-wa*-coded elements (see §4.2.1.3), and (ii) even though the elements are generic, some elements are still difficult to be coded by *toiuno-wa* in the beginning of speeches. Let us discuss example (14), which is at the very beginning of a speech about travel to Hawaii.

- (14) teema-wa hawaii-too-no sizen-no subarasisa-to tabi-no
theme-*wa* Hawaii-island-GEN nature-GEN splendor-and travel-GEN
tanosisa-nituute-desu
fun-about-COP
‘The **topic** (of this talk) is about the splendor of Hawaii nature and fun of traveling.’
(S00F0014: 0.30-6.08)

In this example, the speaker did not choose to code ‘the splendor of Hawaii nature and fun of traveling’ with *toiuno-wa*. It is harder to code this with *toiuno-wa* than ‘human being’ because it is not always available as **topic** even though ‘the splendor of Hawaii nature and fun of traveling’ is generic. Therefore, I argue that the acceptability of *toiuno-wa* coded ‘human being’ without introduction of human beings in (13) is possible because it is always available as **topic**, not because it is generic.

4.2.1.2 Declining or inferable elements tend not to be coded by *toiuno-wa*

There are a few examples where *toiuno-wa* codes **inferable** elements. In (15), the speaker explains why she came to Iran and describes the middle school there. The climate in Iran has not been mentioned before (15-c), but is still coded by *toiuno-wa*. The climate in Iran is neither implicitly introduced nor available as universal **topic**.

- (15) a. (The speaker moved to Iran when she was a middle school student.)
b. (The school for Japanese students in Iran was small but she had a lot of fun there.)
c. eeto iran-no **kikoo-tteiuno-wa** tomokaku kansoo
FL Iran-GEN *climate-toiuno-wa* at.any.rate dry

si-tei-masi-te

do-PROG-PLT-and

‘Uh, the climate in Iran was very dry...’ (S03F0072: 178.31-181.65)

Similarly, in (16-c), the speaker is going to talk about a dog his family kept. The speaker begins with the explanation why the dog came to his house. The element *keei* ‘background (of why the dog came)’ is coded by *toiuno-wa*, although *keei* has not been explicitly mentioned in the preceding context.

- (16) a. (The speaker talks about a dog his family kept.)
 b. (After the death of the previous dog they kept, the dog he is going to talk about joined his family.)
 c. e uti-ni ki-ta **keei-toiuno-wa**
 FL home-to come-PAST background-*toiuno-wa*
 ‘The background of how the dog came to our house is’
 d. ma sono zyuui-san-no syookai-nan-desu-keredomo
 FL that vet-HON-GEN introduction-NMLZ-COP.PLT-though
 ‘(through) the introduction of that vet...’ (S02M0198: 141.97-146.92)

On the other hand, there are some cases where it is unnatural for *toiuno-wa* to code **inferable** elements. For example, in (17-c), the element *hikoozyoo* ‘airport’ cannot naturally be coded by *toiuno-wa*, which is originally coded by *wa*. The airport is **inferable** because the speaker has already mentioned flying to Lukla.

- (17) a. To start Himalaya trekking, you first fly to a village called Lukla whose elevation is 2600 meters.
 b. From that village, we started trekking.
 c. sono rukura-no mura-nan-desu-ga
 that Lukla-GEN village-NMLZ-PLT-though
 ‘Regarding that Lukla village,’
 d. **hikoozyoo**-{*wa*(/??-*toiuno-wa*)} hontooni yama-no naka-ni
 airport-*wa*(/-*toiuno-wa*) really mountain-GEN inside-in
 ari-masi-te
 exist-PLT-and
 ‘the airport is really in a mountainous area.’ (S01F0151: 179.50-191.39)

I speculate that the different acceptabilities of *toiuno-wa* among (15), (16), and (17) are due to different statuses in the given-new taxonomy or the accessibility of

the elements; ‘the climate’ in (15) and ‘the background’ in (16) are more general terms and are more easily accessible than ‘the airport’ in (17). Note that this does not contradict, but rather is consistent with, the Semantic Map Connectivity Hypothesis (1). Since the given-new taxonomy scale is continuous, the boundary between evoked and **inferable** is blurred, and among the **inferable** elements in these examples, ‘the climate’ of Iran in (15) and ‘the background’ in (16) are easier to access than ‘the airport’ in (17). This is consistent with the nature of the **conceptual space**, although the boundary is drawn clearly in the **semantic map** in Table 4.1 for the purpose of presentation.

It is unnatural when *toiuno-wa* codes declining elements. The degree of how a referent is declining is difficult to calculate from the corpus. Apparently, it does not simply correspond to the distance between an element and its **antecedent**, but the intervention of (an)other **topic(s)** seems to be more relevant. For example, a **copula** followed by *kedo* codes declining or unused elements, as will be shown in §4.2.3. In (18-g), it codes a declining element rather than unused element because the element has already been introduced in line a. In line a, two potential topics ‘fame’ and ‘job’ are introduced. The speaker talks about ‘fame’ first and moves on to ‘job’ in line g. It is fair to assume that the **topic** ‘job’ is intervened by another **topic** ‘fame’. When the element ‘job’ is retrieved as a current **topic** in line g, it is coded by a **copula** followed by *keredomo* ‘though’, a variation of *kedo*. However, this marker cannot be replaced with *toiuno-wa*.

- (18) a. I have two goals: one is for fame and the other is for job.
 b. Concerning fame,
 c. I have been participating in various **piano** competitions
 d. So far the best award I received was the fourth best play in the China-Japan International Competition.
 e. Beyond that, I would like to receive higher awards.
 f. Titles matter a lot for pianists, so I will work hard.
 g. de ato-wa sigoto-no
 then remaining-wa job-GEN
bubun-{nan-desu-keredomo/(??toiuno-wa)}
 part-{NMLZ-COP.PLT-though/*toiuno-wa*}
 ‘Concerning the other one, job,’
 h. to receive higher wages... (S00F0209: 495.77-539.19)

Toiuno-wa cannot code elements that have not been established as **topic**. In (19), although ‘tea time’ is introduced in line b, it does not appear to be established

enough as **topic**, which makes *toiuno-wa* unnatural in line d; the original marker is a **copula** followed by *keredomo*.

- (19) a. While we trek on the Everest Trail, the cook made us lunch on the way,
 b. in addition, there is tea time and we can take a break while we climb the mountain,
 c. so, we walked without feeling that we were in a big group.
 d. de kono **thii-taimu-nan-desu-{keredomo/(??toiuno-wa)}**
 and this tea-time-NMLZ-COP.PLT-{though/toiuno-wa}
 ‘And at this tea time,’
 e. kono hyookoo-no takai tokoro-de-wa koozanbyoo-toiu
 this elevation-GEN high place-LOC-wa altitude.sickness-QUOT
 hizyooni kikenenna kanoosee-ga aru-node
 very dangerous possibility-ga exist-because
 ‘this place of high elevation, there is a possibility of altitude sickness, so...’
 f. ee mizu-ga hizyooni zyuuyooni nari-masu
 FL water-ga very important become-PLT
 ‘water is very important.’ (S01F0151: 323.00-349.56)

These subtle differences of acceptability of *toiuno-wa* cannot be captured simply by counting numbers. However, they are clear from the acceptability judgements.

Unused elements also cannot be coded by *toiuno-wa*. It is very difficult to find unused elements because of the nature of our corpus; each speaker gave a speech in front of people s/he does not know and there are few things the speaker can assume to be shared with the **hearer(s)**. However, constructed examples like (20) clearly show that *toiuno-wa* cannot code unused elements.

- (20) Context: According to Facebook, both A and B are going to a party tomorrow. But they have not seen each other for a week. A sees B in a classroom and talks to B:
 A: asita-no **paathii-{da-kedo/(??toiuno-wa)}** nan-zi-kara-na-no
 tomorrow-GEN party-{COP-though/*toiuno-wa*} what-o’clock-from-COP-**Q**
 ‘What time does tomorrow’s party start?’

Note that if the element ‘party’ has already been introduced into the **discourse**,

toiuno-wa can code it. This is shown in (21-A).⁷

- (21) Context: A and B are having a conversation. B mentioned tomorrow's party, which A knows that both A and B are going to.

A: sono **paathii-{{da-kedo/tteiuno-wa}}** nan-zi-kara-na-no
that party-{COP-though/*toiuno-wa*} what-o'clock-from-COP-Q
'What time does tomorrow's party start?'

4.2.1.3 Further characteristics of *toiuno-wa*-coded elements

Statements about *toiuno-wa*-coded elements tend to represent the general characteristics of the referents, as has been pointed out in Masuoka (1987; 2008a). Masuoka argues that *toiuno-wa*-coded elements only accompany individual-level predicates (in his term, property predicates). This is clearly shown in the contrast between (22-a) and (22-b) (repeated from (55)) in §2.4.2.5. Whereas the stage-level **predication** (22-a) does not allow *toiuno-wa*, the individual-level **predication** (22-b) does allow *toiuno-wa*.

- (22) a. ***satiko-toiuno-wa** uso-o tui-ta
Sachiko-*toiuno-wa* lie-o commit-PAST
'Sachiko lied.' (Masuoka 2012: 96)
- b. **satiko-toiuno-wa** uso-tuki-da
Sachiko-*toiuno-wa* lie-commiter-COP
'Sachiko is a liar.' (Constructed)

In our corpus, most examples of *toiuno-wa* also accompany individual-level **predication** rather than stage-level **predication**. In (23), the speaker is talking about the general characteristics of puppies.

- (23) **koinu-toiuno-wa** dono syurui-demo hizyooni ano neru-no-ga
puppy-*toiuno-wa* which kind-also very FL sleep-NMLZ-ga
tokui-desu-ne
good.at-COP.PLT-FP
'Puppies are, no matter what kind, good at sleeping.' (S02M1698:
166.62-170.59)

The explanation for this requires further investigation.

⁷In this example, I am using *tteiuno-wa* instead of *toiuno-wa* simply because this hypothetical **utterance** is casual; *tteiuno-wa* is more casual than *toiuno-wa*. *Toiuno-wa* sounds too formal in this **utterance**.

4.2.2 *Wa*

Wa codes **inferable** elements in addition to evoked elements. Overall, the referents of *wa*-coded elements are assumed to be borne in the **hearer**'s mind at the time of **utterance**, or can be easily accommodated to the assumption.

4.2.2.1 Evoked and inferable elements tend to be coded by *wa*

As exemplified in the following examples, *wa* can code evoked elements. In (24), 'chelow kebab' is mentioned in line a, and it is mentioned again in lines b and g. The second and the third mentioned elements are coded by *wa*.

- (24) a. There is a dish called chelow kebab.
 b. de **sore-wa** eeto gohan-ni eeto bataa-o maze-te
 and that-*wa* FL rice-to FL butter-o mix-and
 'That, you mix rice with butter...'
 c. on top of that you put spice,
 d. on top of that you put mutton,
 e. you mix it and eat it.
 f. There were many dishes of this kind.
 g. *sore-wa* kekkoo sonnani hituzi-no oniku-no kusasa-mo
 that-*wa* to.some.extent not.really sheep-GEN meat-GEN smell-also
 naku-te
 not.exist-and
 'It did not have smell of mutton...'
 h. I thought it was delicious. (S03F0072: 446.03-471.72)

Also in (25), 'the result of the medical exam' is mentioned in line b, and it is mentioned again in line c, which is coded by *wa*.

- (25) a. de sosite is-syuu anoo zibun-de-mo odoroku-hodo
 then and one-week FL self-for-also be.surprised-degree
 reeseeni
 calmly
 'For a week, surprisingly calmly,'
 b. kensa-no **kekka-o** mati-masi-ta
 exam-GEN result-o wait-PLT-PAST
 'I was waiting for the result of the medical exam.'
 c. nde sono kensa-no **kekka-wa** hutuu-no hito-yori-mo
 and that exam-GEN result-*wa* normal-GEN person-than-also

sootoo izyoodat-ta-n-desu-ga

very abnormal-PAST-NMLZ-COP-though

‘According to the result of the exam, the value was quite abnormal compared with common people,’

- d. but it didn’t pass the threshold that I could acquire the disease. (S02F0100: 662.61-677.85)

Unlike *toiuno-wa*, *wa* also codes **inferable** elements extensively. In (26), *nyu-usya* ‘admission to a company’ in line a triggers *siken* ‘exam’ in line c, which is naturally coded by *wa*.

- (26) a. ee toaru ryokoo-sya-ni ano itioo nyuusya
FL certain travel-company-DAT FL tentatively admission
kimari-masi-ta
decide-PLT-PAST
‘A certain travel company admitted me to work there.’
b. ...
c. hizyooni **siken-wa** muzukasikat-ta-to ima-mo
very exam-*wa* difficult-PAST-QUOT now-also
oboe-teori-masu
remember-PROG-PLT
‘(I) still remember that the exam was very hard.’
(S01F0038: 231.34-241.96)

Wa sometimes forces the **hearer** to accept the assumption that the **hearer** has already been thinking about the *wa*-coded referent; I call this accommodation. In (27), which immediately follows (26), *wa* which codes *gyappu* ‘gap’ in line c forces the **hearer** to accept the assumption that s/he expected the speaker to talk about the gap between the expectation and the reality.

- (27) a. tada soko-kara saki-wa ano dono sigoto-mo soo-da-to
but that-from ahead-*wa* FL which job-also so-COP-QUOT
omou-n-desu-ga
think-NMLZ-PLT
‘But, after the admission, I guess this is the same in all kinds of jobs,’
b. yume-to genzitu-tte iu-n-desu-ka
dream-and reality-QUOT call-NMLZ-PLT-Q
‘people might call it (the difference between) dream and the reality,’

- c. **gyappu-wa** kanari ari-masi-te
 gap-*wa* very exist-PLT-and
 ‘there was a gap (between what I expected and the reality).’ (S01F0038: 265.11-270.98)

In cases like (26) and (27), some hypothetical speakers might have chosen to use *ga* instead of *wa*, while *wa* cannot be replaced with *ga* to code evoked elements in (24) and (25). If the elements were coded by *ga* in (26) and (27), they do not force the **hearer** to accommodate the assumption that s/he has already been thinking about them.

What can be **inferable** depends on the culture. In Japanese culture, apartments might come with furniture such as a washing machine, but not with livestock. Therefore, as in (28-b), *wa* coding *sentaku-ki* ‘washing machine’ sounds natural, while, as in (28-b’), *wa* coding *hituzi* ‘sheep’ sounds strange because it sounds as if the speaker assumed that it is common for a room to come with a sheep and it is too difficult to accommodate oneself to this assumption.

- (28) a. I’m looking for a new room and yesterday I saw one room.
 b. **sentaku-ki**-{*wa/ga*} tui-te-ta-yo
 washing-machine-{*wa/ga*} come.with-PROG-PAST-FP
 ‘(The room) comes with a washing machine.’
 b’. **hituzi**-{*??wa/ga*} tui-te-ta-yo
 hituzi-{*wa/ga*} come.with-PROG-PAST-FP
 ‘(The room) comes with a sheep.’

Note that *ga*-coding is acceptable in both cases because *ga* can code new elements.

Kuroda (1972) and Kuno (1973b) argue that generic NPs are always available as topics and can be always coded by *wa*. However, as I have discussed in §4.2.1, not all generic NPs are available as topics. Kuno’s examples like (29) may be natural at the beginning of speech.

- (29) **kuzira-wa** honyuu-doobutu-desu
 whale-TOP mammal-animal-COP.PLT
 ‘Speaking of whales, they are mammals. (A whale is a mammal.)’ (Kuno 1973b: 44)

People can expect the speaker to start talking about *kuzira* ‘whales’ out of the blue. However, it is difficult to expect the speaker to talk about “Kosovo War” (S00M0199) and “Himalaya trekking” (S01F0151). Therefore, these NPs are not

naturally coded by *wa* out of the blue even when they are in generic statements, because they are not available as topics and are difficult to accommodate. The speakers would choose other forms to introduce these NPs, then might explain them in more detail in generic statements. Out of 12 speeches I studied, there is only one speech (S02M1698) where the speaker begins with a generic statement with *toiuno-wa*, which is (13) above. The speaker begins with a generic statement about human beings in general, which the **hearer(s)** can easily expect the speaker to start talking about out-of-the-blue.

4.2.2.2 So-called contrastive *wa*

I argue that so-called contrastive *wa*, which has been discussed extensively in the literature (e.g., Kuno 1973b), is a special case for *wa* coding **inferable** elements. In typical cases of inferables like (26), the referent of one element (e.g., *nyuusya* ‘admission to a company’) is evoked by an explicit mention and the referent of another related element (e.g., *siken* ‘exam’) is partially evoked, triggered by the element explicitly mentioned; ‘the admission’ and ‘the exam’ form a set relevant to the current **discourse**. Similarly, the elements coded by contrastive *wa* are assumed to belong to a set relevant to the current **discourse**. In (30), which is slightly modified from (28), *reezooko* ‘fridge’ and *sentaku-ki* ‘washing machine’ belong to the same category of ‘things expected to come with a room’. The ‘fridge’ and the ‘washing machine’ are contrasted in the sense that one is furnished but the other is not.

- (30) a. I’m looking for a new room and yesterday I saw one room.
 b. **reezooko-wa** tui-te-nakat-ta-kedo
 fridge-wa come.with-PROG-NEG-PAST-though
sentaku-ki-wa tui-te-ta-yo
 washing-machine-wa come.with-PROG-PAST-FP
 ‘Though (the room) doesn’t come with a fridge, (it) comes with a washing machine.’

Note that *wa* coding *hituzi* ‘sheep’ is still not natural in (31) for the same reason as described in relation to (28); a sheep is not expected as a normal thing which is included with an apartment.

- (31) a. I’m looking for a new room and yesterday I saw one room.
 b. ??**reezooko-wa** tui-te-nakat-ta-kedo **hituzi-wa**
 fridge-wa come.with-PROG-NEG-PAST-though sheep-wa

tui-te-ta-yo

come.with-PROG-PAST-FP

‘Though (the room) doesn’t come with a fridge, (it) comes with a sheep.’

Similarly, in (32) from our corpus, the *wa*-coded elements *tinomigo* ‘infants’ and *inu* ‘dogs’ are contrasted. They belong to the relevant category of ‘creatures that might not be allowed to enter restaurants’.

- (32) a. de doitu-toiu kuni-wa hizyooni ano uu inu-ni e
and Germany-QUOT nation-*wa* very FL FL dog-DAT FL
sumi-yasui kuni-desu
live-easy nation-COP.PLT
‘Germany is a dog-friendly country.’
- b. tatoeba aa resutoran-de-mo anoo **tinomigo-wa**
for.example FL restaurant-at-also FL infant-*wa*
haire-nai-yoona resutoran-mo **inu-wa** haireru-to
enter.can-NEG-such.as restaurant-also dog-*wa* enter.can-QUOT
‘For example, restaurants where infants are not allowed to get in, uh,
dogs can get in them.’ (S02M1698: 243.46-256.10)

Kuno (1973b: p. 44 ff.) points out that the contrastively *wa*-coded elements are not necessarily **anaphoric** (given), while the non-contrastively *wa*-coded elements are. However, there is a problem with this claim. It is possible for non-contrastively *wa*-coded elements to be non-**anaphoric**; they can be **inferable** as we have seen in the previous section. If what Kuno means by “**anaphoric**” includes bridging anaphora (Clark 1975) and thus includes **inferable** elements, then contrastively *wa*-coded elements are also **anaphoric**, because the elements belong to the same category relevant to the current **discourse**. I argue that the distinction between contrastive and non-contrastive is continuous and a matter of degree; if there are more than two evoked referents in the same category, they tend to be contrastive, while if there is only one element, it is non-contrastive.

4.2.2.3 Declining and unused elements tend not to be coded by *wa*

Declining elements cannot be coded by *wa*. For example, in (18), which is repeated here as (33) for convenience, ‘job’ is intervened by another **topic** ‘fame’. When the speaker goes back to ‘job’, it is not natural for *wa* to code the element ‘job’.

- (33) a. I have two goals: one is for fame and the other is for job.

- b. Concerning fame,
- c. I have been participating in various **piano** competitions
- d. So far the best award I received was the fourth best play in the China-Japan International Competition.
- e. Beyond that, I would like to receive higher awards.
- f. Titles matter a lot for pianists, so I will work hard.
- g. de ato-wa sigoto-no
then remaining-wa job-GEN
bubun-{nan-desu-keredomo/(??-wa)}
part-{NMLZ-COP.PLT-though/-wa}
'Concerning the other one, job,'
- h. to receive higher wages... (S00F0209: 495.77-539.19)

Similarly, unused elements cannot be coded by *wa*, as the contrast between (34) and (35) shows. These examples are repeated from (20) and (21).

- (34) Context: According to Facebook, both A and B are going to a party tomorrow. But they have not seen each other for a week. A sees B in a classroom and talks to B:

A: asita-no **paathii-{da-kedo/??-wa}** roku-zi-kara-da-yo-ne
tomorrow-GEN party-{COP-though/*toiuno-wa*} six-o'clock-from-COP-FP-FP
'Tomorrow's party is from six, right?'

- (35) Context: A and B are having a conversation. B mentioned the party tomorrow, which A knows that both A and B are going to.

A: asita-no **paathii-{??da-kedo/-wa}**
tomorrow-GEN party-{COP-though/*toiuno-wa*}
roku-zi-kara-da-yo-ne
six-o'clock-from-COP-FP-FP
'Tomorrow's party is from six, right?'

Although many scholars discuss *wa* based on examples like (36), which appears to be produced out-of-the-blue, they are unnatural in spoken Japanese.

- (36) ??*anoo toire-wa* doko-desu-ka
FL bathroom-wa where-COP.PLT-Q
'Excuse me, where is the bathroom?'

Assuming that (36) is produced out-of-the-blue without previous mention of the

bathroom, the best marker is \emptyset . It seems that in written Japanese, *wa* can be used to code unused elements as shown in (37), assuming that this is written Japanese (in an e-mail or letter).

- (37) tokorode kono aida ohanasi si-tei-ta eega-wa totemo
 by.the.way this interval speech do-PROG-PAST movie very
 omosirokat-ta-desu
 interesting-PAST-PLT
 ‘By the way, the movie I mentioned the other day was very interesting.’

The spoken Japanese version of (37) is not natural, as shown in (38).

- (38) ?a kono aida hanasi-te-ta eega-wa totemo
 oh this interval talk-PROG-PAST movie very
 omosirokat-ta-desu-yo
 interesting-PAST-PLT-FP
 ‘By the way, the movie I mentioned the other day was very interesting.’

Formal speech is closer to written Japanese than casual speech and the boundary between them is blurred. Note, however, that the **conceptual space** is a suitable format to capture variations like this (see Croft 2010).

4.2.3 The copula followed by *ga* or *kedo*

A combination of a **copula** followed by *ga* or *kedo* codes declining or unused elements. As has been mentioned above, there are not many examples of these **topic** markers in the corpus and I will mainly employ grammatical judgements of constructed and actual examples and analyze them qualitatively rather than quantitatively. The results are compatible with the claims in Koide (1984) and Takahashi (1999), which supports the conclusion of this chapter. As discussed in §2.4.2.6, they argue that *ga* newly introduces topics in the beginning of a **dis-course**.

There are variations of both copulas and *ga* or *kedo*. Copulas can be *da* or *desu*. *Desu* is more polite than *da*, and it appears more frequently in our corpus. This is a natural consequence of the nature of the corpus; the speakers are not familiar with their listeners. There are no remarkable variations of *ga*, while there are some variations of *kedo*: *keredomo* and *kedomo*. In the following sections, I will sometimes call this marker *kedo*. Keep in mind, however, that there are variations of *kedo* as well as copulas preceding it.

4.2.3.1 Evoked and inferable elements cannot be coded by the copula followed by *ga* or *kedo*

Evoked elements cannot be coded by *kedo*. This is exemplified in (39), where ‘ice cream’ that H had kept in the fridge is assumed to be evoked in H’s mind by speaker Y. It is appropriate to assume that the referent ‘ice cream’ is evoked in H’s mind because H opens the fridge.

- (39) Context: Y knows that H, his roommate, keeps ice cream in the fridge but saw Taro, another roommate, eat all of H’s ice cream after H had left for school. When H came back and opens the freezer, Y wants to tell the fact.
- Y: *aisu-{{da-kedo/wa}}* taroo-ga tabe-tyat-ta-yo
ice.cream-{COP-though/TOP} Taro-ga eat-PFV-PAST-FP
‘Taro ate up (your) ice cream.’

In a similar way, **inferable** elements cannot be coded by the marker as shown in (40), where ‘ice cream’ is assumed to be **inferable** because they are talking about the things in the fridge and both of them know that there was ice cream there.

- (40) Context: Y and H are roommates and check what is remaining in the fridge.
- H: I’m sure that there are still rice cakes remaining.
- Y: *un demo aisu-{{da-kedo/wa}}* taroo-ga tabe-tyat-ta-yo
yeah but ice.cream-{COP-though/wa} Taro-ga eat-PFV-PAST-FP
‘Yeah, but Taro ate up (your) ice cream.’

4.2.3.2 Declining and unused elements can be coded by the copula followed by *ga* or *kedo*

Declining elements can be coded by *kedo*. As discussed above, there is no simple way to identify declining elements. The declining status appears to be related to intervention of other topics; when the speaker shifts one **topic** to another **topic** and mentions the first one again, the first **topic** is considered to be declining. In the following example (41), the speaker introduced the first (fame) and the second (job) topics at the same time in line a. She talks about the first one from line b-f, then moves on to the second one in line g, where the second **topic** (job) is considered to be declining.

- (41) a. I have two goals: one is for fame and the other is for job.
b. Concerning fame,

- c. I have been participating in various **piano** competitions.
- d. So far the best award I received was the fourth best play in the China-Japan International Competition.
- e. Beyond that, I would like to receive higher awards.
- f. Titles matter a lot for pianists, so I will work hard.
- g. de ato-wa sigoto-no bubun-nan-desu-keredomo
then remaining-wa job-GEN part-NMLZ-COP.PLT-though
'Concerning the other one, job,'
- h. to receive higher wages... (S00F0209: 495.77-534.04)

As discussed in 4.2.1.2, 'tea time' in the example (19), repeated here as (42), is not established as a **topic** yet (and hence cannot be coded by *toiuno-wa*). This kind of referent can also be coded by *kedo*. *Kedo* is able to upgrade the referent to the **topic** status.

- (42)
- a. While we trek on the Everest Trail, the cook makes us lunch in a way,
 - b. in addition, there is tea time and we can take a break while we climb the mountain,
 - c. so, we walked without feeling that we were in a big group.
 - d. de kono thii-taimu-nan-desu-keredomo
and this tea-time-NMLZ-COP.PLT-though
'And at this tea time,'
 - e. kono hyookoo-no takai tokoro-de-wa koozanbyoo-toiu
this elevation-GEN high place-LOC-wa altitude.sickness-QUOT
hizyooni kikenenna kanoosee-ga aru-node
very dangerous possibility-ga exist-because
'this place of high elevation, there is a possibility of altitude sickness, so...'
 - f. ee mizu-ga hizyooni zyuuyooni nari-masu
FL water-ga very important become-PLT
'water is very important.' (S01F0151: 323.00-349.56)

There is only one **non-anaphoric element** coded by *kedo* as in (43), while the other six examples are **anaphoric**. In (43), the speaker has been talking about travel to Hawaii, then she mentions 'the traveling style', which is coded by *kedo*.

- (43)
- a. nde ee kono tabi-no sutairu-tteiu-mono-nan-desu-keredomo
and FL this travel-GEN style-called-thing-NMLZ-COP.PLT-though
'And regarding this traveling style'

- b. anoo watasi-wa moo kekkoo ma tabi-nare-teru-to
 FL 1.SG-wa FL to.some.extent FL travel-is.used.to-QUOT
 iu-ka
 say-Q
 ‘I’m used to travel to some extent, so to speak...’ (S00F0014:
 300.43-309.95)

This kind of example may be considered to be **inferable**; traveling is associated with its style. However, the association might be too weak. I categorize this example as a marginal case of **inferable** and *kedo* functions to upgrade the referent to the **topic** status.

Unused elements can be coded by *kedo*, as shown in (44). In (44), it is assumed that speaker Y and **hearer** H share a particular ice cream but it is not evoked in H’s mind because s/he is just in school.

- (44) Context: Y knows that H, Y’s roommate, keeps ice cream in the fridge but saw Taro, another roommate, eat all of H’s ice cream after H had left for school. Y wants to tell H this fact when Y sees H in school.

Y: sooieba aisu-{da-kedo/??wa} taro-ga tabe-tyat-ta-yo
 by.the.way ice.cream-{COP-though/TOP} Taro-ga eat-PFV-PAST-FP
 ‘By the way, Taro ate up (your) ice cream.’

4.2.3.3 Further analysis of the copula followed by *ga* or *kedo*

The above examples of *kedo* might be considered to be clauses rather than phrases because *ga* and *kedo* are subordinate-clause markers. In (45), *kedo* (realized as *keredomo*) is a subordinate-clause marker; the clause has the subject *pointo* ‘point’ and the predicate *kirauea-kazan* ‘Kilauea’. Thus all the examples of topics coded by *kedo* above might also be the predicates of **copula** clauses.

- (45) a. sono hawai-too-no ma kankoo-no itiban sono ookina
 FL Hawaii-island-GEN FL sightseeing-GEN most FL big
 pointo-tteiuno-ga kirauea-kazan-nan-desu-keredomo
 point-toiuno-ga Kilauea-volcano-NMLZ-COP.PLT-though
 ‘The biggest sightseeing point on Hawaii island is Kilauea...’
 b. anoo kirauea-kazan-mo mappu-o kai-masi-te de zibun-tati-de
 FL Kilauea-volcano-also map-o buy-PLT-and and self-PL-by
 ma renta-kaa-o tobasi-te e iki-masi-ta
 FL rent.a-car-o drive-and FL go-PLT-PAST

‘(We) bought a map, drove a rental car, and went to Kilauea by ourselves.’ (S00F0014: 836.05-850.16)

However, there are differences between examples like (45-a) and topics coded by *kedo* discussed in preceding sections, as was mentioned in §2.4.2.6. First, it is actually impossible to “recover” the subject of alleged **copula** clauses in topic-coding *kedo*, while it is possible in general for the **copula** predicate followed by *kedo* to have a subject. For example, one cannot “recover” the subject of the alleged **copula** clause (44), while examples like (45-a) do have a subject. Therefore, the former is considered to be a kind of phrase, whereas the latter is a kind of clause.

Second, **topic** elements coded by *kedo* are presupposed to be shared between the speaker and the **hearer**, while predicates of **copula** clauses followed by *kedo* like (45) are not presupposed to be shared. This is supported by the *hee* test. As shown in (46), *kedo*-coded topics cannot be repeated as news preceded by *hee* ‘oh, really’.

- (46) A: (i) sono **rukura-no mura-nan-desu-ga**
that Lukla-GEN village-NMLZ-COP-though
‘Regarding that village, Lukla,’
(ii) hikoozyoo-wa hontooni yama-no naka-ni
airport-wa really mountain-GEN inside-DAT
ari-masi-te
exist-PLT-and
‘the airport was really in a mountainous area...’ (S01F0151: 187.33-191.39)
B: ??hee, rukura-no mura
Oh, Lukla village.

On the other hand, the predicate of **copula** clauses followed by *kedo* can be repeated as news, as shown in (47).

- (47) A: sono hawaii-too-no ma kankoo-no itiban sono ookina
FL Hawaii-island-GEN FL sightseeing-GEN most FL big
pointo-tteiuno-ga **kirauea-kazan-nan-desu-keredomo**
point-toiuno-ga Kilauea-volcano-NMLZ-COP.PLT-though
‘The biggest sightseeing point on Hawaii island is Kilauea...’ (S00F0014: 836.05-842.87)

- B: hee, kirauea-kazan-nan-da
 Oh Kilauea-volcano-NMLZ-COP
 ‘Oh, Kilauea volcano.’ (Constructed)

Although these two kinds of *kedo* are distinct, they are related to each other. Niwa (2006: Chapter 9) argues that *ga*-coded subordinate clauses state background of the **main clause** and that this use of subordinate *ga* grammaticalizes into **topic** marker. However, historical investigations are necessary to support this claim and I leave it open for future studies.

4.2.4 \emptyset_t

As mentioned earlier, the zero particles do not appear frequently in our corpus because of the stylistic difference. As a result, most examples in this section are constructed rather than naturally produced.

There are two kinds of zero particles: a topic-coding **zero particle** (\emptyset_t) and a focus-coding **zero particle** (\emptyset_f). There are at least three differences, as summarized in (48) (see also Niwa 2006; Nakagawa & Sato 2012).

	\emptyset_t -coded elements	\emptyset_f -coded elements
(48)	(a) shared between the speaker and the hearer	not shared between the speaker and the hearer
	(b) precede other arguments	close to predicate
	(c) followed by accentual boundary	coherent intonation contour with predicate

The elements coded by \emptyset_t are by definition assumed to be shared between the speaker and the **hearer**. Also, they precede other arguments and are followed by the **accentual-phrasal boundary**. On the other hand, those coded by \emptyset_f are by definition assumed not to be shared between the speaker and the **hearer**. They appear close to the predicate and are not followed by the **accentual-phrasal boundary**; rather, they are produced in a single **intonation contour** with the predicate. As shown by the contrast between (49) and (50), the element *nezumi* ‘mouse’ preceding another argument *neko* ‘cat’ is felicitous when the speaker and the **hearer** share the referent in question as in (49-Y), while it is not when they do not share the referent as in (50-Y). On the other hand, the element ‘mouse’ adjacent to the predicate *tukamae-ta* ‘caught’ is felicitous when they do not share the referent as in (50-Y’), while it is not when they share the referent as in (49-Y’).

- (49) Context: Y and H are roommates, who are bothered by a mouse running

around their room and eating their leftovers. They set a trap to catch the mouse. But the cat they keep caught the mouse while H was out. When H is back and looks inside of the trap, Y wants to let H know this news.

Y: **nezumi-Ø**, *neko-ga tukamae-ta-yo*
nezumi-Ø cat-ga catch-PAST-FP
 ‘The cat caught (the) mouse.’

Y’: ?*neko-ga nezumi-Ø tukamae-ta-yo*
cat-ga mouse-Ø catch-PAST-FP
 ‘The cat caught a mouse.’

- (50) Context: Y and his cat are relaxing in the living room. H comes into the room.

H: Anything fun today?

Y: ??**nezumi-Ø**, *neko-ga tukamae-ta-yo*
mouse-Ø cat-ga catch-PAST-FP
 Intended: ‘The cat caught a mouse.’

Y’: *neko-ga nezumi-Ø tukamae-ta-yo*
cat-ga mouse-Ø catch-PAST-FP
 ‘The cat caught a mouse.’

Similarly, Niwa (2006: Chapter 10) reports that topical elements such as *ano ko* ‘that girl’ and *ree-no seerusuman* ‘the salesman’ are felicitously zero-coded clause-initially, as the contrasts between (51-a-b) and (52-a-b) show.

- (51) (People have discussed a female newcomer *ano ko* ‘that girl’.)
- a. *oi keiri-ka-ni ano ko-{ga/Ø} hait-ta-zo*
hey accounting-section-DAT that girl-{ga/Ø} enter-PAST-FP
 ‘Hey, that girl joined the accounting section.’
- b. *oi ano ko-{ga/Ø} keiri-ka-ni hait-ta-zo*
hey that girl-{ga/Ø} accounting-section-DAT enter-PAST-FP
 ‘Hey, that girl joined the accounting section.’ (Niwa 2006: 293-294)
- (52) a. *kinoo ree-no seerusuman-{ga/Ø}*
yesterday you.know.who-GEN salesman-{ga/Ø}
ki-ta-mitai-da-yo
come-PAST-INFR-COP-FP
 ‘Yesterday that salesman came (here), apparently.’
- b. *ree-no seerusuman-{ga/Ø} kinoo*
you.know.who-GEN salesman-{ga/Ø} yesterday

ki-ta-mitai-da-yo
 come-PAST-INFR-COP-FP
 ‘Yesterday that salesman came (here), apparently.’ (ibid.)

On the other hand, focal elements such as *kawaii ko* ‘a cute girl’ and *dokokano seerusuman* ‘a salesman’ are not felicitously zero-coded clause-initially, as the contrasts between (53-a-b) and (54-a-b) show.

- (53) a. oi keiri-ka-ni sugoi kawaii ko-{ga/Ø}
 hey accounting-section-DAT very cute girl-{ga/Ø}
 hait-ta-zo
 enter-PAST-FP
 ‘Hey, a very cute girl joined the accounting section.’
 b. oi sugoi kawaii ko-{ga/?Ø} keiri-ka-ni
 hey very cute girl-{ga/Ø} accounting-section-DAT
 hait-ta-zo
 enter-PAST-FP
 ‘Hey, a very cute girl joined the accounting section.’ (ibid.)
- (54) a. kinoo dokoka-no seerusuman-{ga/Ø}
 yesterday somewhere-GEN salesman-{ga/Ø}
 ki-ta-mitai-da-yo
 come-PAST-INFR-COP-FP
 ‘Yesterday a salesman came (here), apparently.’
 b. dokoka-no seerusuman-{ga/?Ø} kinoo
 somewhere-GEN salesman-{ga/Ø} yesterday
 ki-ta-mitai-da-yo
 come-PAST-INFR-COP-FP
 ‘Yesterday a salesman came (here), apparently.’ (ibid.)

Note that *wa* is unnatural in all of the examples (51) through (54) although I interpret these elements as topics. As I have discussed in §4.2.2, *wa* codes elements referring to evoked or inferable entities. *Ano ko* ‘that girl’ in (51) and *ree-no seerusuman* ‘the salesman’ in (52) are unused. Hence, *wa*-coding is unnatural in this case; instead, *ga*-coding is natural. The question which naturally arises is whether these elements are actually topics. I argue that unused elements are ambiguous between topic and focus. They are topics in the sense that the referent in question is shared between the speaker and the hearer via shared knowledge or common sense; they are foci in the sense that it is newly introduced into the discourse.

Throughout this section, I mainly discuss P (the patient-like argument in **transitive** clauses) preceding A (the **agent-like argument** in **transitive** clauses) because it is clear that they are preposed, which tend to be topics, as we will see in Chapter 5.

4.2.4.1 Evoked, inferable, declining, and unused elements can be coded by \emptyset_t

Evoked elements can be coded by \emptyset_t , as exemplified in (55), where ‘mouse’ is assumed to be evoked in H’s mind because H is looking at the trap to catch a mouse. In this case, *wa*-coding is also natural.

- (55) Context: Y and H are roommates, who are bothered by a mouse running around their room and eating their leftovers. They set a trap to catch the mouse. But the cat they keep caught the mouse while H was out. When H is back and looks at the inside of the trap, Y wants to let H know this news.

Y: **nezumi**- $\{\emptyset/wa\}$, **neko-ga** **tukamae-ta-yo**
 nezumi- $\{\emptyset/wa\}$ cat-*ga* catch-PAST-FP
 ‘The cat caught (the) mouse.’ (Evoked **topic** P)

This judgement might be too subtle for some readers. Here I am assuming that H is thinking about the mouse because s/he is checking the trap right now. Given this assumption, Y can felicitously use *wa* as well as zero-coding.

Inferable elements can also be coded by \emptyset_t , as shown in (56). *Hyoosi* ‘(book) cover’ is used instead of *nezumi* ‘mouse’, which is easily associated with a book and is assumed to be **inferable** from the book mentioned earlier. Again, *wa*-coding is also natural in this case.

- (56) Context: Y borrowed a book from H and wants to return it.

Y1: Thank you for the book. It was interesting.
 Y2: **hyoosi**- $\{\emptyset_t/wa\}$ **neko-ga** **yabui-tyat-ta** **gomen**
 cover- $\{\emptyset_t/wa\}$ cat-*ga* break-PFV-PAST sorry
 ‘The cat broke the cover. Sorry.’ (Inferable **topic** P)

Declining elements can be coded by \emptyset_t as shown in (57), where ‘mouse’ is assumed to be declining. The mouse belongs to the speaker and is mentioned first in (57–Y2). Then the speaker mentions the cat in (57–Y3-4), and again mentions the mouse in (57–Y5), which is assumed to be declining.

- (57) Y1: A cat was chasing our mouse.

Y2: The mouse ran really quickly.

Y3: But the cat was also running very fast.

Y4: The cat seemed to be hungry.

Y5: de kekkyoku uti-no nezumi- $\{\emptyset_t/wa/??da-kedo\}$ neko-ga tukamae-
 tyat-ta-yo
 and eventually our-GEN mouse- $\{\emptyset_t/wa/cop\text{-}though\}$ cat-*ga* catch-PFV-
 PAST-FP
 ‘Finally the cat caught our mouse.’ (Declining **topic** P)

In this example (57–Y5), the passive version is preferable to an active version like (57–Y5) because the mouse belongs to the speaker but the cat does not. I will discuss this issue further in association with subjecthood in §4.4. Moreover, *wa* is acceptable and *kedo* is not acceptable in (57–Y5) contrary to the generalization in Table 4.1. I suspect that this is because the referent ‘mouse’ is the center of the speaker’s interest; the mouse is still evoked, which causes *wa*, rather than *da-kedo* to be natural.

Unused elements can be coded by \emptyset_t , as exemplified in (58), where the referent ‘mouse’ is assumed to be unused because there is no clear evidence that H is thinking about the mouse at the time of **utterance**, though Y and H share the mouse that bothers them.

(58) Context: Y and H are roommates, who are bothered by a mouse running around their room and eating their leftovers. The cat they keep finally caught the mouse while H was out. When H is back, Y wants to let H know this news.

Y: nezumi- $\{\emptyset/??wa/da-kedo\}$, neko-ga tukamae-ta-yo
 nezumi- $\{\emptyset/wa/COP\text{-}though\}$ cat-*ga* catch-PAST-FP
 ‘The cat caught (the) mouse.’ (Unused **topic** P)

4.2.4.2 Difference between \emptyset_t and explicit forms

In addition to the stylistic difference, there are further differences between \emptyset_t and explicit forms such as *toiuno-wa*, *wa*, and *kedo*. First, the functional category of the **topic** element within a clause is less clear when the **topic** is coded by explicit markers, while the category needs to be clear if the **topic** is zero-coded. For example, in (59), where *thii-taimu* ‘tea time’ is originally coded by *kedo*, ‘tea time’ and the following clause are only vaguely connected and the status of the **topic** element in terms of grammatical function (such as subject or object) within the clauses is not clear. In this case, coding elements by \emptyset_t is difficult.

- (59) a. *de kono thii-taimu-{nan-desu-keredomo/(??Ø_t)}*
 and this tea-time-NMLZ-COP.PLT-though
 ‘And at this tea time,’
 b. *kono hyookoo-no takai tokoro-de-wa koozanbyoo-toiu*
 this elevation-GEN high place-LOC-wa altitude.sickness-QUOT
hizyooni kikennda kanoosee-ga aru-node
 very dangerous possibility-ga exist-because
 ‘this place of high elevation, there is a possibility of altitude sickness,
 so...’
 c. *ee mizu-ga hizyooni zyuuyooni nari-masu*
 FL water-ga very important become-PLT
 ‘water is very important.’ (S01F0151: 339.78-349.56)

Another difference between zero-coded elements and explicitly coded elements is whether backchannel responses such as *un* ‘yeah’ are possible right after the production of the **topic** element in question. For example, in (58), repeated here as (60), it is difficult to insert a backchannel response such as *un* ‘yeah’ after *nezumi-Ø_t*, but it is possible after *nezumi-da-kedo*.

- (60) Context: Y and H are roommates, who are bothered by a mouse running around their room and eating their leftovers. The cat they keep finally caught the mouse while H was out. When H is back, Y wants to let H know this news.
 Y: *nezumi-{Ø/da-kedo}, neko-ga tukamae-ta-yo*
nezumi-{Ø/COP-though} cat-ga catch-PAST-FP
 ‘The cat caught (the) mouse.’ (=58)

This suggests that the speaker assesses through *kedo* the **hearer**’s state of knowledge, i.e., whether the **hearer** can recall the referent of the *kedo*-coded element that is supposed to be shared between the speaker and the **hearer**, while this assessment effect is weaker in zero-coding.

4.2.5 Summary of topic markers

The findings of **topic** codings are summarized in Table 4.1, repeated here as Table 4.7 for convenience. The results indicate that topics are heterogeneous, but at the same time, can be accounted for in terms of the given-new taxonomy. Closer analyses also revealed that the given-new taxonomy is continuous and there are borderline cases.

Table 4.7: Topic marker vs. activation status and the given-new taxonomy

Activation status	Given-new taxonomy	Topic	Focus
Active	Evoked	<i>toiuno-wa</i> , <i>wa</i> , \emptyset	case markers, \emptyset
Semi-active	Inferable	<i>wa</i> , \emptyset	
Semi-active	Declining	<i>cop-kedo/ga</i> , \emptyset	
Inactive	Unused		
Inactive	Brand-new	–	

The characteristics of *toiuno-wa* discussed in §4.2.1 are a combination of the descriptions of Masuoka & Takubo (1992) and Takubo (1989). The statements that include *toiuno-wa*-coded elements describe the general characteristics of the referents. Although it is not always the case that the speaker assumes that the hearer does not know the referent in question, the speaker might assume that s/he knows more about it than the hearer. For example, in (61), *hawai* ‘Hawaii’ is coded by *toiuno-wa*, where I do not believe that the speaker assumes that the hearer(s) do(es) not know Hawaii because it is too famous. However, the speaker might assume that she knows more about Hawaii than the hearer(s).

- (61) *hawai-toiuno-wa* ma nihon-zin-ga totemo suki-de
 Hawaii-*toiuno-wa* FL Japan-person-ga very like-and
 ‘Hawaii, Japanese people love it.’ (S00F0014: 1145.00-1147.55)

In addition to the characteristics the previous literature has pointed out, this study found that the *toiuno-wa*-coded elements tend to be evoked at the time of utterance and tend to be mentioned repeatedly in the following discourse; *toiuno-wa* codes important topics.

The discussion in §4.2.2 showed that *wa* codes elements referring to entities which are evoked or inferable through related elements. This is not only compatible with, but also elaborates the observation that *wa* codes elements that have been “entered into the registry of the present discourse” (Kuno 1973b: 45). I provided the cognitive model which well captures the distribution of *wa*-coding and showed the range of *wa*-coding: what can be and cannot be coded by *wa*. This chapter also provided an unified account for *wa*-coding in general, i.e., *wa*-coding including generic and contrastive *wa*. Of course, further empirical investigations are necessary to test whether the observations proposed here are supported or not.

The discussion in §4.2.3 supports the previous observation of this topic ex-

pression; the expression is used to newly introduce topics in the beginning of a **discourse** or a paragraph (Koide 1984; Takahashi 1999). I re-examined this observation in terms of the given-new taxonomy.

The discussion in §4.2.4 distinguished **topic** vs. focus zero particles, following Niwa (2006) and Nakagawa & Sato (2012). This section investigated the **topic** zero particles and made it clear that they can code elements referring to all entities in the given-new taxonomy if the entities are shared between the speaker and the **hearer**.

4.3 Case markers

While **topic** markers code topics of different statuses in the given-new taxonomy as discussed in the previous section, I will argue in this section that elements coded by case markers *ga* and *o* are foci. For example in (62), the *ga*-coded element *doobutu-aigo-kyookai* ‘animal shelters’ and the *o*-coded elements *kihu* ‘donation’ and *koto* ‘thing’ can be repeated as news after *hee*.

- (62) A: (i) *amerika-de-wa anoo doobutu-aigo-kyookai-ga*
 America-LOC-*wa* FL animal-protection-association-*ga*
 ‘In America, animal shelters’
 (ii) *a ee kurisumasu-no mae-ni-wa sono doneesyon*
 FL FL Christmas-GEN before-DAT-*wa* FL donation
kihu-o si-te
 donation-*o* do-and
 ‘let (people) donate before Christmas and’
 (iii) *maa aa ip-piki mot-teku-toiu koto-o yat-te ori-masi-te*
 FL FL one-CL have-go-QUOT thing-*o* do-and PROG-PLT-and
 ‘take one, (they) were doing this kind of thing.’ (S02M1698:
 115.54-126.38)
 B: *hee, {doobutu-aigo-kyookai-ga/kihu-o/sonna koto-o}*
 Oh, {animal shelters/donation/such a thing}

It has been pointed out by many scholars that elements coded by case markers in Japanese are foci. Lambrecht (1994), for instance, argues that *ga* is appropriate for focal elements and not appropriate for topical elements. For example, compare (63) and (64). In (63), where the speaker’s neck is presupposed to be at issue at the time of **utterance** (63-A), only *wa*-coding is natural, although zero **pronoun** is more natural in this context.

- (63) Q: How's your neck?
 A: [kubi-{??ga/wa}]_T itai]_F
 neck-{ga/wa} hurt
 'My neck HURTS.'

Lambrecht (1994: p.137)

In (64), on the other hand, where the speaker's neck is not presupposed to be at issue at the time of **utterance** (64-A), *ga*-coding is more natural than *wa*-coding.

- (64) Q: What's the matter?
 A: [kubi-{ga/??wa} [itai]_F
 neck-{ga/wa} hurt
 'My NECK HURTS.'

(ibid.)

In the following sections, I will discuss focus coding mainly by means of case particles including zero (\emptyset). The distribution of particles is summarized in Table 4.8 (repeated from Table 4.2), where A indicates the **agent-like argument** of a **transitive clause**, S indicates the only argument of **intransitive clause**, and P indicates the patient-like argument of a **transitive clause** (Comrie 1978; Dixon 1979). Since zero-coding typically appears only in casual speech, the main source for the generalization in Table 4.8 comes from grammaticality judgements.

Note that Table 4.8 is also a kind of **semantic map**; a scale of **agentivity** on the one hand and that of **contrastiveness** on the other. Here I categorize **argument focus** together with **contrastive focus** to refer to "**contrastive focus**" because, as long as *ga/o* vs. zero-coding is concerned, argument and **contrastive focus** do not differ from each other; *ga/o* overtly codes argument and **contrastive focus** (of P and patient S), whereas zero-coding is preferred elsewhere.

I argue that the Semantic Map Connectivity Hypothesis (1) applies to this table: the category that each the marker codes should map onto a connected region in **conceptual space**. In the following sections, I will discuss each **case particle**.

Table 4.8: Overt vs. zero case markers

	A	S		P
		Agent	Patient	
Non-Contrastive Focus	<i>ga</i>	<i>ga</i>	<i>ga/∅</i>	\emptyset
Contrastive Focus or Formal Speech	<i>ga</i>	<i>ga</i>	<i>ga</i>	<i>o</i>

As has been mentioned earlier, there are few zero particles in the corpus be-

cause of the style of this corpus, and the majority of discussions in this section also rely on grammaticality judgements rather than corpus studies or other experimental methods.⁸

4.3.1 *Ga*

This section considers the marker *ga*. I distinguish *ga* coding A and S, and *ga* in the argument- and sentence-focus environment.

4.3.1.1 *Ga* coding focus A

Focus A requires *ga* regardless of whether the element in question is contrastive or not. As exemplified in (65), only *ga*-coding is natural and *o*- and zero-codings are not natural to code **non-contrastive focus** A.

- (65) a **neko**-{*ga*/**o*/?/?Ø} nezumi oikake-teru
 oh cat-{*ga*/*o*/Ø} mouse chase-PROG
 ‘Look! A cat is chasing a mouse.’ (Non-**contrastive focus** A)

Unnaturalness of zero-coding in (65) is not necessarily because A is not adjacent to the predicate. As shown in (66), where the A is adjacent to the predicate, zero-coding is still not natural and only *ga*-coding is natural.

- (66) Q: Do you know where my mouse is?
 A: **neko**-{*ga*/**o*/?/?Ø} oikake-te-ta-yo
 cat-{*ga*/*o*/Ø} chase-PROG-PAST-FP
 ‘The cat was chasing it.’ (Non-**contrastive focus** A)

Contrastive focus (or **argument focus**) A is only naturally coded by *ga* and other markers are not natural. This is exemplified in (67), where only *neko* ‘cat’ rather than the whole clause is the domain of focus.

- (67) Q: What is chasing a mouse?
 A: **neko**-{*ga*/**o*/?/?Ø} nezumi oikake-teru-yo
 cat-{*ga*/*o*/Ø} mouse chase-PROG-FP
 ‘A cat is chasing a mouse.’ (Contrastive focus A)

⁸This section is based on part of the discussion in Nakagawa (2013).

4.3.1.2 Ga coding focus S

Agent S is obligatorily coded by *ga*, while patient S can be coded by either *ga* or \emptyset_f , when S is **non-contrastive focus**, which has already been pointed out in Kageyama (1993: 56-57). As shown by the contrast between (68) and (69), agent S is naturally coded by *ga*, but not *o* or \emptyset_f as in (68), while patient S can be naturally coded by either *ga* or \emptyset_f , but not *o* as in (69).

- (68) a. a **neko**-{*ga*/**o*/? \emptyset } arui-teru
 oh cat-{*ga*/*o*/ \emptyset } walk-PROG
 ‘Look! A cat is walking!’
 b. a **kodomo**-{*ga*/**o*/? \emptyset } ason-deru
 oh child-{*ga*/*o*/ \emptyset } play-PROG
 ‘Look! A child is playing.’ (Non-**contrastive focus** S (agent))
- (69) a. a **saihu**-{*ga*/**o*/ \emptyset } oti-teru
 oh purse-{*ga*/*o*/ \emptyset }
 ‘Look! A purse is on the road! (Lit: A purse has fallen (and it’s there).)’
 b. a **kanban**-{*ga*/**o*/ \emptyset } taore-teru
 oh sign-{*ga*/*o*/ \emptyset } fall-PROG
 ‘Look! A sign has fallen (and it is lying).’ (Non-**contrastive focus** S (patient))

Contrastive S is always coded by *ga* regardless of whether S is agent or patient.

- (70) Q: What is walking over there?
 A: **neko**-{*ga*/**o*/? \emptyset } arui-teru yo
 cat-{*ga*/*o*/ \emptyset } walk-PROG FP
 ‘A cat is walking.’ (Contrastive focus S (agent))
- (71) Q: What has fallen?
 A: **saihu**-{*ga*/**o*/? \emptyset } oti-ta-yo
 wallet-{*ga*/*o*/ \emptyset } fall-PAST-FP
 ‘The wallet has fallen.’ (Contrastive focus S (patient))

Note that it is more natural to code **non-contrastive focus animate** patient S by *ga* rather than \emptyset_f , as exemplified in (72).

- (72) a. a **kodomo**-{*ga*/**o*/? \emptyset } taore-teru
 oh child-{*ga*/*o*/ \emptyset } fall-PROG
 ‘Look! A child has fallen (and he is lying).’

- b. a anna tokoro-ni {kodomo/neko}-{ga/*o/?Ø} iru
 oh such place-DAT {child/cat}-{ga/o/Ø} exist
 ‘Look! A child/cat is in that kind of (dangerous) place.’ (Non-contrastive focus S (patient & animate))

4.3.1.3 Ga coding animate elements?

Some might think that the choice between *ga* vs. \emptyset_f is sensitive to animacy rather than agentivity. As has been discussed in Chapter 1, I rather take the view that a single marker can code complex features; the marker *ga* codes focus, agent, and animate elements and one cannot determine a single feature that *ga* codes. Comrie (1979) calls this *seepage*. In Hindi, for example, the postposition *ko* codes definite or animate (especially human) direct object, while other kinds of direct objects tend to be zero-coded. There is no simple correlation of *ko* with either animate or definite direct object. In the following example (73), where DO stands for ‘direct object marker’, sometimes *ko* codes animate elements, as in (73-a) but sometimes not, as in (73-c), and it sometimes codes definite elements, as in (73-c) but sometimes not, as in (73-a,d). Therefore, it is difficult to decide on a single feature that *ko* codes. Rather, as Comrie (1979) argues, *ko* codes complex features of animacy, definiteness, and direct object.

- (73) a. aurat bacce ko bulā rahi hai
 woman child DO calling PROG is
 ‘The woman is calling the/a child.’ (animate DO)
- b. darzī Ø bulāo
 tailor Ø call
 ‘Call a tailor.’ (animate indefinite DO)
- c. un patrom ko parhie
 those letters DO read (POL)
 ‘Please read those letters.’ (definite DO)
- d. ye patr Ø parhie
 these letters Ø read (POL)
 ‘Please read these letters’ (inanimate definite DO)
- (McGregor 1972: p. 48)

In the same sense that *ko* codes complex features, I argue that *ga* codes complex features of agent, animacy, and focus. First, *ga*, but not \emptyset_f , codes inanimate A. For example, in (74), *makku* ‘Mac(intosh)’ in (74-a) and *baketu* ‘bucket’ in (74-b) are inanimate As and can only be coded by *ga*; \emptyset_f is unnatural in this context.

Therefore, in addition to animacy, *ga* is also sensitive to agentivity.

- (74) a. a **makku-{ga/?Ø}** koe dasi-ta
oh Mac-{*ga*/Ø} koe produce-PAST
'Wow, a Mac produced voice!'
- b. a **baketu-{ga/?Ø}** doa osae-teru
oh bucket-{*ga*/Ø} door hold-PROG
'Oh a bucket holds the door (and this is why the door won't close).'
(Inanimate A)

4.3.1.4 *Ga* coding non-nominative focus

Ga also codes non-nominative focus. For example, *poteto-tippusu-to* 'with potato chips' in (75-a) and *ima-made* 'before now' are non-nominative, as is shown in the translation; however, they are coded by *ga*.

- (75) a. koora-wa **poteto-tippusu-to-ga** au-n-da-yo
cola-wa **potato-chip-with-ga** match-NMLZ-COP-FP
'Cola (especially) goes well with POTATO CHIPS.'⁹
- b. tanni **ima-made-ga** samuku-nakat-ta-dake-mitai
simply now-from-ga cold-NEG-PAST-just-apparently
'It simply looks like BEFORE NOW was not cold (and now it's cold).'
(Focus non-nominative)

Similarly, *guratan-ni* 'for gratin' in (76-B) is not an argument of the predicate but is still coded by *ga*.

- (76) A: I thought that you didn't like penne.
B: penne-wa **guratan-ni-ga** ii-n-da-yo
penne-wa gratin-for-ga good-NMLZ-COP-FP
'Penne is good for GRATIN.' (Contrastive focus non-nominative)

The following examples are from a comic book and the Internet. One can find many examples of *ga*-coding non-nominative on the Internet. Note, however, that especially (77-b) is not acceptable to some people.

- (77) a. koko-kara-ga hontoo-no zigoku-da
here-ABL-ga true-GEN hell-COP

⁹This nice example was suggested by Yuji Togo.

- ‘From here the true hell starts.’ (Vegeta in *Dragon Ball*¹⁰)
- b. kotira-wa nihonsyu-to-ga au-desyoo
this-wa sake-COM-ga match-will
‘This one goes well with sake.’ (A review from *Tabelog*¹¹)
- c. ie-ni kaeru-made-ga ensoku-desu
home-DAT return-LIM-ga excursion-COP.PLT
‘Until (you) arrive at home is the excursion. (Just before you arrive at home, you are traveling.)’ (Common warning by school teachers)¹²

There are examples of *ga* coding **non-nominative focus** in actual spoken data. The following examples are from *the Chiba three-party conversation corpus* (Den & Enomoto 2007), which includes more casual conversations than CSJ. In (78), *sono hoo* ‘that way’ is marked by *ga* even though *okane* ‘money’ is the only argument of the **intransitive** predicate *kakaru* ‘to take (time) or to cost’. The speaker compares buying a computer with other options, and claims that buying a computer costs more. Buying a computer is interpreted as focus and is coded by *ga*, while money is S.

- (78) sono hoo-ga okane-Ø kakaru-zyan
that way-ga money-Ø required.INTR-FP
‘More money costs in THAT way (i.e., if you buy a computer).’ (chiba0232: 400.32-401.43)

In (79), after listening to an angry story of another participant, the speaker claims that it is the speaker himself (and the other participant) that were angry in this story. *hara* ‘belly’ is the only argument of the **intransitive** predicate *tatu* ‘stand’. *hara tatu* ‘belly stands’ is an idiomatic expression meaning ‘to be angry’. In this example, however, *ore-tati* ‘we’ is coded by *ga* because it is focused.

- (79) are-wa musiro ore-tati-ga hara-Ø tat-ta-yo-ne
that-wa rather 1SG-PL-ga belly-Ø stand.INTR-PAST-FP-FP
‘In that event, WE got angry (rather than you).’ (chiba0432: 111.64-113.37)

¹⁰Toriyama, Akira (1990) *Dragon Ball* 23, p. 149. Tokyo: Shueisha.

¹¹<http://tabelog.com/ehime/A3801/A380101/38006535/dtlrvwlst/2992604/>, last accessed on 03/23/2015

¹²I found 32,700 websites using this expression with Google exact search (searched on 06/17/2015).

These examples are the cases where *ga* purely codes focus: *ga* codes neither agent nor animate elements.

To summarize, *ga* sometimes codes animate patient S like (72), sometimes codes non-animate agent like (74), sometimes codes non-nominative inanimate focus elements, as in (75) to (79), and, probably more frequently, it codes elements with complex features of agentivity, animacy, and focus. Like *ko* in Hindi, *ga* codes multiple features and it is difficult and not necessary to determine a single feature that *ga* codes.

4.3.2 O

4.3.2.1 O coding focus P

Non-contrastive focus P is usually zero-coded, while contrastive focus P is only naturally coded by *o*. This is shown by the contrast between (80) and (81). In (80), where the question elicits a broad focus structure, zero-coding is the most natural option, while *ga*- and *o*-codings are less natural.

- (80) Q: What do you do?
 A: **tetugaku**-{**ga*?*o*/Ø} benkyoo si-te-n-da-yo
 philosophy-{*ga*/*o*/Ø} study do-PROG-NMLZ-DECL-FP
 ‘I study philosophy.’

In (81), on the other hand, where the question elicits a narrow focus structure, overt *o*-coding is more natural than *ga*- and zero-codings.

- (81) Q: What do you study?
 A: **tetugaku**-{**ga*/*o*/??Ø} benkyoo si-teru-n-da-yo
 philosophy-{*ga*/*o*/Ø} study do-PROG-NMLZ-DECL-FP
 ‘I study philosophy.’

Some native speakers of Japanese might find *o*-coding in (80) not unnatural, contrary to my claim. I argue that *o*-marking of non-contrastive focus in casual conversation is limited to theatric speech. According to Nakagawa (2013), who studied a casual spoken corpus of *manzai* (a popular stand-up comedy performed by two people), 75% (222 examples) of 297 P-codings are zero-coding, while only 25% (75 examples) are *o*-coding. Although this corpus survey does not distinguish contrastive vs. non-contrastive foci, it is clear from this survey that the vast majority of P-coding in casual spoken Japanese is Ø.

4.3.3 \emptyset_f

As discussed in the previous sections on *ga* and *o*, **non-contrastive focus** P and patient S are coded by \emptyset_f . As shown in (65), **non-contrastive focus** A can only naturally be coded by *ga*, and zero-coding is not natural. As discussed in relation to examples (68) and (69), non-contrastive agent S can only naturally be coded by *ga*, but not \emptyset , while non-contrastive patient S can be coded by either *ga* or \emptyset . As shown in (80), non-contrastive P can only naturally be coded by \emptyset .

4.3.4 Summary of case markers

The distribution of case markers including the zero particles is summarized in Table 4.8. This study revealed the distributions of case particles and the zero particles in term of **information structure**. The previous literature was not clear about the relationships between the twofold characteristics of *ga*: **nominative** and exhaustive listing vs. neutral description. Following Comrie (1979), the study proposed that a single particle has multiple features at the same time. The particles *ga* and *o* are used in the focus environment; at the same time, they indicate the functional relation of the element coded by these particles. In particular, *ga* even codes **non-nominative focus** elements, which indicates that the particle is on the way to grammaticalize into a focus particle. In §4.5.2, I will discuss why the particle *ga*, among other particles, is starting to code focus.

4.4 So-called subjects

In this section, I will briefly discuss the relationships between grammatical function and **information structure**. This is associated with the issue that has long been discussed in the literature: the connection between **topic** and subject (Li 1976; Du Bois et al. 2003). Since it is impossible to provide an overview of all the things that have been discussed for a long time, I briefly discuss a few points.

4.4.1 Subject and topic

Whereas Aoki (1992: 2) reported that 84.7% of *wa* attaching nouns code so-called subjects (A and S in my terms, **nominative case** in her terms) in novels and essays, only 40.3% of *wa* in our data codes As and Ss, as shown in Table 4.9 and Figure 4.3. This table and figure include all kinds of elements excluded in other analyses.¹³ Figure 4.4, which represents the overall frequencies of elements, is

¹³Refer to §3.4.3.2 to see what is excluded.

Table 4.9: Topic markers vs. grammatical function

	<i>toiuno-wa</i>	<i>wa</i>	<i>mo</i>
Ex	18 (20.7%)	33 (5.9%)	7 (2.4%)
A	2 (2.3%)	30 (5.4%)	8 (2.7%)
S	47 (54.0%)	194 (35.0%)	120 (40.8%)
P	5 (5.7%)	28 (5.0%)	23 (7.8%)
Dative	2 (2.3%)	65 (11.7%)	29 (9.9%)
Others	13 (14.9%)	205 (36.9%)	107 (36.4%)
Sum	87	555	294

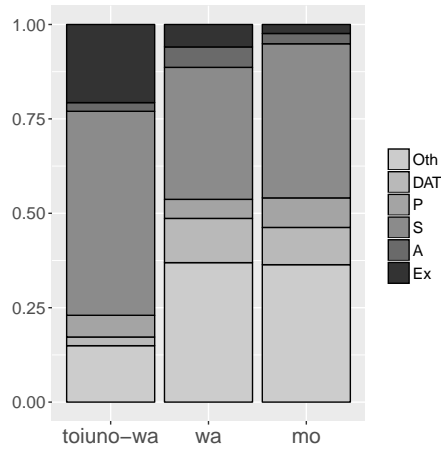


Figure 4.3: Topic markers vs. grammatical function

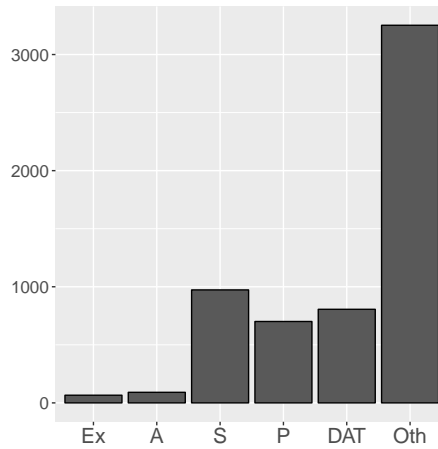


Figure 4.4: Overall distributions of elements

shown for comparison. This graph also includes all kinds of elements excluded in other graphs. On the other hand, Table 4.9 and Figure 4.3 show that 59.0% of *toiuno-wa* codes so-called subjects. This demonstrates that *toiuno-wa* in spoken Japanese is in fact closer to *wa* in written Japanese in terms of the preference of coding grammatical functions. Although a majority of the literature focuses on *wa* coding subjects, the results suggest that *wa* codes other kinds of elements in spoken Japanese.

So-called subjects have tspecial status in the **discourse**; they are interpreted as definite in the **discourse** even though the NP is coded by *ga* instead of *wa*. For example, consider the difference between (82) and (83).

- (82) Q: Why were you absent yesterday?
 A: **kuruma-ga** inu-o hii-ta-n-desu
 car-*ga* dog-o run.over-PAST-NMLZ-PLT
 ‘(My) car ran over (a) dog.’
 A’ **kuruma-ga** inu-ni butukat-ta-n-desu
 car-*ga* dog-DAT hit-PAST-NMLZ-PLT
 ‘(My) car hit (a) dog.’
- (83) Q: Why were you absent yesterday?
 A: **inu-ga** kuruma-ni hik-are-ta-n-desu
 dog-*ga* car-DAT run.over-PASS-PAST-NMLZ-PLT

- ‘(My) dog was run over by (a) car.’
 A’ **inu-ga** kuruma-ni butukat-ta-n-desu
 dog-ga car-DAT hit-PAST-NMLZ-PLT
 ‘(My) dog hit (a) car.’

These utterances represent the same propositional meaning that can be paraphrased as ‘(a/the) car ran over (a/the) dog.’ Note that since Japanese does not have obvious ways to code **definiteness**, both ‘car’ and ‘dog’ can be potentially interpreted as either definite or **indefinite**, and hence ‘car’ and ‘dog’ are expressed in the same way in (82) and (83) except for case markers. Under these conditions, the subjects ‘car’ in (82) and ‘dog’ in (83) are interpreted as definite, while the non-subjects ‘car’ in (83) and ‘dog’ in (82) are **indefinite**, according to the author’s intuition. NPs coded by *wa* are also likely to be interpreted as definite since the referent of those NPs are assumed to be evoked. This observation suggests that subjects without topic-marking still function like **topic** markers. This is worth investigating in the future since my argument is no more than an impressionistic analysis.

4.4.2 Hierarchy of topic-coding

There seems to be a hierarchy of topic-coding; given As and Ss are more likely to be coded by **topic** markers than given Ps. For example, consider the following example. In (84), *sohu* ‘grandfather’ is introduced in line a, and *pan* ‘bread’ is introduced in line b. In line c, which is of interest in the discussion, *oziityan* ‘grandfather’ is coded by *wa*, but *sore* ‘that’, which refers to the bread in line b, is coded by the **case particle** *o*.

- (84) a. uti-no **sohu**-tteiuno-ga okasi-ga sukina mono-de
 out-GEN grandfather-*toiuno-ga* sweet-ga favorite thing-cop
 ‘Our grandfather likes sweets.’
 b. yoku pan-ya-san-de kasi-pan-o kat-te
 often bread-store-HON-LOC sweet-bread-o buy-and
 kuru-n-desu-ga
 come-NMLZ-COP.PLT-though
 ‘(He) often buys sweet bread and comes home,’
 c. e n sore-o i maa yoowa **oziityan-wa** issyookenmee
 FL FRG that-o FRG FL in.a.word grandfather-wa trying.best
 taberu-n-desu-keredomo
 eat-NMLZ-COP.PLT-though

- ‘that, he tries his best to eat it, but’
 d. he cannot eat all and
 e. gives leftovers to the dog... (S02M0198: 244.48-262.82)

It is unnatural for *wa* to code *sore* referring to the bread instead of *oziityan* ‘grandfather’, as shown in (85-c’). If A (e.g., *obaatyan* ‘grandmother’) is newly introduced, as in (85-c’), there is no problem for *wa* coding *sore*; *obaatyan* ‘grandmother’ is naturally coded by *ga* instead of *wa*.

- (85) c’. e n sore-{o/wa} i maa yoowa ??oziityan-ga
 FL FRG that-{o/wa} FRG FL in.a.word grandfather-ga
 issyookenmee taberu-n-desu-keredomo
 trying.best eat-NMLZ-COP.PLT-though
 ‘that, my grandfather tries his best to eat it, but...’
 c’’. e n sore-{o/wa} i maa yoowa obaatyan-{ga/??wa}
 FL FRG that-{o/wa} FRG FL in.a.word grandmother-ga/wa
 issyookenmee taberu-n-desu-keredomo
 trying.best eat-NMLZ-COP.PLT-though
 ‘that, my grandmother tries her best to eat it, but...’ (modified from (85-c))

In fact, the majority of **anaphoric** Ps are still coded by *o*, instead of **topic** markers, whereas a higher ratio of **anaphoric** As and Ss are coded by **topic** markers. Tables 4.10 and 4.11 and Figures 4.5 and 4.6 show the distribution of **topic** and case markers coding A, S, and P. Table 4.10 and Figure 4.5 represent the distribution of **topic** and case markers coding **anaphoric** A, S, and P. As the table and the graph show, while 44.1% of **anaphoric** As and 38.8% of **anaphoric** Ss are coded by **topic** markers, only 8.4% of **anaphoric** Ps are coded by **topic** markers. On the other hand, the majority of non-**anaphoric** elements are coded by case markers, although non-**anaphoric** Ss (most of which are in fact **inferable**) are remarkably more often coded by *wa* than others.

I propose the hierarchy (86) for topic-coding. The given elements higher in this hierarchy are more likely to be coded by **topic** markers.

- (86) A, S > P

The hierarchy indicates that so-called subjects are more likely to be coded by **topic** markers. This hierarchy is a **topic** hierarchy: the hierarchy of elements which are more likely to be topics (Givón 1976; Keenan 1976; Comrie 1979; 1983; Du Bois 1987). This hierarchy is present in many languages in various ways. For

example, A and S are more likely to agree with the **verb** than P cross-linguistically. Also, A and S are more likely to be zero-coded than P. Japanese *wa*-coding seems to follow this hierarchy; if there are two given elements potentially coded by *wa*, A and S are preferred over P following the hierarchy in (86).

Table 4.10: Markers for anaphoric

	Ex	A	S	P
Topic marker	20 (100%)	15 (44.1%)	97 (38.8%)	15 (8.4%)
Case marker	0 (0%)	19 (55.9%)	153 (61.2%)	163 (91.6%)
Sum	20	34	250	178

Table 4.11: Markers for non-anaphoric

Ex	A	S	P
12 (100%)	1 (8.3%)	74 (21.6%)	13 (6.8%)
0 (0%)	11 (91.7%)	269 (78.4%)	177 (93.2%)
12	12	343	190

4.4.3 Ex or detached NPs

Finally, I discuss associations between “Ex” and **topic** markers. In §3.4.3.3, Ex was defined as elements “which appear to be part of the clause but do not have direct relationships with the predicate” (p. 89). A typical example is shown in (87). In (87), the predicate *nagai* ‘long’ is directly related to *hana* ‘nose’. *Zoo* ‘elephant’ is not directly related to the predicate; it is not the elephant itself that is long.

- (87) **zoo-wa** *hana-ga nagai*
 elephant-*wa* nose-*ga* long
 ‘The elephant, the nose is long (The elephant has a long nose).’ (Mikami 1960)

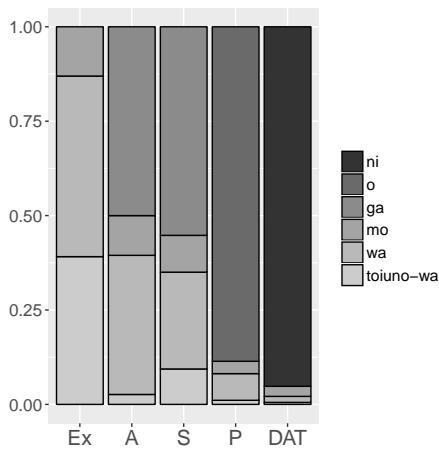


Figure 4.5: Markers for anaphoric

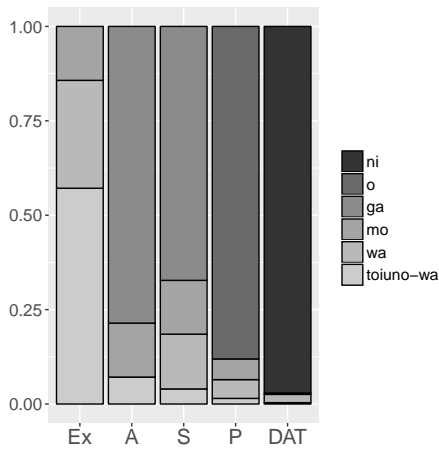


Figure 4.6: Markers for non-anaphoric

Tables 4.10 and 4.11 and Figures 4.5 and 4.6 show that Ex is only coded by **topic** markers. Tables 4.9 and Figures 4.3 show that 21.7% of *toiuno-wa*-coded elements and 5.9% of *wa*-coded elements are categorized into Ex.

Lambrecht (1994) discusses cross-linguistic cases of Ex (in his term, “detached” **topic**) and argues that “in some languages at least, the **detached topic** NP cannot be a constituent [...] of the clause with which it is pragmatically associated” (p. 192). In (88), examples in **English**, the detached topics are not constituents of the clause; rather, they have a part-whole relation with some element(s) within a clause. In (88-a), the **detached topic** *the typical family today* is not a constituent of the clause; instead, it is associated with *the husband and the wife* pragmatically. In the same way, the detached topics *tulips* in (88-b) and *other languages* in (88-c) are pragmatically associated with constituents of the clauses *bulbs* and *tones*, respectively.

- (88) a. (From a TV interview about the availability of child care)
That isn’t the typical family anymore. **The typical family today**, *the husband and the wife* both work.
- b. (Talking about how to grow flowers)
Tulips, you have to plant new *bulbs* every year?
- c. (Lecture in an introductory linguistics course)
Other languages, you don’t just have straight *tones* like that.
- (Lambrecht 1994: 193)

These detached topics are strikingly similar to “Ex” in Japanese.

Lambrecht also discusses cases in which topics are not counted as constituents of the clause even though they appear to be constituents. **German**, for example, has the principle that only allows the **verb** in the second position within a clause, as exemplified in (89-a-d). However, the **detached topic** constituents that appear at the beginning are not counted as the first constituent of the clause. As exemplified in (89-e), the **verb** *isst* ‘ate’ appears in the second position assuming that the preceding *den* ‘it’ is in the first position, which indicates that the **detached topic** *den Apfel* is not counted as the first constituent in the clause. In fact, as in (89-f), it is unacceptable if the **detached topic** *den Apfel* is counted as the first constituent.¹⁴

- (89) a. Hans isst den Apfel.
Hans eat the.ACC apple

¹⁴ *Apfel* ‘apple’ in e, f of (89) is considered to be “detached” because the resumptive **pronoun** *den* ‘it.ACC’ is regarded as argument of the clause and *Apfel* itself does not function as argument.

- ‘Hans eats the apple.’ (SVO)
- b. Den Apfel isst Hans. (OVS)
- c. *Den Apfel Hans isst. (*OSV)
- d. Den isst Hans.
it.ACC eat Hans
‘Hans eats it.’ (OVS)
- e. Den Apfel den isst Hans.
the.ACC apple it.ACC eat Hans
‘The apple, Hans eats it.’ (TOVS)
- f. *Den Apfel isst Hans den. (*TVSO)
- (op.cit.: 194)

Both the topicalized NP *den Apfel* and the resumptive pronoun *den* in (89-e) appear as accusative. According to Lambrecht, however, it is optional for the topicalized NP, while it is obligatory for the resumptive pronoun. This is also reminiscent of topic-marking in Japanese. In Japanese, nominative and accusative codings are overridden by topic-marking and the case for A, S, and P coded by topic markers are not overtly expressed as has been discussed in §2.4.2.4.

The fact that topics tend to be “detached” from the predicate and lose case marking cross-linguistically suggests the possibility that there are some universal motivations behind this phenomenon. I argue that at least one of the motivations is clause-chaining. In clause-chaining, the speaker combines multiple clauses to form a thematic unit (Longacre 1985; Martin 1992; Givón 2001). (90) is an example of clause-chaining.

- (90) She came in, [Ø] stopped, [Ø] looked around and froze.
(Givón 2001: 349)

By combining clauses in this way, thematic continuity is achieved. In clause-chaining, the detached topic, which typically appears utterance-initially, as will be discussed in Chapter 5, is not necessarily an argument of the clauses; instead, it is pragmatically related to the following clauses. For example, in (91), where the speaker talks about a life in Iran, *mukoo-no hito* ‘people there (in Iran)’ in (91-a) is detached and annotated as “Ex” because its predicate *hukaku* ‘deep’, which has a part-whole relations with the people, has the so-called subject *hori* ‘(face) form’. In (91-b-c), the speaker continues to talk about her by clause-chaining. *Kodomo* ‘child’ in (91-c) also has a part-whole relation with the Iran people.

- (91) a. eto n mukoo-no hito-toiuno-wa hontooni hori-ga hukaku-te
 FL FL there-GEN person-toiuno-wa really form-ga deep-and
 ‘People there (in Iran), (their) face forms are really chiseled,’
 b. kiree-de
 beautiful-and
 ‘beautiful,’
 c. kodomo-nanka-wa anoo sugoku kawaii kao-o si-tei-mashi-ta
 child-HDG-wa FL very cute face-o do-PROG-PLT-PAST
 ‘children had very cute faces.’ (S03F0072: 375.01-386.35)

Clause-chaining is a useful way to talk about something; the speaker puts the **topic** at the beginning and continues to describe the **topic** as much as s/he can. In the descriptions in clause-chaining, the **topic** is not necessarily an argument; it is pragmatically associated with each clause. The **hearer** does not get lost. The **hearer** can trace the **topic** when the speaker provides enough evidence through linguistic expressions (such as particles, **word order**, and intonation) and other means (such as gesture, background knowledge, sequence of conversation, etc.).

Mikami (1960: Chapter 2) points out that *wa*-coded NPs can “go beyond periods” (p. 117) and “commas” (p. 130). This is closely related to what I argue here. He states: “in general, ‘X-*wa*’, skipping **adverbial** clauses in the middle, governs the final **main clause**. However, it [sometimes] governs the verbs in the middle a little bit; this is what I call [*wa*’s] going beyond commas” (p. 130). Of course, there are no commas and periods in spoken language, *wa* and *toiuno-wa* go beyond “commas” and “periods” by governing the whole clause-chaining.

4.5 Discussion

4.5.1 Distribution of markers and semantic space

As discussed in §4.1, the particles code elements with features that can be mapped onto a **conceptual space**. As reflected in Table 4.1 and discussion in §4.2, **topic** markers map onto a **conceptual space** of the given-new taxonomy, while, as in Table 4.2 and discussion in §4.3, case markers map onto a **conceptual space** of **agentivity**, **focushood**, **contrastiveness**, and possibly **animacy**.

The **semantic map** of **topic** markers in Japanese indicates that **inferable** and evoked statuses form a connected region and are expressed by the same marker *wa*, while declining and unused statuses form a connected region and are expressed by the same marker (a **copula** followed by *kedo* or *ga*); hence, the **inferable** status is closer to the evoked status, and the declining status is closer to

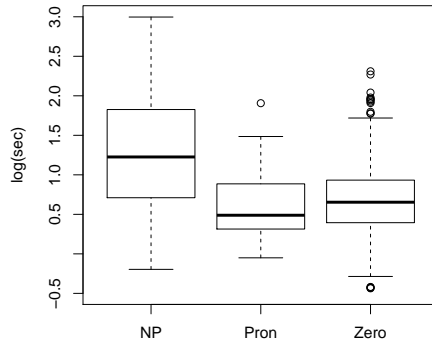


Figure 4.7: Anaphoric distance vs. expression type (all)

unused in the **conceptual space**. This makes sense because **inferable** elements are more relevant to the current **topic** than declining elements. For example, in (92), the **inferable** element *gen'in* 'cause' is coded by *wa*. The element 'cause' is **inferable** because the disease has been already introduced and the cause of the disease can be considered to be part of the knowledge of getting a disease.

- (92) a. (The speaker got a rare disease.)
 b. First I visited several local hospitals.
 c. I was examined several times, but
 d. **gen'in-wa** humee-de
 cause-*wa* unclear-COP
 'the cause (of the disease) was unclear.' (S02F0010: 74.93-82.60)

In (92), the cause of the disease is relevant to the current **topic**, i.e., the speaker's disease. Later in this speech, the speaker talks about her parents and friends; in this case the cause of the disease is considered to be declining and is less relevant to the current **topic** (her parents and friends). Declining elements like the cause of the disease become unused as the time passes. If the speaker brings up the cause of the disease two days later, she will code it as unused. Thus, I argue that the adjacency of **inferable** and evoked statuses and that of declining and unused statuses are cognitively motivated and I argue that this is universal.

Moreover, I propose that there are at least two kinds of evoked status: evoked

and what I call strongly evoked. Evoked elements are full NPs, and strongly evoked elements are zero and overt pronouns. Figure 4.7 shows the time difference (**anaphoric distance**) on a logarithmic scale between when the **first mora** of the element in question is produced and when that of its **antecedent** is produced. Zero pronouns are assumed to be produced at the time when the **first mora** of the predicate is produced. The **anaphoric distance** approximates **activation cost**; smaller distance indicates lower **activation cost**, while larger distance indicates higher **activation cost**. Figure 4.7 represents the **anaphoric distance** of three kinds of elements: full NPs, pronouns, and zero pronouns. As is clear from the figure, the **anaphoric distance** of zero and overt pronouns is smaller than that of NPs, which indicates that zero and overt pronouns are more evoked than full NPs (fixed effects model, $p < 0.001$). Therefore, I propose the status called “strongly evoked”. I add this status in Table 4.12. Since overt pronouns coded by the **topic** markers are as strongly evoked as zero pronouns, I suppose that the **topic** markers *wa* and *toiuno-wa* can also code strongly evoked elements.

Markers for focus coding map onto **agentivity**, focushood, **contrastiveness**, and possibly **animacy** as has been discussed in §4.3. Table 4.8 in §4.3 indicates that A and agent S are adjacent to each other, and patient S and P are adjacent. This makes sense because A is conceptually closer to agent S, and P is conceptually closer to patient P.

Table 4.12: Topic marker vs. activation status and the given-new taxonomy

Activation status	Given-new taxonomy	Topic	Focus
Strongly active	Evoked	Zero pronoun	–
		Overt pronoun <i>toiuno-wa, wa, Ø</i>	case markers, Ø
Active	Evoked	<i>toiuno-wa, wa, Ø</i>	
Semi-active	Inferable	<i>wa, Ø</i>	
Semi-active	Declining	<i>cOP-kedo/ga, Ø</i>	
Inactive	Unused		
Inactive	Brand-new	–	

4.5.2 Distribution of markers and markedness

As discussed in §4.3 and summarized in Table 4.8, the distinction between overt vs. zero particles for focus coding is sensitive to grammatical functions, **contrastiveness**, and **animacy**. The distribution of overt vs. zero particles for **non-con-**

contrastive focus coding in Table 4.8 is similar to that of split **intransitive** languages, if one ignores *ga*-coding for patient S. In general, split **intransitive** languages code S differently depending on whether it is an agent or a patient; agent S is coded in the same way as A in the **transitive clause**, while patient S is coded in the same way as P. (93) shows examples from **Georgian**.¹⁵

(93) **Georgian**, South Caucasian

- a. vano-m gamozarda ʒma-Ø
 Vano-A 3.3.grow brother-P
 ‘Vano raised his brother.’ (A & P)
- b. vano-m imyera
 Vano-A 3.sing
 ‘Vano sang.’ (Agent S)
- c. rezo-Ø gamoizarda
 Rezo-P 3.grow
 ‘Rezo grew up.’ (Patient S)

Spoken Japanese and **Georgian** in (93) follow the typological tendency that agent S and A tend to be overtly coded, while patient S and P tend to be zero-coded. On the other hand, Spoken Japanese does not follow the tendency of **nominative/accusative** languages: the tendency that A and S (**nominative** elements) are more likely to be zero-coded than P (**accusative** elements). I argue that, in coding focus elements, patient elements are “unmarked”, i.e., more frequent than agent elements, and are more likely to be zero-coded than agent elements. This is supported by studies such as Du Bois (1987) and Du Bois et al. (2003). On the other hand, in coding **topic** elements, agent elements are more frequent than patient elements, and are more likely to be zero-coded than patient elements. This is observed in another dialect of Japanese: **Kansai Japanese**. In **Kansai Japanese**, **contrastive topic** agents (A and agent S) can be zero-coded, while **contrastive topic** patients (P and patient S) are overtly coded, which is summarized in Table 4.13. See Nakagawa (2013) for more detailed discussion on the relation between markedness and the distribution of zero vs. overt particles in Standard and **Kansai Japanese**.

As has been discussed in §4.3.1.4, *ga* sometimes codes **non-nominative focus** NPs. The theory of markedness also gives a hint to explain why *ga* is on the way to grammaticalize into a focus particle; focus A is the most rare in natural occurring **discourse** and it is likely for Japanese native speakers to associate the

¹⁵Examples are from the handouts in the lecture called Typology and Universals given by Matthew Dryer at the University at Buffalo in 2010. Glosses are modified.

Table 4.13: Contrastive-topic coding in Kansai Japanese

	A	S		P
		agent	patient	
Contrastive Topic	Ø/ <i>wa</i>	Ø/ <i>wa</i>	<i>wa</i>	<i>wa</i>

marker *ga* with focushood. On the other hand, P is very frequently focused, in which case, it is less likely to associate the marker *o* with focushood.

4.6 Summary

4.6.1 Summary of this chapter

This chapter discussed the distributions of so-called **topic** marker and case markers in Japanese. I argued that different markers are sensitive to different features, and at the same time, multiple features contribute to the usage of a single marker.

4.6.2 Remaining issues

While there are many remaining issues, one of the biggest issues is that it is necessary to test the proposals in this chapter through other empirical methods. If the proposals are supported also by other methods, they become more sound. In particular, the distribution of the zero particles is mainly based on a few native speakers' acceptability judgements. This should be tested with a larger number of native speakers. One possible experiment is to ask subjects to listen to short conversation where the particles in question are blurred and to produce what they hear. This is easier than subtle acceptability judgements and linguistically naïve subjects can also participate in it.

Another issue is the focus test. So far we only have the *hee* test and the *no* test, which depend on the author's acceptability judgements. One possible experiment is to ask subjects to listen to speech used in this study and respond to what the speaker means by *hee* as if they were the hearers. The elements that many subjects respond to are more likely to be foci. Another possibility is to investigate conversations and study the elements that the **hearer** actually responds to. Den et al. (2012) annotated response tokens like *hee* and the elements those response tokens address. One might be able to use this annotation to test the second hypothesis.

5 Word Order

5.1 Introduction

This chapter discusses how **information structure** of a clause affects **word order**.

Figure 5.1 shows the overall distribution of elements in terms of their positions in a clause. Elements are counted by phrases (so called *bunsetsu*). The y-axis indicates the frequency of elements and the x-axis indicates the position of elements: 1 means that the element in question appeared in the first position in the clause, 2 means that it appeared in the second position, and so on. I used the values of *n*th originally included in CSJ. The reason why the frequencies of 1 and 2 are lower than 3 is that the linguistic categories that appear in the first or second position are typically fillers, connectives, and adjectives and they are excluded from the analysis. The fact that the elements later than fifth in the clause appear very frequently might be counterintuitive based on the ordinary idea of a clause; a clause consists of a single predicate and at most three arguments and a few more adjuncts. In spoken language, however, there are many fillers, intensifiers like *hontooni* ‘really’, and paraphrases, which make the clause longer. Since *n*th simply counts the position of a phrase in terms of linear position, and not structurally, embedded clauses such as relative clauses are also included in the count. I assume that it is worth including these intervening expressions to analyze where a phrase can be interrupted by them and where it cannot. In fact, the following results show that most non-**anaphoric** elements appear immediately before the predicate, not interrupted by fillers, intensifiers, and so on (see §5.4). Moreover, CSJ has a unique definition of clause, which is not always the same as the intuitive of clause; rather, a clause in CSJ is closer to a single series of clause-chaining. For example, some subordinate markers such as *-to* ‘if’ and *-te* ‘and’ do not work as clause boundaries. These characteristics cause more elements to appear in later positions. See Maruyama et al. (2006) for a detailed definition of clause unit.

Figure 5.2 and 5.3 show element positions and their frequencies based on **information status** and persistence, respectively. The **information status** “**anaphoric**” in this study just means “the element in question has a co-referential **antecedent**”

and “non-anaphoric” means “it does not.” “Persistent” means “the referent in question is also mentioned in the following discourse”, and “non-persistent” means “it is not.” See §3.4.3.2 for the detail of the annotation procedure. As was discussed in §4.2, a linear mixed effects model was employed to predict information status (anaphoric vs. non-anaphoric). As fixed effects, word order (nth in CSJ, see §5.1 for the definition of this annotation), particles (*toiuno-wa, wa, mo, ga, o, ni*), and intonation (phrasal vs. clausal IU, see §6.1 for the definitions) were included, and as a random effect, the speaker (TalkID) was included. The model with the effects of word order, particles, and intonation is significantly different from the models without each of them, which indicates that word order, particles, and intonation respectively contribute to the prediction of information status. The model with all three effects is significantly different from the model without the effect of word order (likelihood ratio test, $p < 0.01$); it is significantly different from the model without the effect of particles ($p < 0.001$) and the model without the effect of intonation ($p < 0.05$).

As was also discussed in §4.2, a linear mixed effects model was also applied to predict persistence (persistent vs. non-persistent). Word order, particles, and intonation were included as fixed effects, and the speaker (TalkID) was included as a random effect. The model with the effects of word order and particles is again significantly different from the models without either of them (likelihood ratio test, $p < 0.01$ for the model without word order, $p < 0.001$ for the model without particles). However, the model with the effect of intonation is not significantly different from the model without it ($p = 0.423$). The results are to be discussed more in §5.2.

Figure 5.4 shows the overall distribution of elements in terms of their distance from the predicate; 1 indicates that the element appears right before the predicate, 2 indicates that there is one element between the preceding element and the following predicate, and so on. If the element appears right after the predicate, the distance is counted as -1. Since the numbers of post-predicate elements are too small to achieve any generalization, they are excluded from the figures. Post-predicate elements will be discussed in comparison with dialogues in §5.3.

Figures 5.5 and 5.6 show the distance between the element and the predicate depending on information status and persistence. A linear mixed effects model of information status (the distance from the predicate and particles as fixed effects and the speaker as a random effect) indicates that whereas the model with particles is significantly different from the model without them (likelihood ratio test, $p < 0.001$), the difference between the models with and without the distance from the predicate is only marginally significant ($p = 0.060$). This entails

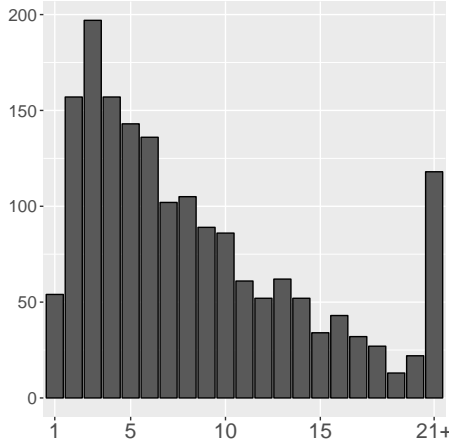


Figure 5.1: Order of all elements

that the effect of particles significantly contributes to the model, but the effect of the distance is inconclusive (see §5.4 for discussion). On the other hand, a linear mixed effects model of persistence (fixed and random effects are the same as above) shows that the effects of both particles and the distance are significant to the model ($p < 0.01$ for both the model without particle and that without the distance). The results are also to be discussed in further detail in §5.4.

5.2 Clause-initial elements

This section discusses clause-initial elements. It will be argued that shared elements (i.e., unused, declining, **inferable**, or evoked elements) tend to appear clause-initially in §5.2.1, and that persistent elements tend to appear clause-initially in §5.2.2. From these observations, it will be generalized that topics tend to appear clause-initially, as predicted from the previous literature. Finally in §5.2.3, I discuss the motivations for topics to appear clause-initially.

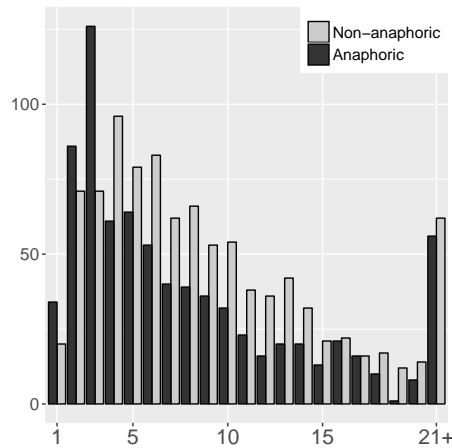


Figure 5.2: Word order vs. infoStatus

5.2.1 Shared elements tend to appear clause-initially

Figure 5.2 shows the frequency of elements and their positions based on the **information status**. Anaphoric elements appear most frequently in the third position. On the other hand, the non-anaphoric elements appear most frequently in the fourth position, but those in the fifth and sixth positions also appear frequently. These distributions of elements in different information statuses appear to replicate the classic observation that topics tend to appear earlier in a clause, i.e., the from-old-to-new principle (Mathesius 1928; Firbas 1964; Daneš 1970; Kuno 1978; Gundel 1988). This is explicitly stated in (1).

- (1) **From-old-to-new principle:** In languages in which **word order** is relatively free, the unmarked **word order** of constituents is old, predictable information first and new, unpredictable information last. (Kuno (1978: 54), Kuno (2004: p. 326))

This principle is motivated by the accumulative nature of processing utterances; old (or given) elements work as anchors that relate the previous **utterance**

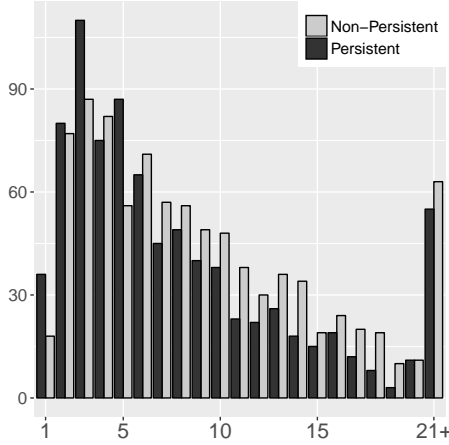


Figure 5.3: Word order vs. persistence

and the following **utterance**. This principle appears to be supported by examples such as the following. In (2), *sore* ‘it’ in line c, referring back to *kasi-pan* ‘sweet-bread’ in line b, precedes the A element *oziityan* ‘grandfather’.

- (2) a. uti-no sohu-tteiuno-ga okasi-ga sukina mono-de
 out-GEN grandfather-*toiuno-ga* sweet-*ga* favorite thing-COP
 ‘Our grandfather likes sweets.’
- b. yoku pan-ya-san-de kasi-pan-o kat-te
 often bread-store-HON-LOC sweet-bread-o buy-and
 kuru-n-desu-ga
 come-NMLZ-COP.PLT-though
 ‘(He) often buys sweet bread and comes home,’
- c. e n **sore-o** i maa yoowa oziityan-wa issyookenmee
 FL FRG it-o FRG FL in.a.word grandfather-wa trying.best
taberu-n-desu-keredomo
 eat-NMLZ-COP.PLT-though
 ‘that, he tries his best to eat it, but’

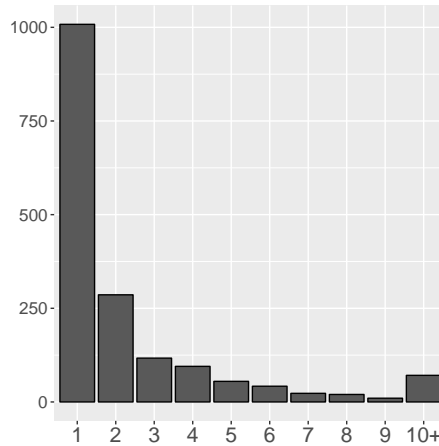


Figure 5.4: Distance from predicate

- d. he cannot eat all and
 e. gives leftovers to the dog... (S02M0198: 244.48-262.82)

Note that *sore* ‘it’ in line c is not coded by *wa* but by *o*. This shows that clause-initial shared elements are not necessarily coded by **topic** markers, although it is predicted that elements coded by **topic** markers would be more likely to appear clause-initially than those coded by case markers (see the discussion in §5.2.1.1).

Similarly in (3), *sore* ‘it’ in line c refers back to *buraunkan* ‘cathode ray tube’ and appears at the beginning of the clause, preceding other elements.

- (3) a. oo-gata-no-ne
 large-type-GEN-FP
 ‘(It’s) a larger type (of cathode ray tube).’
 b. yoku maa a hooru-toka-ni aru-yoona oo-gata-no ee
 often FL FL hall-etc.-DAT exist-like large-type-GEN FL
 buraunkan-nan-da-kedomo
 cathode.ray.tube-NMLZ-COP-though
 ‘(It’s) a large type of cathode ray tube typically equipped in a large

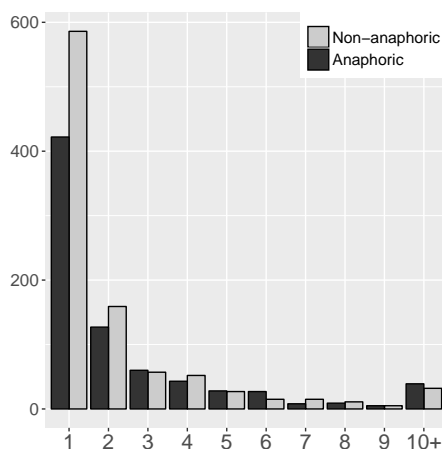


Figure 5.5: Distance from predicate vs. Information status

- hall, and'
- c. **sore-o**-ne koo kotti-kara kotti-ni moti-ageru -toiu-yoona
 that-*o*-FP this.way here-from here-from bring-rise-QUOT-like
 'this (cathode ray tube), (people) brought it from here to there.'
- d. some people were doing something like that. (S05M1236:
 471.26-490.38)

However, this is not the whole story; there are many counter-examples where non-anaphoric precedes anaphoric. Table 5.1 shows the number of cases where anaphoric precedes non-anaphoric and non-anaphoric precedes anaphoric within the same clause. There are 102 cases where anaphoric precedes non-anaphoric, while there are 63 cases where non-anaphoric precedes anaphoric. The cases where anaphoric precedes non-anaphoric only slightly outnumber the cases where non-anaphoric precedes anaphoric. 63 cases (39.4%) is too large a number to believe that they are mere exceptions to the principle (1).

I do not claim that the principle (1) is not correct, but I do claim that the principle does not apply to all cases. Anaphoric elements precede non-anaphoric

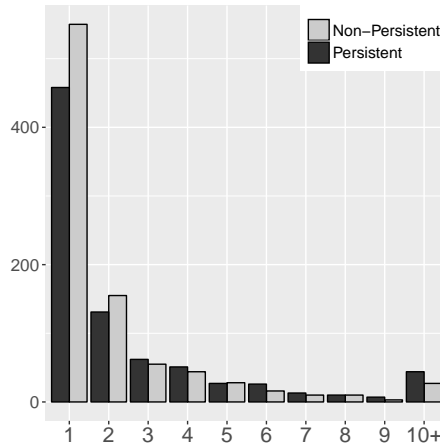


Figure 5.6: Distance from predicate vs. persistence

Table 5.1: Order of anaphoric & non-anaphoric elements

Anaphoric → Non-anaphoric	Non-anaphoric → Anaphoric
102	63

elements if the **anaphoric** elements are assumed to refer to the “same” entity which has been already mentioned. In other words, shared elements precede non-**anaphoric** elements. For example, in (4), *mizu* ‘water’ is repeatedly mentioned in the **utterance**, but it is never produced clause-initially. I argue that this is because *mizu* ‘water’ in (4-b) and later is not assumed to refer to the “same” entity already mentioned in the previous **discourse**.

- (4) a. *desukara daitai iti-niti-ni ni-rittoru-no mizu-o*
so approximately one-day-for two-liter-GEN water-o
tot-te kudasai-to iw-are-te
drink-and please-QUOT tell-PASS-and
‘So we were told to drink two liters of water per day,’

- b. syokuzi-no toki-wa kanarazu magukappu-de ni-hai-bun-no
meal-GEN time-wa surely mug-with two-cup-amount-GEN
mizu-o nomi-masu-si
water-o drink-PLT-and
'whenever we have a meal, we drink two cups of water,'
- c. totyuu totyuu-de-mo kanarazu **mizu-o** ho anoo
on.the.way on.the.way-LOC-also surely water-o FRG FL
nomi-taku-naku-temo
drink-want-NEG-even.if
'also on the way, even if we didn't want to drink water,'
- d. nom-as-areru-to iu kanzi-de
drink-CAUS-PASS-QUOT say feeling-COP
'we were forced to drink (water).'
- e. they think that drinking water is very important. (S01F0151:
339.78-366.29)

In the same way, *tenkan* 'epilepsy' appears many times in (5), but never appears clause-initially.

- (5) a. ato ik-kai **tenkan okosi-tara** sinu-tte
moreover one-time.CL epilepsy cause-COND die-QUOT
it-te-ta-n-desu-kedo
say-PAST-NMLZ-COP.PLT-though
'(The doctor) said that, if (my dog) gets an epilepsy seizure once more,
(the dog) would die, but...'
- b. mata so sookoo si-teru uti-ni **tenkan okosi-masi-te**
again FRG meanwhile do-PROG while-DAT epilepsy cause-PLT-and
'meanwhile, (the dog) has an epilepsy seizure, and...'
- c. The dog recovered this time, but has an epilepsy seizure several times
and finally died. (130.8 sec omitted.)
- d. sono boku-ga dekakeru toki-ni moo noki-sita-de **tenkan**
FL 1SG-ga go.out when-DAT already leave-under-LOC epilepsy
okosi-te
cause-and
'When I leave (home), (the dog) had already had an epilepsy seizure,
and...'
- e. tabun sin-dei-ta-n-da-roo-to
probably die-PROG-PAST-NMLZ-COP-INFR-QUOT
'probably died...'

5 Word Order

- f. ta noki-sita-de **tenkan** okosi-ta-ga tame-ni
 FRG eave-under-LOC epilepsy cause-PAST-GEN reason-DAT
 ‘just because (the dog) has an epilepsy seizure under the eaves...’
- g. the dog could not get out of there and died, we [the family members]
 were talking like that. (S02M0198: 558.7-712.8)

Whether the speaker refers to the shared entity mentioned previously depends on the speaker’s subjective judgement rather than on objective reasoning. In (6), for example, the **anaphoric element** *kuruma* ‘car’ in line c does not appear clause-initially for the same reason as in (4) and (5). However, *kuruma* ‘car’ in line b and d are clearly the same entity.

- (6) a. kirauea-kazan-mo mappu-o kai-masi-te
 Kilauea-volcano-also map-o buy-PLT-and
 ‘Also for Kilauea, (we) bought a map and’
- b. de zibun-tati-de ma rentakaa **kuruma-o** tobasi-te e
 then self-PL-by FL rent-a-car car-o drive-and FL
 iki-masi-ta
 go-PLT-PAST
 ‘(we) drove there by rent-a-car by ourselves.’
 (83.52 sec talking about the mountain.)
- c. de anoo jibun-no koko koko-de tyotto tome-te miyoo-to
 and FL self-GEN FRG here-LOC a.bit stop-and try-QUOT
 omot-ta toko-ni koo **kuruma-o** tome-te
 think-PAST place-DAT this.way car-o stop-and
 ‘At the place (we) wanted to stop, (we) stopped the car,’
- d. you can take pictures and so on. (S00F0014: 843.23-940.34)

I argue that, in this case, the speaker does not care about the identity of the car. Rather, she focuses on talking about her trip to Kilauea; the car she was in is not important for this speech. As will be discussed in §5.2.2, importance, as well as the identity, of the entity contributes to **word order** in spoken Japanese. Important (i.e., persistent) elements appear clause-initially.

Interestingly, these elements which are repeatedly mentioned but never appear clause-initially are not referred to by zero or overt pronouns. It is especially difficult to zero-pronominalize *tenkan* ‘epilepsy’ in (5-b-f) and *kuruma* ‘car’ in (6-d).¹ Zero pronouns are considered to be the most accessible topics (Givón 1983:

¹It is difficult to apply this test in (4) because *mizu* ‘water’ accompanies numeral modifiers such as ‘of two liters’ and ‘two cups of’.

17). To zero-pronominalize, the speaker needs to provide signals to let the **hearer** know which is the **topic**, as will be discussed in 5.2.3.

From the discussion above, there are at least two predictions testable in the corpus. Firstly, since evoked and **inferable** elements are coded by **topic** markers, as was shown in Chapter 4, it is predicted that elements coded by **topic** markers tend to appear earlier in a clause (§5.2.1.1). This is because elements assumed by the speaker to be evoked or **inferable** are also assumed to be shared. Secondly, since pronouns essentially code shared elements which have been mentioned, pronouns are also predicted to appear earlier in a clause (§5.2.1.2). Both predictions are confirmed in the following investigations. Thirdly, I will show that clause-initial elements are not sensitive to **activation cost**; unused elements can also appear clause-initially (§5.2.1.3). Evoked, **inferable**, declining, and unused elements are shared (See Table 3.2). Therefore, the claim that shared elements appear clause-initially is supported.

5.2.1.1 Topic-coded elements appear clause-initially

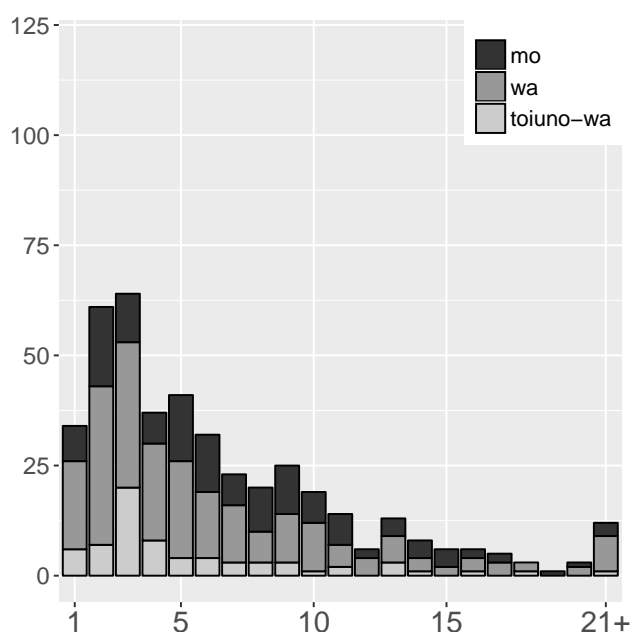


Figure 5.7: Order of arguments coded by topic markers

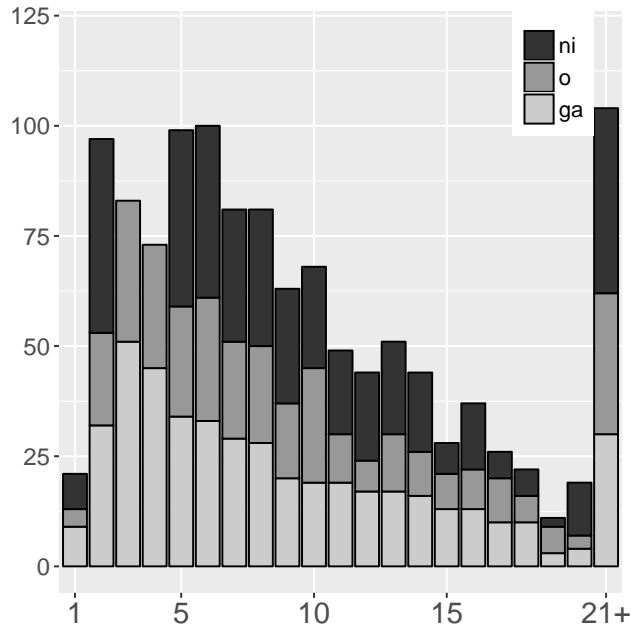


Figure 5.8: Order of arguments coded by case markers

Let us test the prediction that elements coded by **topic** markers tend to appear earlier in a clause. Figure 5.7 shows the distribution of topic-coded elements and their positions. Compare this figure with Figure 5.8, which shows the distribution of case-coded elements and their positions. It is clear that elements coded by **topic** markers are more skewed to earlier positions within a clause as compared to those coded by case markers.

(7) is an example of a *wa*-coded element appearing clause-initially. The *wa*-coded element *hone* ‘bone’ in line a, which has been discussed in the previous **discourse**, is separated from the predicate by an intervening locative (a tomb for animals in the temple). The intervening part is long and the predicate finally appears in line d.

- (7) a. ee suriipii-no itibu-no oo **hone-wa**
 FL Sleepy-GEN part-GEN FL bone-*wa*
 ‘Part of bone of Sleepy (dog’s name),’
- b. sono morimati-no watasi-no senzo-no o hait-teru
 that Morimachi-GEN 1SG-GEN ancestor-*gen* FL enter-PROG

- otera-no
 temple-GEN
 ‘the temple in Morimachi where my ancestors were,’
- c. yahari ano doobutu-no kuyootoo-ga ari-masu
 again that animal-GEN tomb-*ga* exist-PLT
 ‘there are tombs for animals,’
- d. sotira-no hoo-ni osame-masite-ne
 that-GEN direction-DAT place-PLT-and
 ‘(we) placed (his bone) there.’ (S02M1698: 620.12-634.26)

In (8), *sono ko* ‘that puppy’, whose referent has appeared in the previous line a, is also an example of a *wa*-coded element appearing clause-initially. The element is also separated from the predicate by an intervening argument ‘distemper’.

- (8) a. mosi koinu-o kat-tesimat-tara
 if puppy-*o* keep-PFV-COND
 ‘If you decided to keep a new puppy,’
- b. **sono ko-wa** mata zisutenpaa-ni kakat-te sin-zyau-kara
 that puppy-*wa* again distemper-DAT catch-and die-PFV-because
 ‘the puppy will die of distemper again, so’
- c. keep a new puppy after this winter, this is what we were told by the vet.
 (S02M0198: 108.68-126.70)

Wa appearing in the initial position is already conventionalized, and it is possible to test this with acceptability judgements. It is not acceptable for *wa*-coded P to appear between the focus agent and the predicate except for contrastive readings of *wa*. As the contrast between (9-a-c) shows, the zero-coded P *hon* ‘book’ in (9-a) right before the predicate is acceptable, while the *wa*-coded *hon* ‘book’ in the same position in (9-b) is not acceptable. To express the idea of (9-b), the *wa*-coded P should precede A *taroo* ‘Taro’.

- (9) a. taroo-ga **hon** yon-deru-yo
 Taro-*ga* book read-PROG-FP
 ‘Taro is reading a book.’
- b. ??taroo-ga **hon-wa** yon-deru-yo
 Taro-*ga* book-*wa* read-PROG-FP
 ‘Taro is reading the book.’
- c. **hon-wa** taroo-ga yon-deru-yo
 book-*wa* Taro-*ga* read-PROG-FP

‘Taro is reading the book.’

(Constructed)

There is only one example (out of 9 *wa*-coded Ps) in the corpus where *wa*-coded P is preceded by *ga*-coded A. This *wa*-coded P is contrastive, which will be discussed in §5.5.

I propose the hypothesis that elements which belong to the same unit of **information structure** appear adjacent within a clause. I call this the information-structure **continuity principle** in **word order**.

- (10) **Information-structure continuity principle:** A unit of **information structure** is continuous in a clause; i.e., elements which belong to the same unit are adjacent with each other.

This principle explains why (9-b) is not acceptable, while (9-a,c) are acceptable. The **information structure** of each of the examples (9) is represented in (11). In (11-b), the **topic** P element *hon-wa* ‘book-*wa*’ intervenes between two focus elements *taroo-ga* ‘Taro-*ga*’ and *yon-deru* ‘read-PROG’, which is not acceptable. In (11-c), on the other hand, the **topic** P does not split up the domain of focus, and the whole sentence is acceptable. In (11-a), all the elements including *hon* ‘book’ belong to focus and hence *hon* in this position is acceptable.

- (11) a. [*taroo-ga hon yon-deru*]_{F-yo}
 Taro-ga book read-PROG-FP
 ‘Taro is reading a book.’
 b. ??[*taroo-ga*]_F [*hon-wa*]_T [*yon-deru*]_{F-yo}
 Taro-ga book-*wa* read-PROG-FP
 ‘Taro is reading the book.’
 c. [*hon-wa*]_T [*taroo-ga yon-deru*]_{F-yo}
 book-*wa* *Taro-ga* read-PROG-FP
 ‘Taro is reading the book.’

Interestingly, it is possible for *wa*-coded A to be preceded by *o*-coded P, as shown in (12-a) (compare this with (12-b)).

- (12) a. *hon-o taroo-wa yon-deru-yo*
 book-*o* Taro-*wa* read-PROG-FP
 ‘Taro is reading the book.’
 b. *hon-o taroo-ga yon-deru-yo*
 book-*o* Taro-*ga* read-PROG-FP
 ‘Taro is reading the book.’

As was argued above, the preposed P, *hon-o* ‘book-o’ in (12), is topical, which is represented as in (13).

- (13) a. [hon-o taroo-wa]_T [yon-deru]_F-yo
 book-o Taro-wa read-PROG-FP
 ‘Taro is reading the book.’
 b. [hon-o]_T [taroo-ga yon-deru]_F-yo
 book-o Taro-ga read-PROG-FP
 ‘Taro is reading the book.’

As shown in (13-a), the two **topic** elements *hon-o* ‘book-o’ and *taroo-wa* ‘Taro-wa’ are adjacent to each other and hence this sentence is acceptable. Also in (13-b), the only **topic** element *hon-o* ‘book-o’ does not split up the focus elements *taroo-ga yon-deru*, which is predicted to be acceptable. *Hon-o* ‘book-o’ could be focus instead of **topic** in (12-b), since given elements can be focus. But it is reasonable to think of a situation where given focus elements are preposed for the sentence to be a smooth transition from the previous sentence. The information-structure **continuity principle** (10) still holds in either case.

Note that (10) does not refer to **word order**; rather, it is about adjacency. I argue that this principle is also at work in intonation (see Chapter 6).

What is the difference between clause-initial elements coded by **topic** markers and those coded by case markers? As was discussed in §4.4.2, there is a hierarchy of **topic** coding (86), which is repeated here as (14).

- (14) A, S > P

The hierarchy indicates that evoked or **inferable** A and S are more likely to be coded by **topic** markers than P in the same status. Word order is not affected by this hierarchy. Figures 5.9 and 5.10 show **word order** of **anaphoric** S and P, respectively. Compare these with Figures 5.11 and 5.12, which show **word order** of non-**anaphoric** S and P. Word order of A is omitted because the number is too small. As can be seen from the contrasts between Figures 5.9 and 5.11 and between Figures 5.10 and 5.12, **anaphoric** elements are more likely to appear earlier in a clause than non-**anaphoric** elements. Although the contrast is less clear between **anaphoric** vs. non-**anaphoric** P, especially notable is that there are three times as many **anaphoric** Ps as non-**anaphoric** Ps in the third position. (There are 27 **anaphoric** Ps in the third position, while there are only 10 non-**anaphoric** P.) I speculate that the contrast is less clear in **anaphoric** vs. non-**anaphoric** P than S because there are cases like (4) and (5), where the element is annotated as **anaphoric** but is considered to be not shared. In this case, P appears pre-predicatively rather than

clause-initially. Therefore, I argue that, while elements coded by **topic** markers are likely to appear earlier in a clause, **word order** is independent of **topic** marking. Topic markers are sensitive to the given-new taxonomy, as was discussed in Chapter 4; clause-initial position is sensitive to sharedness. Topic markers and **word order** are sensitive to different aspects of topichood.

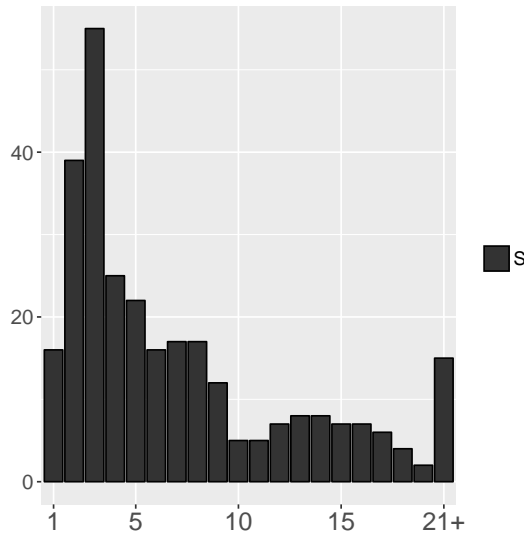


Figure 5.9: Word order of anaphoric S

5.2.1.2 Pronouns appear clause-initially

Next let us examine the position of pronouns. Figure 5.14 shows the positions of pronouns. Figure 5.1, repeated as Figure 5.13 for comparison, represents the distributions of all elements. Although the number of pronouns is small, it is clear, comparing with the overall distributions of elements in Figure 5.13, that the order of pronouns is skewed to earlier positions within a clause. Hence, it is reasonable to conclude that pronouns are likely to appear earlier in a clause. Examples of pronouns appearing earlier in a clause are shown in (2) and (3) above. The result is compatible with Yamashita (2002) and Kondo & Yamashita (2008).

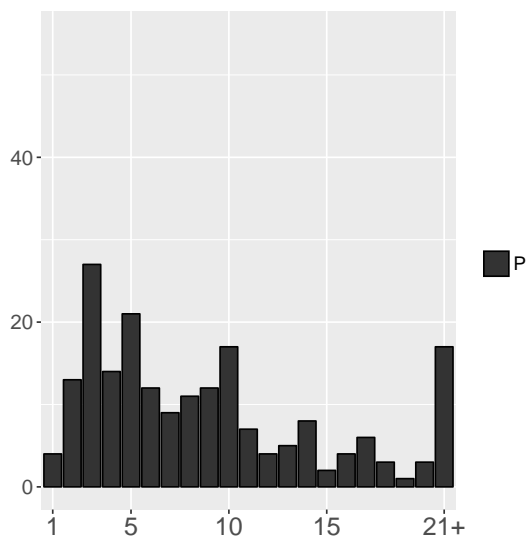


Figure 5.10: Word order of anaphoric P

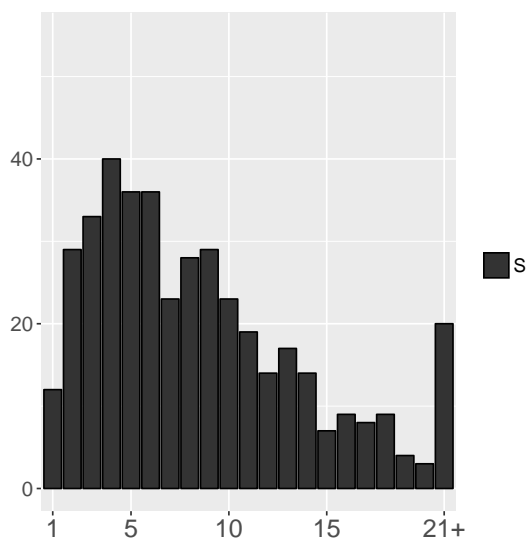


Figure 5.11: Word order of non-anaphoric S

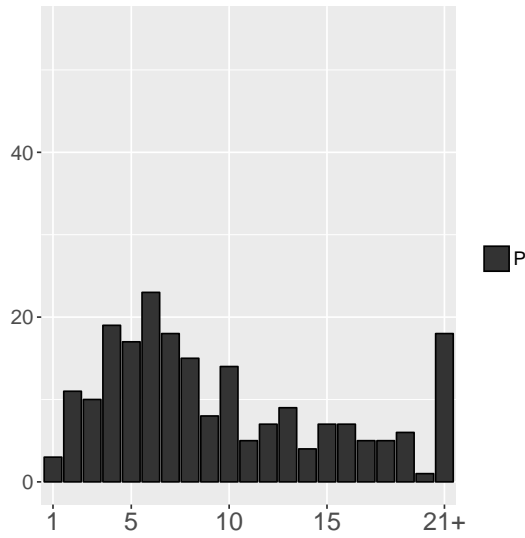


Figure 5.12: Word order of non-anaphoric P

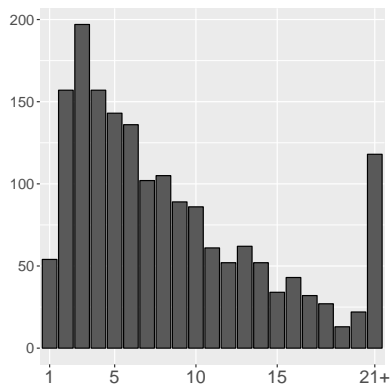


Figure 5.13: Order of all elements

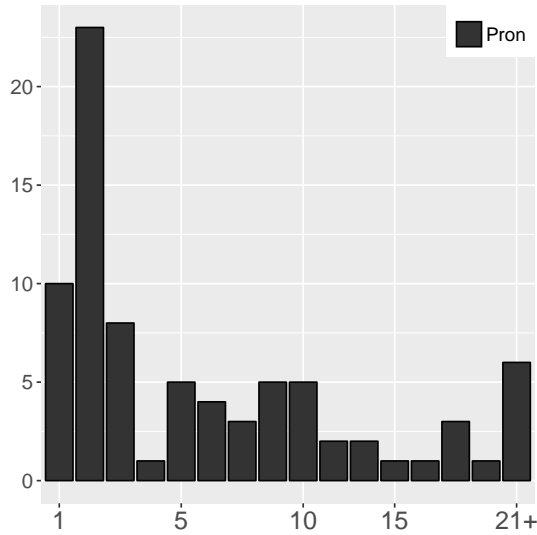


Figure 5.14: Order of pronouns

5.2.1.3 Unused elements appear clause-initially

Not only evoked, **inferable**, and declining elements, but also unused elements appear clause-initially. Elements coded by the **copula** followed by *ga* or *kedo* are unused elements, as was discussed in Chapter 4.² It is very unnatural when they are preceded by other arguments. For example, as shown in the contrast between (15-a) and (15-b), *rei-no ken* ‘that issue’ cannot be felicitously preceded by another argument, in this case *kotira-de* ‘this side’.

- (15) a. **rei-no ken-desu-ga** *kotira-de* *nantoka*
 that-GEN issue-COP.PLT-though this.side-LOC whatever
 nari-sou-desu
 become-will-COP.PLT
 ‘Regarding that issue, (I) guess (we) figured the way out.’ (modified
 from Niwa 2006: 283)
- a'. ??*kotira-de* **rei-no ken-desu-ga** *nantoka*
 this.side-LOC that-GEN issue-COP.PLT-though whatever

²See §2.4.2.6 for the reason why an element coded by the **copula** followed by *ga* or *kedo* is not considered to be a clause.

5 Word Order

nari-sou-desu
become-will-COP.PLT

In a similar manner, *yamada-no koto* ‘the issue of Yamada’ cannot naturally be preceded by an **adverbial**, *ano mama* ‘that way’, as shown in the contrast between (16-a) and (16-b).

- (16) a. **yamada-no koto-da-kedo** ano mama hot-toi-te ii-no-kana
Yamada-GEN issue-COP that way leave-let-and good-NMLZ-Q
‘Regarding Yamada, is it OK to just leave him?’ (Niwa 2006: 283)
a’. ??ano mama **yamada-no koto-da-kedo** hot-toi-te ii-no-kana
that way Yamada-GEN issue-COP leave-let-and good-NMLZ-Q

Unused elements include **indefinite** elements although it is counter-intuitive to consider **indefinite** NPs as being “shared”. For example, as was mentioned in §3.3.4.2, an **indefinite** element can appear clause-initially if the speaker assumes the **hearer** to remember that the speaker (or somebody else) has talked about a category the element refers to. For example, as shown in (17-Y), repeated from (22) in §3.3.4.2, having mentioned a category of mango makes it possible for *mango* ‘mango’ to appear clause-initially, even though *mango* ‘mango’ is clearly **indefinite** since the **hearer** has no way to tell which mango the speaker ate. I regard this as unused and hence shared.

- (17) Context: Y told H that he had never seen and eaten mangoes. H told Y that they are delicious. Several days later, Y finally ate a mango.

Y: **mango** konoaida miyako-zima-de tabe-ta-yo
mango the.other.day Miyako-island-LOC eat-PAST-FP
‘(I) ate (a) mango (we talked about) in Miyako island the other day.’
Y’: konoaida miyako-zima-de **mango** tabe-ta-yo
the.other.day Miyako-island-LOC mango eat-PAST-FP
‘(I) ate (a) mango in Miyako island the other day.’

In this case, however, *mango* ‘mango’ in the pre-predicate position is also felicitous, as in (17-Y’), which indicates that this is a borderline case; *mango* can be a **topic** in the sense that it is unused and the speaker has talked about it before, while it can be a focus in the sense that it is new to the **discourse** and **indefinite**.

On the other hand, in (18-Y), where the speaker does not assume the **hearer** to remember that the speaker has talked about mango, clause-initial *mango* ‘mango’ is infelicitous, whereas pre-predicate *mango* is perfectly acceptable.

(18) Context: Y and H have not met for a few months.

H: What did you do these days?

Y: ??**mangoo** konoaida miyako-zima-de tabe-ta-yo
mango the.other.day Miyako-island-LOC eat-PAST-FP

(=(17-Y))

Y': konoaida miyako-zima-de **mangoo** tabe-ta-yo
the.other.day Miyako-island-LOC mango eat-PAST-FP

‘(I) ate (a) mango in Miyako island the other day.’ (=(17-Y’))

Therefore, it is reasonable to conclude that shared elements include those which refer to categories the speaker (or somebody else) has talked about and that they can appear clause-initially.

5.2.2 Persistent elements tend to appear clause-initially

Persistent elements are skewed to earlier positions more than non-persistent elements, as shown in Figure 5.3.

The following are examples of persistent elements appearing clause-initially. In (19), *hihu-byoo* ‘skin-disease’ in line a, coded by the **topic** marker *toiuno-wa*, appear clause-initially. The predicate appears in line c, separated from the subject by a proposition in line b and also another argument (*hito-ni* ‘person-by’) of the clause. Also in line d, *kore-wa* ‘this-wa’, referring to ‘skin-disease’, appears clause initially.

- (19) a. **hihu-byoo-toiuno-wa**
skin-disease-*toiuno-wa*
‘The skin disease,’
- b. *damat-tei-temo*
keep.silent-PROG-even.if
‘even if you don’t tell people about it,’
- c. *hito-ni mir-are-te-simau* mono-dat-ta-node
person-by see-PASS-and-PFV thing-COP-PAST-because
‘people can see it, so’
- d. **kore-wa** ano omot-ta izyooni seesintekini kutuu-desi-ta
this-wa FL think-PAST more mentally painful-COP-PAST
‘this was mentally painful more than I had expected.’ (S02F0100:
222.75-231.09)

Similarly, in (20), *sore-wa* ‘that-wa’ in line b and g, and *sore-dake-wa* ‘that-only-

wa’ in line i, all of which refer to ‘chelow kebab’ in line a, appears clause-initially.

- (20) a. There is a dish called **chelow kebab**.
 b. **de sore-wa** eeto gohan-ni eeto bataa-o maze-te
 and that-*wa* FL rice-to FL butter-o mix-and
 ‘That, you mix rice with butter...’
 c. on top of that you put spice,
 d. on top of that you put mutton,
 e. you mix it and eat it.
 f. There were many dishes of this kind.
 g. **sore-wa** kekkoo sonnani hituzi-no oniku-no kusasa-mo
 that-*wa* to.some.extent not.really sheep-GEN meat-GEN smell-also
 naku-te
 not.exist-and
 ‘It did not have smell of mutton...’
 h. I thought it was delicious.
 i. **sore-dake-wa** anoo iran-ryoori-no naka-de taberu koto-ga ano
 that-only-*wa* FL Iran-dish-GEN inside-LOC eat thing-*ga* FL
 deki-ta ryoori-desu
 can-PAST dish-COP
 ‘This is the only dish I could eat among **Iranian** dishes.’ (S03F0072:
 446.03-447.66)

As was mentioned in 5.1, both **word order** and particles significantly contribute to predict persistence, contrary to the result of *Imamura (2017)*, who concludes that “scrambling [PSV order] is pertinent to anaphorically prominent but cataphorically non-prominent objects and that topicalization is especially germane to ‘continuing **topic**’ as the referent of the object” (p. 78). There are a few potential reasons for why the results of the present work are different from those of *Imamura (2017)*. One potential reason is the difference of modalities: *Imamura (2017)* employed a corpus of written Japanese (*the Balanced Corpus of Contemporary Written Japanese*, BCCWJ), while the present study employs spoken Japanese. Related to the first point, clause-chaining, which I will point out is one of the motivations for why clause-initial elements tend to be persistent (see the next section), only appears in spoken Japanese, but not in written Japanese. In any case, this is a mere speculation and further studies are needed to analyze why the results of these two studies differ.

5.2.3 Motivations for topics appearing clause-initially

As was pointed out by many linguists, topics tend to appear clause-initially because they function as an anchor to the previous **discourse**. The principle (1) is motivated by this processing convenience (e.g., Keenan 1977). Clause-initial locatives and other adjectives can also be explained by this motivation. This anchoring function works best when the **activation cost** of the referent is relatively high (Givón 1983); i.e., when the referent of the element in question is **inferable** or declining. When the **activation cost** is low, i.e., the **topic** is continuous from the previous **discourse**, the element in question that refers to the **topic** is expected to be zero (Givón 1983; Gundel et al. 1993; Ariel 1990); there is no need for anchoring because the **topic** is already evoked and the **hearer** expects the **topic** to be also mentioned in the current sentence. This explanation predicts that the distance between the element in question and the **antecedent** is larger when the element in question is expressed in the form of NP instead of zero. Figure 5.15 appears to support this prediction, although a statistical analysis indicates that the expression types do not significantly contribute to predict the distance. This paragraph discusses NPs with long distance. See the discussion below for NPs with shorter distance. The whisker plot in Figure 5.15 shows the distance between the element in question (NP vs. (explicit) **pronoun** vs. zero **pronoun**) and its **antecedent**. It measures the time between when the **first mora** of the element question is produced and when the **first mora** of the **antecedent** is produced. The figure shows that the distance between NP and the **antecedent** is larger than that of zero and the **antecedent** in many cases. Zero pronouns are assumed to be produced at the time when the **first mora** of the predicate is uttered.

(21) exemplifies this pattern, where zero pronouns are indicated by \emptyset . In line b, *san-nin-me* ‘the last person’ precedes adjuncts (‘last fall’) and is coded by a variation of *toiuno-wa* (*ttuuno-wa*). Zero pronouns \emptyset are inserted right before the predicate for the purpose of presentation, but this does not affect the analysis. Since this person is one of the three people mentioned in line a, this person is **inferable** through a part-whole relation. The **topic** moves on to another person in line f, who is also one of the three people mentioned in line a. In line j, the speaker again refers to the person mentioned in line b. Also this time, the element *moo hitori-wa* ‘the other person’ appears near clause-initially, preceding other arguments. The referent continues to be mentioned until line q. Finally, the speaker starts talking about himself in line r, in which case the element *boku-wa* ‘1SG-wa’ appears near clause-initially.

- (21) a. All of us three quit this job, interestingly, or strangely.

- b. de anoo **san-nin-me-ttuuno-wa** tui se ee kyonen-no o
and FL three-CL-ORD-*toiuno-wa* just FRG FL last.year-GEN FL
aki-ni yame-ta-n-desu-kedomo
fall-in quit-PAST-NMLZ-COP.PLT-though
'The last person quit this fall.'
- c. **soitu-wa** maa itiban saisyo-ni yame-tai yame-tai ttut-ta
3SG-*wa* FL most first-in quit-want quit-want QUOT.say-PAST
ningen-nan-desu-kedomo
person-NMLZ-COP.PLT-though
'He was the first person who said he wanted to quit.'
- d. This kind of thing often happens.
- e. All of us three quit eventually.
- f. ndee hitori-wa-desu-ne
then one.person-*wa*-COP.PLT-FP
'Concerning another person,'
- g. I guess this is closely related to the fact that we worked in Mobara.
- h. de hitotu sono hito-wa ee ma yappari tonikaku
then one.thing that person-*wa* FL FL as.expected any.way
hatarai-te okane-ga koo te-ni Ø hairu-tte iu koto-ni
work-and money-*ga* this.way hand-to Ø get.in-QUOT say thing-to
itiban-no kati-o miidasi-ta wake-desu-ne sono ziki-ni
most-GEN value-o find-PAST reason-COP.PLT-FP that time-at
'At that time this person found it most valuable to work hard and
gain money.'
- i. (Explanation about his view on working. 9.3 sec.)
- j. de moo **hitori-wa** maa **kare-mo** hi hizyooni mobara-o
then more one.person-*wa* FL 3SG.M-also FRG very Mobara-o
aisi-teru-n-desu-ga
love-PROG-NMLZ-COP.PLT-though
'The other one, who also loves Mobara (a place name),'
- k. kondo-no sigoto-tte atarasiku Ø tui-ta sigoto-tteiuno-wa
next-GEN job-QUOT newly Ø acquire-PAST job-*toiuno-wa*
'(his) next job, the new job (he) acquired is...'
- l. maa inaka-no hoo-no sigoto-nan-desu-ne
FL rural-GEN area-GEN job-NMLZ-COP.PLT-FP
'in rural area.'
- m. de **kare** iwaku-desu-ne
then 3SG.M say-PLT-FP

- ‘According to what he says,’
- n. sono yama-ga nai tokoro-ni-wa Ø sum-e-nai-to
 FL mountain-ga not.exist place-at-wa Ø live-can-NEG-QUOT
 ‘He says that he cannot live in places without mountains.’
- o. Though Mobara does not have mountains, the sky in Mobara is clear.
- p. We call it Mobara sky. Mobara has such an idyllic scene.
- q. sore-ga maa doositemo nai-to Ø sum-e-nai-tte iu
 that-ga FL by.all.means not.exist-COND Ø live-can-NEG-QUOT say
 koto-o sono ziki-ni Ø sato-ta-n-zya-nai-ka-to
 thing-o that time-in Ø learn-PAST-NMLZ-COP-NEG-Q-QUOT
 ‘(He) learned at that time that (he) can’t live without such scene (I guess).’
- r. de boku-wa-to ii-masu-to
 then 1SG-QUOT say-PLT-COND
 ‘Talking about myself...’
- s. ... (S05M1236: 639.40-738.22)

In this type of example, clause-initial elements, especially those coded by **topic** markers, function as an anchor to the previous **discourse**.

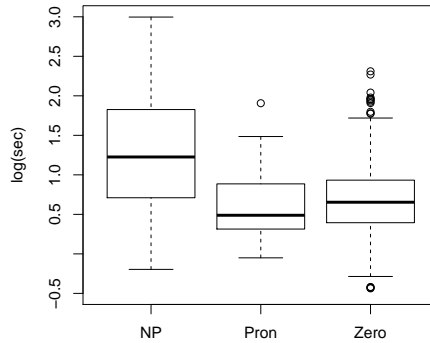


Figure 5.15: Anaphoric distance vs. expression type

However, Figure 5.15 also indicates that (explicit) pronouns (*kore* ‘DEM.PROX (this)’, *sore* ‘DEM.MED (this/that)’, *are* ‘DEM.DIST (that)’, *kare* ‘3SG.M (he)’, *kanozoyo*

‘3SG.F (she)’³ and zero pronouns do not differ from each other. Moreover, there are NPs which refer to the immediate **antecedent**. Whereas more than half of the NPs have longer distance than explicit and zero pronouns, the figure also shows that many NPs have distances as short as those of explicit and zero pronouns. In fact, a fixed effects analysis for the distance (the expression type as a fixed effect and the speaker as a random effect) indicates that expression types are not a significant factor to predict the distance. For example, in the previous example (21), the referent of *hitori* ‘one person’ in line f is mentioned in line h as *sono hito* ‘that person’ again, although the distance is not very far.⁴ In a similar manner, the referent of *san-nin-me* in line b is mentioned in the immediately following clause (line c) as *soitu* ‘3SG’. These examples are not mere exceptions. In fact, 74.1% of secondly mentioned referents are still expressed in the form of an NP; only 21.4% are expressed as zero and 4.6% as **pronoun**, as shown in Table 5.2 and Figure 5.16. Figure 5.16 and Table 5.2 show the expression type of the element in question based on how many times the referent is mentioned. “2” indicates that the element in question is mentioned second, “3” indicates that it is mentioned third, and so on. The ratio of zero increases as the referent keeps being mentioned. The fact that the referent introduced is mentioned repeatedly is also reported in Clancy (1980), who investigates Pear Stories; this pattern is not unique to the corpus of the current study. (22) is another example of two NPs which refer to the same referent adjacent with each other. In this example, the very long word *yuugosurabia-syakaisyugi-kyoowakoku* ‘Socialist Federal Republic of Yugoslavia’ is repeated twice.

- (22) a. ee kon ma kono tiiki ee yu ma
 FL FRG FL this area FL FRG FL
 kyuu-yuugosurabia-syakaisyugi-kyoowakoku-toiu
 former-Yugoslavia-socialist-republic-QUOT
 tokoro-nan-desu-keredomo
 place-NMLZ-COP.PLT-though
 ‘This area is called Socialist Federal Republic of Yugoslavia,’
 b. kono yuugosurabia-syakaisyugi-kyoowakoku-tteiuno-wa
 this Yugoslavia-socialist-republic-toiuno-wa
 motomotoga ee minzoku-tairitu-no hagesii tiiki-de-gozai-masi-te
 originally FL ethnic-conflict-GEN severe area-COP-PLT-PLT-and

³Kare ‘3SG.M (he)’ and *kanozyo* ‘3SG.F (she)’ are very rare in spoken Japanese. Instead, *kono hito* ‘this person’ or similar expressions are used more frequently. However, this study does not count them as pronouns.

⁴The impression of line g is inserted clause rather than **topic** shift.

‘this Socialist Federal Republic of Yugoslavia is an area with severe ethnic conflicts...’
(S00M0199: 81.95-94.42)

Why does the speaker repeat the same referent adjacent with each other, although s/he can fairly assume that the referent has been already evoked by the first mention? In fact, the second ‘Socialist Federal Republic of Yugoslavia’ in line b cannot be omitted contrary to what is claimed about the nominal forms (Givón 1983; Gundel et al. 1993; Ariel 1990). Why?

Table 5.2: Nth mention vs. expression type

	2	3	4	5	6+
NP	260 (74.1%)	135 (64.9%)	83 (58.0%)	54 (52.4%)	255 (40.5%)
Pronoun	16 (4.6%)	14 (6.7%)	9 (6.3%)	13 (12.6%)	20 (3.2%)
Zero	75 (21.4%)	59 (28.4%)	51 (35.7%)	36 (35.0%)	355 (56.3%)
Sum	351	208	143	103	630

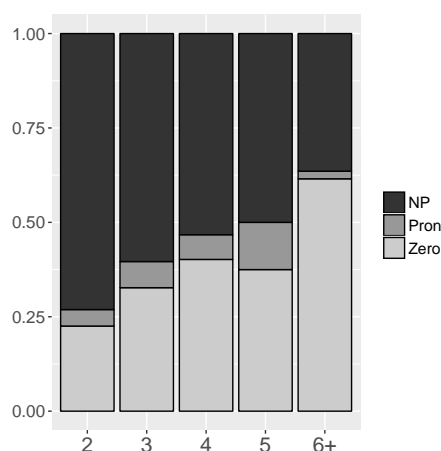


Figure 5.16: Nth mention vs. expression type

Since the most frequent **pronoun** in Japanese is the zero **pronoun** as indicated in Figure 5.16 and Table 5.2, the speaker needs to make sure that the **hearer** un-

derstand which referent zero pronouns refer to. Therefore, the speaker needs to establish the referent as a **topic** before s/he uses zero.⁵ This might be related to the observation in Lambrecht (1994: 136) that focus elements cannot be the **antecedent** of zero, while **topic** elements can. Compare (23) and (24) (the acceptability judgements are based on Lambrecht. Information structure is added by the present author). In (23), *John* is interpreted as **topic** (by default) in (23-b), in which case zero is acceptable.

- (23) a. John married Rosa, but he didn't really love her.
 b. [John]_T [married Rosa]_F, but Ø didn't really love her.

On the other hand, in (24), *John* is focus because it is the answer to the question, in which case zero is not acceptable as in (24-b). Only an explicit **pronoun** is acceptable, as shown in (24-a).

- (24) Q: Who married Rosa?
 A: a. John married Rosa, but he didn't really love her.
 b. *[John]_F [married Rosa]_T, but Ø didn't really love her.

Why do these pronouns or NPs which refer to the immediate **antecedent** appear (near) clause-initially? I argue that, in addition to the from-old-to-new principle (1), the persistent-element-first principle works in **spontaneous speech**.

- (25) **Persistent-element-first principle:** In languages in which **word order** is relatively free, the unmarked **word order** of constituents is persistent element first and non-persistent element last.

One of the factors which motivate this principle is clause-chaining. In spoken Japanese, a chain of clauses is frequently observed as schematized in (26), where the speaker announces the **topic** at the beginning and continues to talk about it by a chain of multiple clauses.⁶

- (26) a.

Topic

⁵ As pointed out by one of the reviewers (Morimoto), it is possible to replace 'this Socialist Federal Republic of Yugoslavia' in line b of (22) with a pronoun-like form such as *kono kuni* 'this country'. My argument here still holds because the pronoun-like form 'this country' is much more informative than the zero **pronoun**. The following argument by Lambrecht (1994) also suggests that focus can be the **antecedent** of overt pronouns, but not zero pronouns. See examples (23) and (24).

⁶ This is also pointed by Michinori Shimoji (p.c.) on Ryukyuan Languages, which belong to the same language family as Japanese.

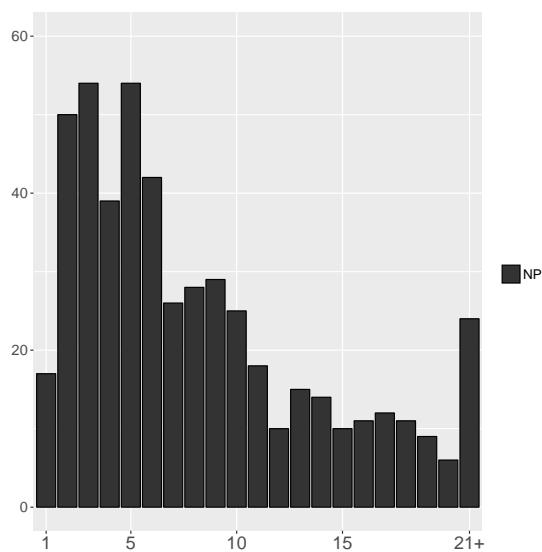


Figure 5.17: Antecedent's word order of NPs

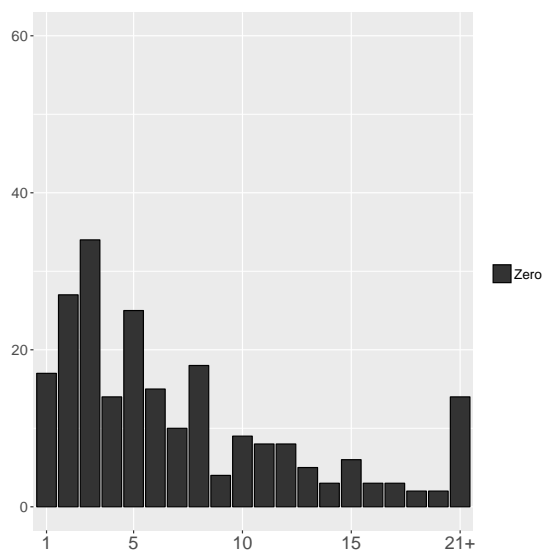


Figure 5.18: Antecedent's word order of zero pronoun

5 Word Order

- b.

Clause1

- c.

Clause2

- d.

Clause3

- e. ...

A specific example of clause-chaining is shown in (27), where the **topic** ‘Everest Trail’ in line a is preannounced, and the following clauses (b–f) are about this **topic** ‘Everest Trail’.

- (27) a. **kono eberesuto-kaidoo-toiuno-wa**
 this Everest-trail-QUOT-wa
 ‘This Everest Trail is’
- b. **tibetto-to nepaaru-no kooeki-ro-ni-mo nat-te**
 Tibet-COM Nepal-GEN trade-road-DAT-also become-and
 ori-masi-te
 PROG-PLT-and
 ‘also used for trading between Tibet and Nepal.’
- c. **ma zissai-wa nihon-de iu-to ||**
 FL actual-wa Japan-LOC say-COND
 ‘Say, in Japan for example,’
- d. **Ø takao-san-mitaina yama-miti-nan-desu-keredomo**
 Ø Takao-mountain-like mountain-road-NMLZ-COP.PLT-though
 ‘it’s like a road in Mt. Takao or something.’
- e. **genti-no hito~bito-nitotte-wa ee Ø tuusyoo-ro-to iu-yoona**
 local-GEN person~PL-for-wa FL Ø trade-road-QUOT say-like
- f. **insyoo-no Ø miti-desi-ta**
 impression-GEN Ø road-COP.PLT-PAST
 ‘it was a road like a trading road for local people.’
- (S01F0151: 105.73-120.14)

This pattern is useful because which referent the speaker talks about in the chain of clauses in question is referred to at the beginning of the chain and s/he can use the zero **pronoun** in the following clauses.

Figure 5.17 and 5.18 show the **word order** of antecedents of NPs and zero pronouns, respectively. Although the contrast is subtle, the antecedents of zero pronouns are more skewed towards earlier positions than NPs.

Consider the following example (28). The speaker mentions the **topic** ‘the participants of the trekking’ first in line a, and describes this in the following **discourse**. After (28-f), the speaker extends the **topic** and describes each participant.

- (28) a. e **torekking-sankasya-nituki-masite-wa**
 FL trekking-participant-about-PLT-*wa*
 ‘Concerning the participants of this trekking,’
- b. moo hontooni ni-zyuu-go-sai-no
 FL really two-ten-five-years.old-GEN
 ooru-san-kara
 working.woman-HON-from
 ‘from the 25-year-old working lady,’
- c. nana-zyuu-ni-sai-no ozii-san-made
 seven-ten-two-years.old-GEN old.guy-HON-till
 ‘to the 72-year-old elderly man,’
- d. hizyooni takusan-no hito~bito-ga
 very many-GEN person~PL-*ga*
 ‘many people...’
- e. no, not many people,
- f. ta-syu-ni wataru nenree-soo-no hito-ga i-te
 many-kind-DAT cover age-tier-GEN person-*ga* exist-and
 omosirokat-ta-desu
 interesting-PAST-PLT
 ‘there were many kinds of people from a wide age range and it was
 interesting.’ (S01F0151: 597.67-610.87)

In this kind of example, clause-initial elements do not refer to zero pronouns as constituents in the following clauses, but are only pragmatically associated with the constituents in the following clauses (see also §4.4.3).

Table 5.3: Antecedent’s particle vs. current expression type

	<i>toiuno-wa</i>	<i>wa</i>	<i>ga</i>	<i>o</i>
NP	11 (36.7%)	38 (46.3%)	80 (63.0%)	89 (74.8%)
Pronoun	4 (13.3%)	3 (3.7%)	5 (3.9%)	3 (2.5%)
Zero	15 (50.0%)	41 (50.0%)	42 (33.1%)	27 (22.7%)
Sum	30	82	127	119

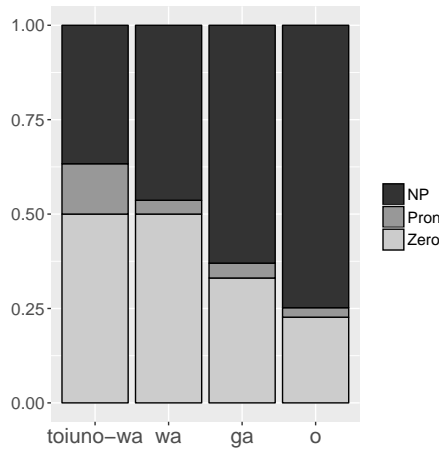


Figure 5.19: Antecedent's particle vs. current expression type

Not all clause-initial antecedents of zero pronouns are coded by **topic** markers. Figure 5.19 is a bar plot of expression types of elements based on the particles of their antecedents. According to the figure, the antecedents of zero pronouns are more likely to be coded by *wa* or *toiuno-wa* than those of overt NPs, although there are many antecedents of zeros coded by *ga* or *o*.

In the following example (29), *waru-gaki* 'brats', which is coded by *ga* clause-initially in line a, is the **antecedent** of the zero in line b.

- (29) a. a dokka-no kinzyo-no waru-gaki-ga
 FL somewhere-GEN neighborhood-GEN bad-brat-ga
 sute-inu-o mi-te
 abandon-dog-o look-and
 'Brats around here found this abandoned dog, and'
- b. akai penki-o hana-no ue-ni Ø nut-ta-n-daroo-to
 red paint-o nose-GEN above-DAT Ø paint-PAST-NMLZ-INF-QUOT
 '(they) must have painted the dog's nose red.'
- c. (we) were talking like this. (S02M0198: 176.26-184.61)

This might sound *a priori* to some readers because Japanese is traditionally argued to be an SOV language: of course *ga*-coded elements are subjects and precede other arguments. However, what I claim is that the persistent-element-first principle (25), in addition to the from-old-to-new principle (1), is one of the motivations for so-called subjects (A and S) to precede other arguments.

Another motivation has been pointed out for **topic** elements immediately repeated clause-initially. Den & Nakagawa (2013) discuss cases where clause-initial topics are used as fillers. Since topics have already been evoked in the speaker's mind, the cost of producing topics is lower than that of producing new elements. While the speaker utters the **topic**, s/he plans the following **utterance**. Den & Nakagawa (2013) investigated conversations and found that the **topic** elements repeated immediately after the previous speaker's **utterance** complementarily distribute with fillers. They also found that the length of the final mora of the **topic** phrase (typically *wa*) correlates with the length of the following **utterance** (see also Watanabe & Den 2010). In the following example (30), not only 'Serbian people' is repeated twice in line a and b, the whole sentence is almost repeated; the sentences in line a and b convey almost the same proposition. This is another piece of evidence that supports Den & Nakagawa's claim; while repeating almost the same proposition, the speaker can plan what to say next about this **topic**.

- (30) a. sono **serubia-zin-no** **kata-tati-ga** soko-ni-wa ma
 that Serbia-people-GEN person.PLT-PL-*ga* there-DAT-*wa* FL
 hazimete ee serubia-teekoku-toiu kokka-o tukuru-no-*ga* maa
 first.time FL Serbia-empire-QUOT nation-*o* make-NMLZ-*ga* FL
 zyuu-ni-seeki-no ma owari-gurai-nan-desu-*ga*
 ten-two-century-GEN FL end-around-NMLZ-COP.PLT-though
 'Those Serbian people built a nation called the Serbian Empire to-
 wards the end of the eleventh century.'
- b. ee kono ziki maa **serubia-no** **kata-tati-ga** maa koko-ni tu
 FL this time FL Serbia-GEN person.PLT-*ga* FL here-DAT FRG
 kokka-o tukut-te ee serubia-teekoku-toiu koto-de
 nation-*o* make-and FL Serbia-empire-QUOT thing-COP.and
 'Around this time Serbian people build a nation, this is the Serbian
 Empire and'
- c. ee ryuusee-o Ø kiwame
 FL flourish-*o* Ø be.extreme
 '(it) flourished.'
- d. At that time Catholics were coming from the north, and from the
 south, **Greek** Orthodox were coming,
- e. though they are both Christian,
- f. ee ni-keetoo-no syuukyoo-no naka-de seekatu-o Ø
 FL two-stream-GEN religion-GEN inside-LOC life-*o* Ø

- si-te-iku naka-de
do-and-go inside-LOC
'While (they) were living surrounded by two streams of religion,'
- g. ee serubia-teekoku-tosite ma dotira-o erabu-ka-tteiu na ko ee
FL Serbia-empire-as FL which-o choose-Q-QUOT FRG FRG FL
koto-no naka-de
thing-GEN inside-COP.and
'(they) faced the question of which one to choose.'
- h. ee ma minami-gawa-no girisya-seekyoo-o Ø toru
FL FL south-side-GEN **Greek**-Orthodox-o Ø choose
wake-nan-desu-ga
reason-NMLZ-COP.PLT-though
'(They) eventually chose **Greek** Orthodox.' (S00M0199:
212.34-221.02)

5.2.4 Summary of clause-initial elements

This section investigated characteristics of clause-initial elements. It turned out that shared and persistent elements tend to appear clause-initially. Not only did this study confirm the classic observation that topics tend to appear clause-initially, this section and the next section analyze what kind of topics appear clause-initially. I also discussed motivations for clause-initial topics.

5.3 Post-predicate elements

While Japanese is reported to be a **verb-final language** (Hinds 1986; Shibatani 1990), some elements appear after the **verb** in spoken Japanese (Kuno 1978; Ono & Suzuki 1992; Fujii 1995; Takami 1995a,b; Ono 2006; Nakagawa et al. 2008). The following are examples of post-predicate elements. Since post-predicate elements are very rare in monologues, the examples are from the dialogue part of CSJ. *Kono hito* 'this person' in (31) and *terii itoo* 'Terry Ito (A person's name)' in (32) are produced after the predicates *yat* 'do' and *kake* 'wear', respectively.

- (31) R: nani yat-teru-no kono hito
what do-PROG-NMLZ this person
'What is (he) doing, this person?' (D02F0028: 193.30-194.45)
- (32) L: sangurasu-toka kake-te-masu-yo-ne terii itoo-tte
sunglasses-HDG wear-PROG-PLT-FP-FP Terry Ito-QUOT

‘(He) is wearing sunglasses, isn’t he, Terry Ito?’ (D02F0015:
359.17-362.42)

This section investigates the **information structure** of post-predicate constructions of this kind. Although post-predicate expressions could be adverbs, connectives, and other adjuncts, this study only examines noun phrases.

5.3.1 Strongly evoked elements appear after predicate

Takami (1995a: 136) argues that postposed elements are elements other than the focus. For example, the answer to a question or *wh*-phrase cannot be postposed naturally. (33) is an example of a **postposed element** ‘a 10-carat diamond ring’ as the answer to the question ‘what’. While the sentence itself is natural, the **postposed element** cannot felicitously be the answer to a question.

- (33) Q: What did Taro buy for Hanako?
A: #taroo-wa hanako-ni kat-te yat-ta-yo **zyuk-karatto-no**
Taro-wa Hanako-for buy-and give-PAST-FP 10-carat-GEN
daiya-no yubiwa-o
diamond-GEN ring-o
‘Taro bought (it) for Hanako, a 10-carat diamond ring.’

Similarly, *wh*-phrases such as *dore* ‘which’ cannot be postposed, as shown in (34).

- (34) *itiban oisii-desu-ka **dore-ga?**
most delicious-COP.PLT-Q which-ga
‘The most delicious one, which?’

Nakagawa et al. (2008) found that there are two types of **post-predicate construction**: the single-contour and the double-contour types. The single-contour type is a type of **post-predicate construction** where the post-predicate elements are uttered without a pause and do not have the F_0 peak, whereas the double-contour type is a type of construction where the post-predicate elements are uttered with a pause and do have the F_0 peak. The **pitch** contours of each **utterance** are shown in Figure 5.20 for the single-contour type ((35-A) and (36-A)) and 5.21 for the double-contour type ((35-A’) and (36-A’)), both of which are produced by the author. The post-predicate part is *kome-wa* ‘rice-wa’, whose accent nucleus is on *me* and overall accent is supposed to be LHL (L indicates low and H indicates high in **pitch**). In Figure 5.20, where the **postposed element** is uttered with the

same continuous contour as the **main clause**, one can neither observe the F_0 peak in *me* nor a pause between the predicate and the **postposed element**. In Figure 5.21, on the other hand, where the **postposed element** is uttered in a separate contour from the **main clause**, one can observe the F_0 peak in *me* and a pause between the predicate and the **postposed element**.

Nakagawa et al. (2008) investigated the difference between these two types in terms of **information structure** and found that the post-predicate elements of the single-contour type are evoked by being mentioned immediately before or through physical context. On the other hand, those of the double-contour type are not necessarily evoked. For example, compare the following examples (35) and (36), where the bold-faced letters indicate that they are high in **pitch**.⁷ The referent ‘rice’ in (35) is evoked because it is mentioned in (35-Q) immediately before the answer to Q is uttered. In this case, (35-A’), where the **post-predicate element** *kome-wa* ‘rice-wa’ has its own F_0 peak and is preceded by a pause, is not acceptable, while (35-A), where the **post-predicate element** without its own F_0 peak is uttered immediately after the predicate without a pause, is acceptable.

(35) The referent ‘rice’ evoked

Q: I don’t like rice.

A: **oisii**-yo kome-wa
good-FP rice-wa

A’: ?**oisii**-yo, kome-wa
good-FP rice-wa

‘RICE is good (but others not).’

(Nakagawa et al. 2008: 7)

On the other hand, in (36), where ‘rice’ is not evoked before the speaker utters (36-A) or (36-A’), only the double-contour type (36-A’) is acceptable and the single-contour type (36-A) is not natural.

(36) The referent ‘rice’ not evoked

Q: Is that sushi bar good?

A: ??**oisii**-yo kome-wa
good-FP rice-wa

A’: **oisii**-yo, kome-wa
good-FP rice-wa

⁷Here I assume that the **pitch accent** of *oisii* ‘good’ is LHHH and that of *kome-wa* ‘rice-wa’ is LHL.

‘RICE is good (but others not).’ (ibid.)

The remaining issue is to investigate the difference between elements before and after the predicate in terms of **information structure**.

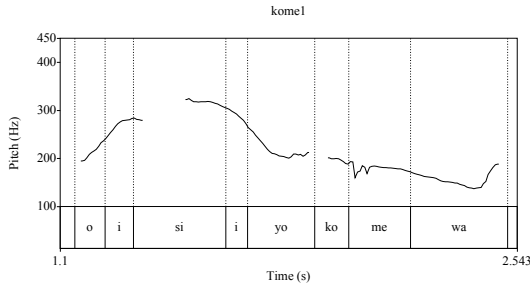


Figure 5.20: Post-predicate construction: single-contour type

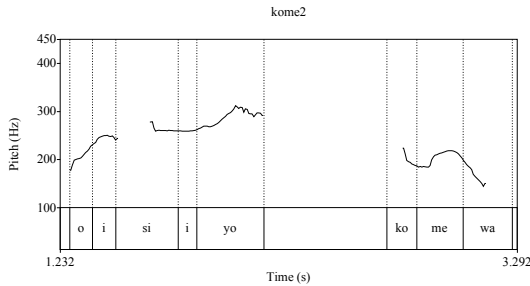


Figure 5.21: Post-predicate construction: double-contour type

Nakagawa et al. (2008) measured the referential distance (RD) between the post-predicate elements and their antecedents, i.e., they measured the number of inter-pausal units between the element in question and its **antecedent**. They modified the definition of RD from the original one (Givón 1983) and decided to use inter-pausal unit as a measure of RD since clause boundaries are sometimes difficult to identify in spoken Japanese. Their results are shown in Table 5.4. The table shows that the average RD of the post-predicate elements of the single-contour type is 6.9 on average, whereas that of the double-contour type is 39.7. What about elements before the predicate?

I conducted the same investigation for elements before the predicate, but this time I used monologues employed throughout this study because the dialogues

Nakagawa and her colleagues used in their study lack the information about RD of elements before the predicate.⁸ Further studies are needed to make sure that elements before the predicate in monologues and dialogues have the same characteristics. Table 5.5 shows the average RDs of elements before the predicate based on their word order. Here, I simplified word order to only count arguments (excluding fillers, fragments, adverbs, adjectives, etc.). 1 indicates that the element in question is the first argument in a clause, 2 indicates that it is the second argument, and so on. The RD of the first argument is 20.9 on average, that of the second argument is 23.0, and the third is 41.1. The table indicates that the RDs of elements before the predicate, regardless of their word orders, are larger than that of postposed elements of the single-contour type. The RD of double-contour postposed elements is similar to that of preposed elements in the third position. I do not have an explanation for the RD of double-contour postposed elements. I believe that postposed elements of the double-contour type are heterogeneous; some might be afterthought, some might have interactional functions (Ono 2007), others might be something else (Tanaka (2005); Guo & Den (2012), see also the discussion in §5.3.2.3). What I want to emphasize here is that the RD of the single-contour postposed elements is smaller than that of elements before the predicate. The postposed elements of the single-contour type are evoked when they are uttered; their activation cost is low. Taking into consideration the fact that many of the post-predicative elements are pronouns or nouns preceded by demonstratives (Nakagawa et al. 2008), I propose that post-predicative elements are often strongly evoked. On the other hand, the activation cost of preposed elements is higher than that of postposed elements.⁹

Table 5.4: RD of post-predicate elements

	Single-contour	Double-contour
RD	6.9	39.7

⁸Nakagawa et al. (2008) counted the RD of non-anaphoric elements as 100 (the maximum value of RD), but this study didn't include non-anaphoric elements since I thought that this is ad hoc. This modification makes the RD of elements before the predicate (conducted in this study) smaller. This has only a small effect and the overall conclusion does not change because according to our result, the RD of pre-predicate elements are larger than that of post-predicate elements; if this study employed the same criteria as Nakagawa et al., the RD of elements before the predicate would be expected to be even larger.

⁹The average RD of zero pronouns is 5.0, which shows that post-predicate elements of the single-contour type is close to zero pronouns.

Table 5.5: RD of elements before predicate

	1	2	3
RD	20.9	23.0	41.1

The following are examples of post-predicate constructions from dialogues. (37) and (38) are examples of the single-contour type. The postposed elements of this type are typically pronouns or modified by demonstratives such as *kono* ‘DEM.PROX (this)’, *sono* ‘DEM.MED (this/that)’, and *ano* ‘DEM.DIST (that)’. In (37), the **postposed element** is the **pronoun** *kore* ‘DEM.PROX (this)’. The participants are working on a task of ranking famous people based on how much they earn. The **utterance** is produced in the middle of this task and the **demonstrative** *kore* refers to the ranking so far. Therefore, the referent of *kore* is expected to be evoked in the participants’ mind. As shown in Figure 5.22, where the upper box indicates the intensity of the **utterance** and the lower box indicates the F_0 , the **postposed element** *kore* does not have a F_0 peak.

- (37) L: sugoi tatakai-da-yo-ne **kore**
 awful battle-COP-FP-FP this
 ‘(It) is an awful battle, this?’ (D02F0025: 463.93-465.81)

In (38), where the participants are involved in the same task as (37), *kono hito* ‘this person’ is the famous person under discussion right now and hence the referent is evoked in the participants’ mind. Figure 5.23 shows the intensity and the F_0 of the **utterance** (38). Although the F_0 of the **postposed element** is not shown because the speaker’s **utterance** is too quiet, the intensity tells us that the **postposed part** is uttered without a pause. Also, the fact that the intensity is low indicates that the **postposed element** is only weakly uttered because the referent is sufficiently evoked.

- (38) R: nani yat-teru-no **kono hito**
 what do-PROG-NMLZ this person
 ‘What is (he) doing, this person?’ (D02M0028: 193.30-194.45)

Common nouns can also be postposed elements of the single-contour type as in (39). In (39), where the participants are again involved in the same task, the **postposed element** *syasin* ‘photo’ is uttered without a pause or F_0 peak, as shown in Figure 5.24. Since R, the other participant, is physically holding the photos and this is part of their rules of the task, it is reasonable to assume that the

participants have already evoked the photos.

- (39)

L:

siro-kuro-desu-ka

syasin

white-black-COP.PLT-Q photo

‘Are (they) black-and-white, the photos?’

(D02F0015: 313.95-315.26)

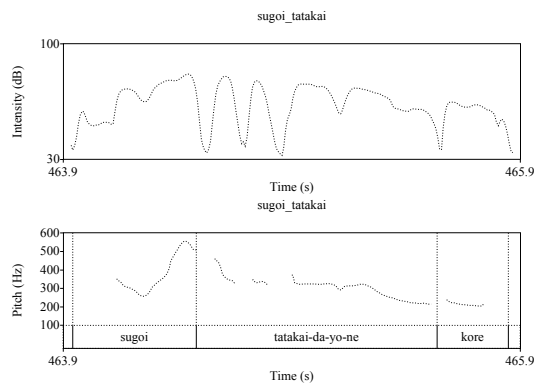


Figure 5.22: Intensity and F₀ of single-contour type (37)

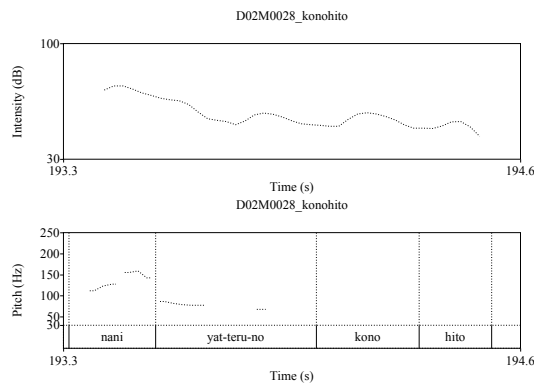
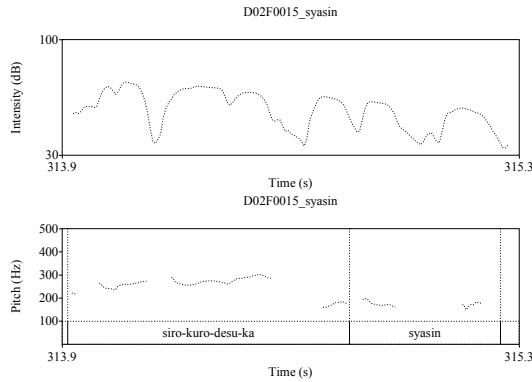


Figure 5.23: Intensity and F₀ of single-contour type (38)

On the other hand, postposed elements of the double-contour type have not been evoked enough or they are contrastive at the time of utterance. In (40), where again the participants are involved in the task of ranking famous people

Figure 5.24: Intensity and F_0 of single-contour type (39)

based on their income, *kotti-wa* ‘on my side’ is uttered in a separate contour from the **main clause** and there is a pause between the **main clause** and the **postposed element**, as shown in Figure 5.25. ‘On my side’ is necessary information in the sense that the other participant L was talking about how many people were listed on her own side. Therefore, the participant R might have thought that ‘there are ten people’ is not enough and added ‘on my side’ later. The F_0 peak of the postposed *kotti-wa* ‘on my side’ is still lower than *zyuu* ‘ten’ in the **main clause**, and the intensity is also lower. This is because the **postposed element** is not the focus as Takami (1995a,b) has pointed out. Foci are typically new in the given-new taxonomy and need both F_0 peak and intensity in order for the **hearer** to understand clearly what is said.

- (40) L: There are eleven people (listed on my side).
 R: *zyuu-nin-desu kotti-wa*
 ten-people-COP.PLT this.side-*wa*
 ‘There are ten people on my side.’ (D02F0015: 3.27-9.03)

In (41), L is interviewing R about her study on the difference among Japanese dialects. R utters ‘western area’ in a separate contour from the predicate because R compares different dialects and, only in the eastern area, did she find no differences among smaller areas (prefectures). Therefore ‘the eastern area’ is contrasted with other areas. In this case, the F_0 peak and the intensity of the **postposed element** are as high as those of the **main clause**, as shown in Figure 5.26.

- (41) R: kooiu sa-ga aru-ne-tte iu-koto-wa ie-nai
 such.and.such difference-ga exist-FP-Q say-thing-wa say-NEG
 zyootai-desi-ta-ne **kantoo-no hoo-wa**
 situation-COP.PLT-PAST-FP east-GEN direction-wa
 ‘One cannot say that there is such and such difference, eastern area.’
 (D04F0050: 338.54-349.27)

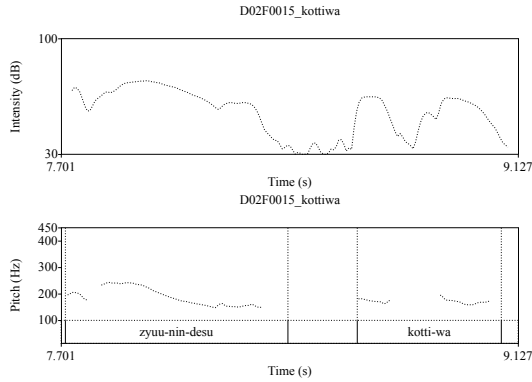


Figure 5.25: Intensity and F_0 of double-contour type (40)

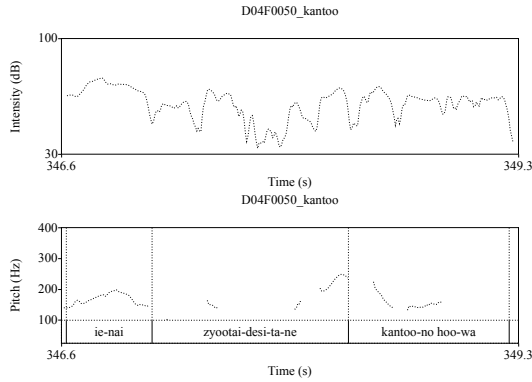


Figure 5.26: Intensity and F_0 of double-contour type (41)

5.3.2 Motivations for topics to appear post-predicatively

It has been pointed out that topics or given elements tend to appear clause initially (Mathesius 1928; Firbas 1964; Daneš 1970). What are the motivations for them to appear post-predicatively? In this section I mainly discuss the post-predicate elements of the single-contour type in comparison with the elements before the predicate. Those of the double-contour type are heterogeneous as discussed above and this needs further investigation.

5.3.2.1 Low activation cost and general characteristics of intonation unit

Before getting directly into the question of why some topics appear post-predicatively, let us begin with the question of why some topics do not appear clause-initially. As discussed in §5.2.1 and this section, the **activation cost** of preposed topics is higher than those of postposed topics and zero pronouns. The **low activation cost** of post-predicate elements suggests that they are not anchors to the previous **discourse**; since they are already evoked enough, they do not have to relate to the previous contexts and the current **utterance**. Therefore, they have the motivations for not appearing clause-initially. Why do they appear post-predicatively?

I argue that the element whose **activation cost** is low tends to appear post-predicatively because, in Japanese and many other languages, an **intonation unit** starts from high F_0 and gradually declines toward the end (Lieberman & Pierrehumbert 1984; Cruttenden 1986; Du Bois et al. 1993; Chafe 1994; Prieto et al. 1996; Truckenbrodt 2004; Den et al. 2010). Since the elements with **low activation cost** do not require high F_0 , their preferred position is toward the last position in an **intonation unit**. This kind of phenomenon has already been reported in Siouan, Caddoan, and Iroquoian languages of North America (Mithun 1995). In these languages, this newsworthy-first (i.e., given-last) **word order** is fully grammaticalized, and Mithun proposes a hypothesis that the given-last **word order** comes from right-detachment constructions, namely, the postposed constructions discussed in this section. She argues that this **word order** is motivated by the general tendency that intonation units start from high F_0 , which gradually declines. This tendency of intonation units is physiologically motivated, as Cruttenden (1986) discusses:

The explanation for declination has often been related to the decline in transglottal pressure as the speaker uses up the breath in his lungs. A more recent explanation suggests that an upward change of **pitch** involves a physical adjustment which is more difficult than a downward change of **pitch**, the

evidence being that a rise takes longer to achieve than a fall of a similar interval in fundamental frequency. (Cruttenden 1986: 168)

Moreover, Comrie (1989: 89) argues that unstressed constituents such as clitic pronouns are cross-linguistically “subject to special positioning rules only loosely, if at all, relating to their grammatical relation”; therefore, he argues that “sentences with pronouns can be discounted in favour of those with full noun phrases”. Arguing against the hypothesis (Givón 1979) that one can reconstruct ancient word order of a language based on pronominal affixes and clitics, Comrie suggests that the order of pronominal affixes and clitics in a clause is more likely to be influenced by stress rhythm properties (Comrie 1989: 218).

I argue that the order of Japanese unstressed pronouns and NPs is also affected by phonetic constraints as Comrie suggests. As will be discussed in Chapter 6, some unstressed pronouns and NPs referring to highly evoked entities lose pitch peaks and are produced only in low pitch. However, an accent rule in Japanese does not allow lexical items to start with two low pitch morae in a row. Therefore, the best position for unstressed items is the sentence-final or post-predicate position, which allows unstressed items to appear. For phonetic analysis of unstressed items, see Chapter 6.

5.3.2.2 Why the post-predicate construction mainly appears in dialogue and what the source of “emotive” usage is

The declination of F_0 does not fully explain post-predicate constructions in Japanese. The discussion above does not explain why the Japanese post-predicate construction mainly appears in dialogues, but not in monologues. Moreover, Japanese post-predicate constructions are reported to have “emotive” characteristics (Ono 2007). As examples for emotive characteristics of post-predicate constructions, consider the following constructed example. Let us assume that a boy gave a present to his girlfriend. The girl happily received the gift and opened it. After seeing the gift, say a banana case,¹⁰ she uttered (42) or (43). Since the most frequent word order in Japanese is predicate-final, the canonical order is (42) and (43) can be regarded as a post-predicate construction.

- (42) kore nani
this what
‘What’s this?’ (Canonical word order)

¹⁰Bananas of all sizes can fit into this banana case.

- (43) nani kore
 what this
 ‘What’s this (weird thing)?’ (Post-predicate construction)

These two utterances consist of the same constituents *kore* ‘this’ and *nani* ‘what’. As was pointed out in Ono & Suzuki (1992) and Ono (2007), however, the implicatures of these two are different. In (42), she simply does not know what she received, probably because she has never seen it before. By contrast, in (43), she knows what she received (it’s a banana case) but she did not like it, as we expected. In other contexts, (43) can be used to express the speaker’s surprise, excitement, etc. However, (43) can never be a neutral question. Where does this implicature come from?

Since these two utterances consist of exactly the same elements, it is obvious that the implicature in (43) cannot be derived from the meaning of each constituent. In this study, I propose two factors involved in the questions of why post-predicate constructions mainly appear in dialogues and of what the source of this “emotive” usage is: word order and intonation.

Firstly, I discuss why the post-predicate construction appears mainly in dialogues. My point is that, since the intonation-unit-final position is a position for expressions with interactional functions, the post-predicate element (of the single-contour type) plays some interactional role. As has traditionally been argued (e.g., Watanabe 1971), the post-predicate position is for interaction in Japanese. Iwasaki (1993) extended this argument and claimed that in fact the intonation-unit-final position is the position for interaction; the post-predicate position is only one example of this intonation-unit-final position. Consider the following example. Each line corresponds to a single intonation unit. The lines a, b, and c end with interactional markers *ne* and *sa*, which is indicated by IT. As examples (44) show, these interactional markers appear IU-finally.¹¹

- (44) a. sooiu sito-ga siki si-te-ne
 such person-ga lead do-and-FP
 ID ID ID ID-CO-IT
 ‘Such people led, and’

¹¹IT stands for “interactional component”, one of four types of components in an intonation unit. Other types are: LD (lead component (e.g., fillers)), ID (ideational component), and CO (cohesive component). The order of an intonation unit is proposed to be LD ID CO IT in Japanese (Iwasaki 1993: 44).

b. sinin-o asoko-e minna-**ne**
 corpses-o there-DIR all-FP
 ID ID ID-IT

c. ano dote-no ue-e-sa
 that bank-GEN top-DIR-FP
 ID ID ID-ID-IT
 atsume-te
 gather-and
 ID-CO

‘gathered dead bodies on top of that bank...’ (Iwasaki 1993: 47, gloss and transcription modified by the current author)

As Morita (2005) suggests, a general function of **interactional** particles such as *ne* and *sa* is “to foreground a certain stretch of talk as an ‘interactionally relevant unit’ to be operated on – whether that unit is itself a whole **utterance** or merely one particular component of that **utterance**” (p. 92). Since the post-predicate elements follows these **interactional** particles within the same **intonation unit** as in (32) and (37), where the post-predicate elements follow *ne*, they are also expected to have some **interactional** functions. Guo & Den (2012) report that 77.6% of the post-predicate constructions have **interactional** particles of this kind after the predicate, whereas only 47.0 % of the non-post-predicate constructions have **interactional** particles. This also suggests that post-predicate constructions are related to some **interactional** characteristics. Further investigation is necessary for the question of what kind of **interactional** functions they have, possibly employing conversational analysis.

Secondly, I argue that the source of “**emotive**” **implicature** of (43) in contrast with (42) comes from the intonational constraint of the **post-predicate element**. In Japanese, *wh*-questions can be optionally uttered with **rising intonation**. However, the **post-predicate element** is always falling and the **rising intonation** is not natural. Figure 5.28 shows the **pitch contour** of the **utterance** *nani kore* ‘what’s this (weird thing)?’ (43), while Figure 5.27 shows the **pitch contour** of neutral order *kore nani* ‘what’s this?’ (42). As indicated in the figures, the neutral **word order** (42) in Figure 5.27 is uttered with **rising intonation**, and I believe that this is the most frequent intonation, whereas the **post-predicate construction** (43) in Figure 5.28 is **falling intonation**, in which case it is impossible to utter *kore* with **rising intonation**. It is this constraint on the intonation of post-predicate elements that yields the **emotive implicature** of the **utterance** (43). In fact, the neutral **word order** *kore nani* can be uttered in **falling intonation**, as shown in

Figure 5.29. In this case, as predicted from the discussion, the **falling intonation** conveys emotion of the speaker. It is possible for *nani* ‘what’ in (43) to be uttered with **rising intonation** as indicated in Figure 5.30, in which case the **emotive** nuance of (43) disappears.

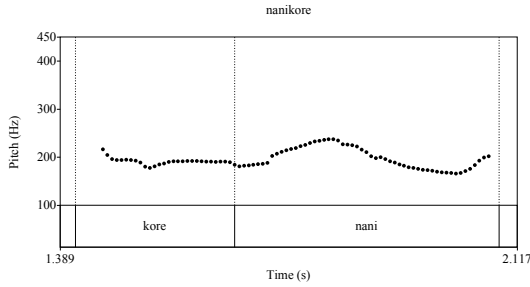


Figure 5.27: Pitch contour of *kore nani* (42) with rising intonation

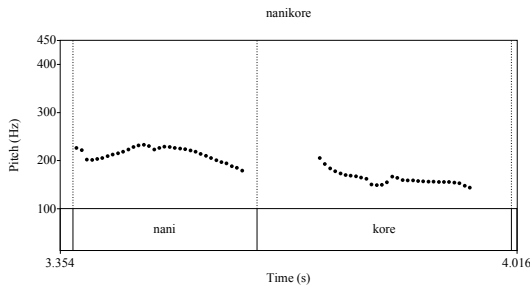
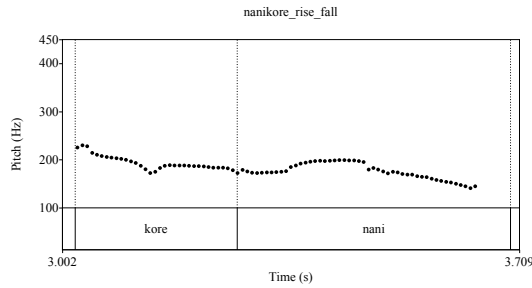
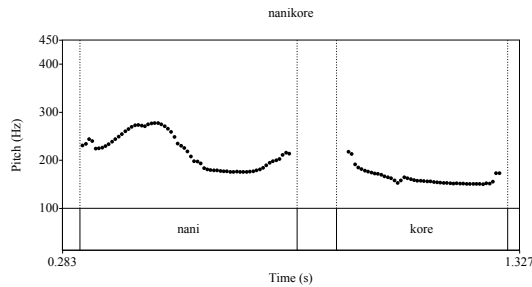


Figure 5.28: Pitch contour of *nani kore* (43)

5.3.2.3 Post-predicate elements with double-contour type

Finally, in this section, I briefly mention intriguing studies on post-predicate constructions, which I assume belong to the double-contour type. The first study is Guo & Den (2012). They investigated whether the **hearer** responds (including back-channel responses) to the speaker near and after the predicate and showed that the speaker adds post-predicate elements when the **hearer** does not respond to the predicate. Their further analysis suggests that the speaker produces post-predicate elements to acquire the **hearer**'s response and to achieve mutual belief. Let us see example (45), which comes from the dialogue part of CSJ they em-

Figure 5.29: Pitch contour of *kore nani* (42) with falling intonationFigure 5.30: Pitch contour of *nani kore* (43) with rising intonation of *nani*

ployed. The duration of silence is shown in seconds inside parentheses since it is important for the discussion. In (45–L2), where the speaker postposes the element *kono kenkyuu* ‘this study’, there are pauses between the **verb** phrase and the postposed **demonstrative** *kono* ‘this’ and between the **demonstrative** and the postposed NP *kenkyuu* ‘study’, which is enough time for L to realize that R does not respond to L. Note that R, the listener of the **postposed construction**, does not respond until 604.33 seconds, 0.32 seconds after L finished the post-predicate part. Also note that these pauses differentiate post-predicate constructions of the double-contour type from those of the single-contour type.

- (45) L1: ima nan-nin-gurai-de (0.588) a (0.29) ohi
 now what-CL.person-HDG-with FL FRG
 ‘Right now, how many people... oh,’
 L2: kihontekini-wa hitori-de (0.161) yat-te rassyaru-desu-mon-ne
 basically-wa alone-with do-and PROG.HON-COP-NMLZ-FP

(0.12) **kono** (0.585) **kenkyuu**

this study

‘basically, (you) do (it) by yourself, this study?’

(D04M0010: 597.20-604.01)

R3: ettoo (0.434) a (0.137) boku-no syozoku-si-teru

FL FL ISG-GEN belong-do-PROG

kenkyuu-situ-de(0.44)-wa hanasi-kotoba-no ninsiki-o

study-room-LOC-wa speech-language-GEN recognition-o

yat-teru-no-wa (0.143) m soo-desu-ne

do-PROG-NMLZ-wa FRG SO-COP.PLT-FP

‘Lets see... in the lab I belong to the one who studies speech recognition is, yes...’

R4: boku hitori-desu-ne

ISG alone-COP.PLT-FP

‘it’s just me.’

(D04M0010: 604.33-612.09)

(Guo & Den 2012: 287)

Tanaka (2005) investigates postposed and preposed constructions in terms of **interactional** structures: preferred vs. dispreferred structures. See the discussion in §2.4.3.3 for detail.

5.3.3 Summary of post-predicate elements

In this section I investigated post-predicate elements. It turned out that the activation costs of postposed elements are much lower than that of preposed elements, which appear before the predicate. This suggests that topics also appear post-predicatively. I also discussed why topics appear post-predicatively as well as clause-initially in terms of the shape of intonation and its constraints on Japanese grammar.

The characteristic found in this study is one of many features of post-predicate elements. In future research, it is necessary to explore how these features are related to each other.

5.4 Pre-predicate elements

This section discusses pre-predicate elements, which appear immediately before the predicate. In §5.4.1, I show results which indicate that new, namely focus elements, elements tend to appear right before the predicate. In §5.4.2, I discuss motivations for focus elements to appear near the predicate.

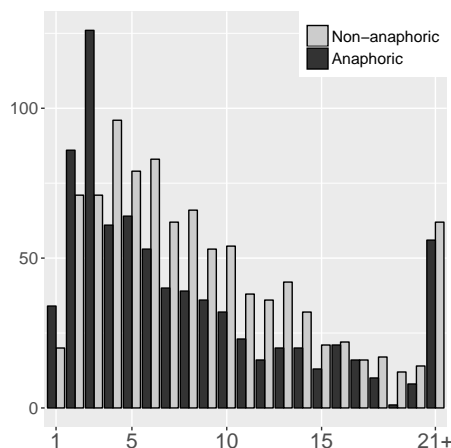


Figure 5.31: Word order vs. information status

5.4.1 New elements appear right before predicate

As shown in Figure 5.2 and 5.5, which are repeated here for convenience as Figure 5.31 and 5.32, respectively, new elements or focus elements tend to appear immediately before the predicate. Figure 5.31 shows the element position based on their **information status** including all expressions such as fillers, adjectives, and so on; Figure 5.32 shows the distance between the element and the predicate based on their **information status**. As indicated in Figure 5.31, the distribution of **anaphoric** elements is skewed towards clause-initial position, whereas that of **non-anaphoric** elements is not. Taking Figure 5.32 into this account as well, we can see that many of new elements appear immediately before the predicate. As discussed in 5.1, the mixed effects model of **information status** (the distance between the predicate and the element in question) shows that the contribution of the distance is only marginally significant. However, a further analysis implies that the distance is also a significant factor for predicting **information status**. As is clear from Table 4.3 and 4.4, datives tend to code new elements (especially, as opposed to *wa*). Datives can appear anywhere, from pre-predicate to clause-

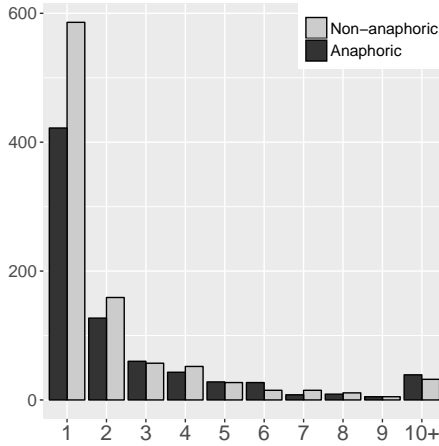


Figure 5.32: Distance from predicate vs. InfoStatus

initial positions, which is shown in Figure 5.33. Therefore, I tentatively conclude that the distance between the predicate and the element in question (excluding *ni*-coded elements) is an important factor for **information status** and new elements appear before the predicate. This supports a classic observation in other languages that focus appears closely with the predicate (Bresnan (1994); Morimoto (1999) on Bantu languages, Jacennik & Dryer (1992) on Polish, Erguvanli (1984) on Turkish, see Morimoto (2000) for a summary of studies on both VO and OV languages). Further studies are necessary to obtain conclusive evidence.

The following are example of non-anaphoric elements appearing close to the predicate. (46) and (47) are examples of non-anaphoric P occurring immediately before the predicate. In (46), *kyoomi* ‘interest’ appear immediately before the predicate *moti* ‘have’, and, in (47), *aidenthithii* ‘identity’ in line a, *inoti* ‘life’ in line b, and *ti* ‘blood’ in line c appear right before the predicates *kake* ‘risk’ and *nagasi* ‘bleed’, respectively. Non-anaphoric Ps are typically abstract concepts like *kyoomi* ‘interest’ in (46), *aidenthithii* ‘identity’ in (47-a), and *inoti* ‘life’ in (47-b), or **indefinite** like *ti* ‘blood’ in (47-c).

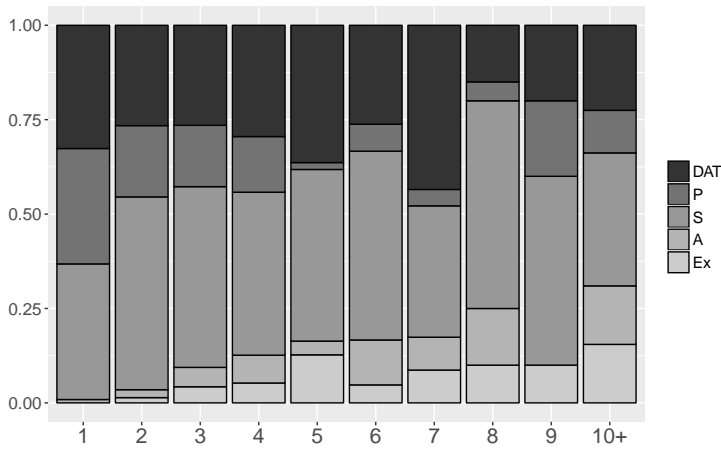


Figure 5.33: Distance from predicate vs. grammatical functions

- (46) de ee sono ri-too-no hoo-ni sono **kyoomi-o** moti
 then FL FL remote-island-GEN direction-DAT FL interest-o have
 hazime-masi-te
 start-PLT-and
 ‘(We) are started to be interested in remote islands (in Hawaii).’ (S00F0014: 149.92-153.33)
- (47) a. tasuu-no serubia-zin-ga minzoku-no ee **aidenthithii-o**
 many-GEN Serbia-people-ga ethnic-GEN FL identity-o
kake-te
 risk-and
 ‘Serbian people bet their identity, and’
 b. **inoti-o** kake-te
 life-o risk-and
 ‘risked their lives, and’
 c. **ti-o** nagasi-ta-to iu
 blood-o bleed-PAST-Q say
 ‘bled (in battles),’
 d. rekisi-ga ee sono-go tenkai s-are-masu
 history-ga FL that-later progress do-PASS-PLT
 ‘history went on this way.’ (S00M0199: 343.53-351.77)

Non-anaphoric S elements also appear immediately before the predicate. They tend to be abstract or indefinite like non-anaphoric Ps. In (48), *kanzi* ‘impression’ is the only argument of the predicate *tigau* ‘differ’ and hence is S, which is an abstract concept. This appears immediately before the predicate.

- (48) a. sono kontorasuto-toiuno-wa nanka totemo koo
 that contrast-toiuno-wa somehow very such
 ekizotikku-to-iu-ka
 exotic-QUOT-say-Q
 ‘The contrast (the color of black and blue) is very exotic, I would say,’
 b. husigina kanzi-ga si-masi-te
 mysterious impression-ga do-PLT-and
 ‘the impression was mysterious.’ (S00F0014: 1042.88-1047.03)

In (49), *hito* ‘person’ is indefinite and appears before the predicate.

- (49) naka-ni-wa byooin-okuri-ni naru hito-mo
 inside-DAT-wa hospital-send-to become person-also
 i-masi-ta-kedomo
 exist-PLT-PAST-though
 ‘Some people were sent to the hospital (lit. People who were sent to the hospital also exist).’ (S05M1236: 578.30-581.49)

5.4.2 Motivations for focus to appear close to predicate

I argue that the information-structure continuity principle (10) is also at work here, which is repeated below as (50) for the purpose of convenience.

- (50) **Information-structure continuity principle:** A unit of information structure is continuous in a clause; i.e., elements which belong to the same unit are adjacent with each other.

I assume that most frequently the predicate is in the domain of focus (Lambrecht 1994), optionally with one focus element. Since the predicate and the new element are in the same domain of focus, they appear together most frequently.

In fact, few studies pay attention to the information status (and namely information structure) of predicates.¹² Unfortunately this study is not an exception. Typically definite markers such as *the* in English and *der* in German attach to nouns, not to verbs. Also topic markers such as *wa* in Japanese typically attach

¹²Hopper & Thompson (1980) is an important exception.

to nouns. Therefore, nouns have attracted more attention than verbs. Typically verbs are followed by tense or aspect markers, subordinate-clause markers, realis vs. irrealis markers, and so on. I believe that these verbal markers are also related to **information structure**, but this is beyond the scope of this study.

However, it is obvious that **argument-focus structure**, where the predicate is not in the domain of focus, is the least frequent type among all three types (predicate-focus, sentence-focus, and argument-focus structures). Given that the corpus employed in this study consists of monologues, it is to be expected that there are even fewer examples of argument-focus structures because these structures typically appear as the answer to a who/what question, as shown in (51) where the capital letters indicate prominence.

- (51) Q: Who went to school?
 A: [The CHILDREN]_F [went to school]_T. (Lambrecht 1994: 121)

Since there are no (explicit) questions in monologues, we find fewer argument-focus structures.

Another context in which sentences with **argument-focus structure** appear is the “A not B” context. In **monologue**, “A not B” contexts typically appear in self-repair, which is also rare in our relatively smooth monologues. Therefore, it is not unreasonable to assume that the predicate is in the domain of focus most of the time, and I argue that the information-structure **continuity principle** (50) explains why new elements (i.e., focus elements) tend to appear immediately before the predicate.

One piece of evidence that supports the information-structure **continuity principle** is the fact that it is difficult for presupposed elements to appear immediately before the predicate, interrupting the focus domain. Compare (52-A) and (52-A'), which are assumed to be the answers to the question (52-Q).¹³ In (52-A), the presupposed elements *taroo-ni* ‘to Taro’ and *hanako-ni* ‘to Hanako’ are interrupting the domain of focus ‘gave a travel ticket’ and ‘gave a cake’. Therefore this sentence is not acceptable. Conversely, in (52-A'), the presupposed elements do not intervene the domain of focus and hence this is acceptable.

- (52) Q: What did you do for Taro and Hanako for their birthdays?
 A: ?[ryokoo-ken-o]_F [taroo-ni]_T [age-te]_F [keeki-o]_F [hanako-ni]_T
 travel-ticket-o Taro-DAT give-and cake-o Hanako-DAT

¹³Note that they are not a perfect minimal pair because of the **accusative marker** of *o*. The presence or absence of *o* is determined by **word order** and **information structure** is a kind of side effect in this case. See the discussion in §4.3 for more detail.

- [tukut-te age-ta]_F-yo
 make-and give-PAST-FP
 ‘(I) gave travel tickets to Taro and gave cake to Hanako.’
- A’: [taroo-ni]_T [ryokoo-ken age-te]_F [hanako-ni]_T [keeki tukut-te
 Taro-DAT travel-ticket give-and Hanako-DAT cake make-and
 age-ta]_F-yo
 give-PAST-FP
 ‘(I) gave travel Taro travel tickets and gave Hanako cake.’

A more natural context for (52-A) is where Q asks what A did for the travel ticket and the cake. Kuno (1978) proposes that the pre-predicate position is for new elements, but he limits this principle to cases where the predicate is given.

- (53) In cases where the predicate is given, the position immediately before the predicate is the position for new. (Kuno 1978: 60, translated by the current author)

I argue that this observation also applies to cases where the predicate is new.

Moreover, as will be discussed in Chapter 6, the domain of focus is uttered in a single intonation unit, whereas the topic is uttered separately from the domain of focus. Figure 5.34 to 5.37 show the pitch contours of examples (47) and (48) we discussed in the last section. As we can see, there is no pause between the predicate and the previous element and the pitch range is larger in the elements than in the predicates. In Figure 5.36, it is difficult to see the pitch range because *ti* ‘blood’ does not have accent nucleus. From the first lowering of *na* in *nagasi-ta* ‘bled’ being cancelled,¹⁴ one can see that *ti-o* ‘blood-o’ and *nagasi-ta* ‘bleed’ form a single intonation unit.

5.4.3 Summary of pre-predicate elements

The results of this section showed that new elements, namely focus elements, tend to appear right before the predicate. A similar claim has been made by Kuno (1978) and Endo (2014) through constructed examples. This study supported their claim by examining naturally occurring utterances. I also discussed motivations for the focus to appear right before the predicate.

¹⁴The pitch accent of *nagasi-ta* is LHLL.

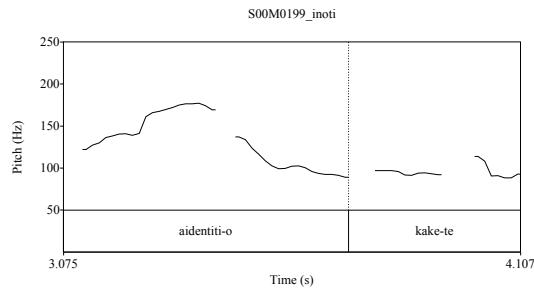


Figure 5.34: Pitch contour of a in (47)

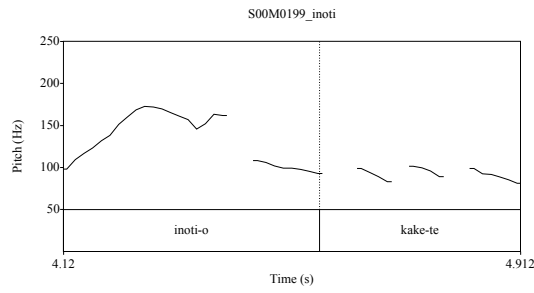


Figure 5.35: Pitch contour of b in (47)

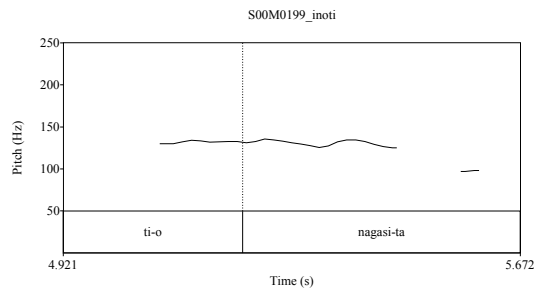


Figure 5.36: Pitch contour of c in (47)

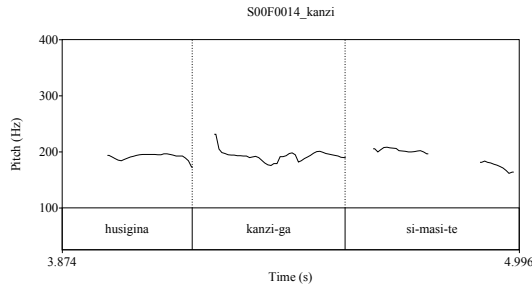


Figure 5.37: Pitch contour of b in (48)

5.5 Discussion

This section first discusses possible confounding effects on **word order** in Japanese, in particular in association with basic **word order** (§5.5.1). Second, I discuss Givón’s **topicality** hierarchy (§5.5.2). I provide some counter-examples of this hierarchy and propose to modify it. Finally, I discuss the implications of this study’s findings as regards **word order** typology (§5.5.3).

5.5.1 Possible confounding effects

It is necessary to take other features into account to see the exact effect of topicalhood and focushood on **word order**. Especially, the effect of “basic **word order**” should not be ignored. Here I provide some evidence to support my argument that **information structure** contributes to **word order** in spoken Japanese. Figure 5.38 to 5.41 show **word order** and **information status** of each type of grammatical function (A, S, P, and dative). These figures indicate that **anaphoric** elements of all grammatical function types are still more likely to appear earlier in a clause than new elements. A and S are more likely to appear earlier in a clause than P because of the basic **word order**. However, my argument still holds for the same grammatical function types. In cases with new elements, one can see the effect of basic **word order**; the peak of S is 4, which means the 4th position is the most popular for new S (Figure 5.39), whereas the peak of P is 6, which means the 6th position is the most popular for new P (Figure 5.40). The distribution of A is not clear because there are few examples. But the trend still seems to hold for A.

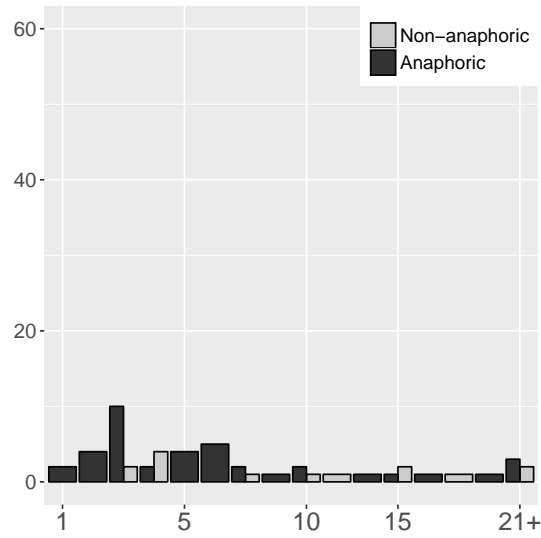


Figure 5.38: Word order of A

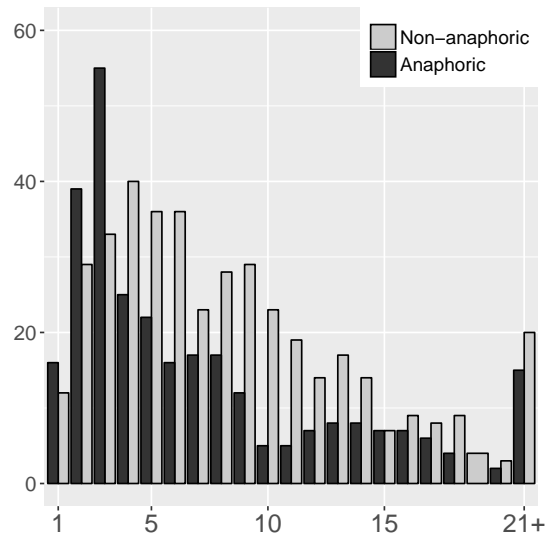


Figure 5.39: Word order of S

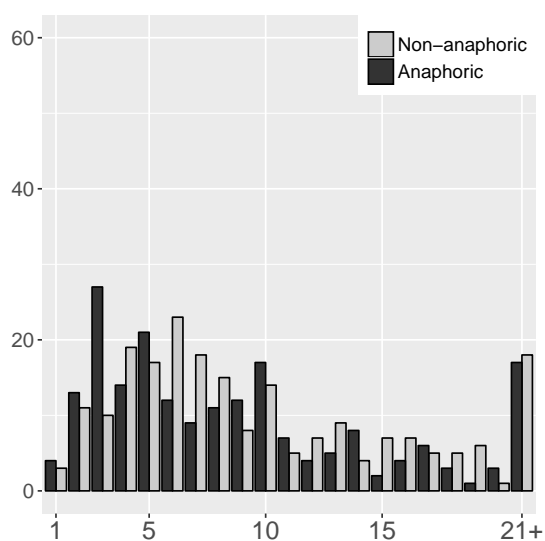


Figure 5.40: Word order of P

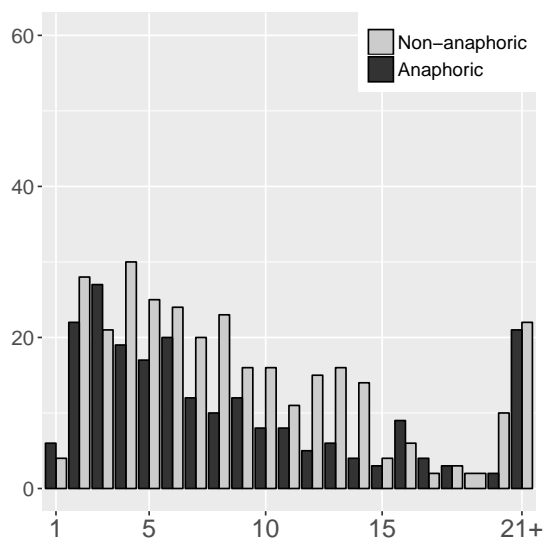


Figure 5.41: Word order of dative

5.5.2 Givón's topicality hierarchy and word order

Givón (1983) proposes a hierarchy of topicality (54) (terminology modified by the author). "RD" refers to referential distance, which is one of the approximations to measure topicality. Low RD means high topicality, while high RD means low topicality.

- (54) ↑ High RD
 a. Referential indefinite NPs
 b. Cleft/focus constructions
 c. Y-moved NPs ('contrastive topicalization')
 d. Preposed definite NPs
 e. Neutral-ordered definite NPs
 f. Postposed definite NPs
 g. Stressed/independent pronouns
 h. Unstressed/bound pronouns or grammatical agreement
 i. Zero anaphora
 ↓ Low RD (Givón 1983: 7)

Here I point out two counter-examples against this hierarchy. First, as has already been shown in Table 5.4 and 5.5, which are repeated as Table 5.6 and 5.7 for convenience, the average RD of elements in the clause-initial position (20.9) is lower than that in the second (23.0) or third positions (41.1). To see this more in detail, I divided the result of Table 5.7 based on grammatical function. This is shown in Table 5.8. Regardless of whether the element is A, S, or P, the overall tendency is that the elements closer to the predicate have higher average RD.¹⁵ The topicality hierarchy (54) predicts that clause-initial elements (d in (54)) is lower RD than that of elements in the neutral-ordered position (e in (54)).¹⁶ Especially P is against the topicality hierarchy (54), according to which P in the second or third positions should have lower RD than P in the first position because the neutral position of P is the second or third positions in Japanese. But this is not the case. At least in Japanese, the data show that elements closer to the predicate have higher RDs because the pre-predicate position is for focus and hence new elements.

Second, the average RD of zero pronouns is as high as that of postposed NPs

¹⁵For now I do not have an explanation for S in the second position. It is necessary to test whether the difference between Ss in the first and the second positions is statistically significant or not.

¹⁶I assume that all elements that have antecedents (and namely RDs) are definite.

Table 5.6: RD of post-predicate elements

	Single-contour	Double-contour
RD	6.9	39.7

Table 5.7: RD of pre-predicate elements (based on argument order)

	1	2	3
RD	20.9	23.0	41.1

according to Table 5.9 and 5.10. This is against the **topicality** hierarchy (54) because it states that preposed definite NPs (d in (54)) and neutral-ordered definite NPs (e in (54)) have higher RDs than postposed definite NPs. As discussed above, elements are postposed for **interactional** purposes and/or intonational reason.

The final point is an additional suggestion of (54) rather than a counter-example. The RD of postposed elements of the double-contour type is much higher than Givón predicts. As will be argued in Chapter 6, a unit of **information structure** corresponds to a unit of intonation. Since postposed elements of the single-contour type by definition belong to the same **intonation unit** as the main predicate, the predicate and the **postposed element** form a single unit (construction) and postposed elements are relatively homogeneous and easy to characterize. However, postposed elements of the double-contour type are heterogeneous as discussed above and are difficult to characterize because the element itself cor-

Table 5.8: RD of pre-predicate elements (based on grammatical function)

	1	2	3
A	10.3	47.3	–
S	22.5	21.7	73.5
P	22.4	36.6	49.1

Table 5.9: RD of postposed elements of the single-contour type (based on expression type)

	Pronoun	NP
RD	15.1	5.0

Table 5.10: RD of pre-predicate elements (based on expression type)

	Zero	Pronoun	NP
RD	5.0	5.8	27.8

responds to a single unit. The motivations for such elements to be uttered are heterogeneous. The functions of such postposed elements are determined by the sequence of conversation.

5.5.3 Information structure and word order typology

Since most frequent focus elements are patients according to the correlating features (2), which is repeated as (55), the information-structure continuity principle (10) predicts that cross-linguistically P (the patient-like argument in a transitive clause) and V (the predicate) tend to appear together most frequently and, if the word order is fixed in the language in question, P and V tend to appear together.

- (55)

topic

a. presupposed

b. evoked

c. definite

d. specific

e. animate

f. agent

g. inferable

focus

asserted

brand-new

indefinite

non-specific

inanimate

patient

non-inferable

In fact this has already been claimed and tested in Tomlin (1986: Chapter 4). Tomlin proposes this claim as Verb-Object Bonding.

- (56)

Verb-Object Bonding (VOB): the object of a transitive verb is more tightly bounded to the verb than is its subject.

(Tomlin 1986: 74)

He also states that “[e]xactly why there should be such a bond between a transitive verb and its object is not entirely clear” (ibid.). I propose the information-structure continuity principle for the motivation of such bond. He enumerates many cross-linguistic pieces of evidence that support VOB. I introduce a few of them to keep the discussion simple.

First, in many languages, there exists some clause-level phonological behavior

(reductions or sandhis) which occur between object and **verb**, but not between subject and **verb** (op. cit., p. 97). In **French**, for example, liaison does not occur between the subject and the **transitive verb**, but it does between the object and the **verb** (see also **Selkirk 1972**). There is no liaison between the subject *les gens* and the **verb** *achètent* as in (57), whereas there can be liaison between the **verb** *donnerons* and the object *une pomme* as in (58).

- (57) a. les gens achètent beaucoup de ça
le ʒã afɛt boku də sa
the people buy.3PL much of that
'Those people buy a lot of that.' (no liaison)
- b. *le ʒã zafɛt boku də sa (*liaison)
- (58) a. nous donnerons une pomme à notre mère
nu dɔnəʁõ zyn pɔm a notr mɛʁ
we give.3PL a apple to our mother
'We will give an apple to our mother.' (liaison)
- (Tomlin 1986: pp. 98-99, transcription modified based on standard French)

Another case is **Yoruba** (Niger-Congo) **vowel** deletion (from **Bamgbose 1964**). In verb-noun sequences of this language, when the object begins with a **vowel**, the last **vowel** of the **verb** is sometimes deleted. This happens between **verb** and object, but not between subject and **verb**.

- (59) a. gbé + odó → gb'ódó
brought + motor
b. jε iyón → j'iyón
eat pounded.yam
c. ʃe òwò → ʃ'òwò
do trade

(Bamgbose 1964: pp. 29–30)

These phonological phenomena in **French** and **Yoruba** suggest that the object and predicate are bound more tightly than the subject and predicate. In a similar manner, in Japanese, the focus element and the predicate form a single **intonation unit**, but the **topic** element and the predicate do not, as we will see in Chapter 6.

The second piece of evidence that supports VOB is **noun incorporation**. In **Mokilese** (Oceanic), for example, there is a set of verbs into which an **indefinite** object may be incorporated (from **Harrison 1976**). (60-a) is a **transitive clause**

with definite object, which is not incorporated into the **verb**, whereas (60-b) is a clause with **indefinite** object, which is incorporated into the **verb**. Note that the incorporate object *rimeh* ‘bottle’ in (60-b) is between the **verb** and the aspect suffix *la*.

- (60) a. ngoah audoh-la **rimeh**-i
1SG fill-PFV bottle-this
'I filled this bottle.'
- b. ngoah audohd **rimeh**-la
1SG fill bottle-PFV
'I filled bottles.'
- (Harrison 1976: 162)

Similarly, compare (61-a) and (61-b). (61-a) is a case where the object *suhkoah* ‘tree’ is definite and is not incorporated, while (61-b) is a case where the object is **indefinite** and is incorporated into the **verb**.

- (61) a. ngoah poadok-di suhkoah-i
1SG plant-PFV tree-this
'I planted this tree'
- b. ngoah poad suhkoah-di
1SG plant tree-PFV
'I planted trees.'
- (ibid.)

As Mithun (1984) observes, in some languages patient S can also be incorporated into verbs but languages allows patient S-incorporation also allows P-incorporation (See also Baker (1988)). Namely, there is a universal hierarchy as in (62). The last two (agent S and A) are in brackets because they are not attested.

- (62) P > patient S (> agent S > A)

In Southern Tiwa (Tanoan), for example, the patient Ss ‘dipper’ and ‘snow’ are incorporated as in (63), while the agent Ss such as ‘dog’ cannot be incorporated as in (64).

- (63) a. l-k'uru-k'euwe-m
B-**dipper**-old-PRES
'The dipper is old.'
- b. we-fan-lur-mi
C.NEG-**snow**-fall-PRES.NEG
'Snow isn't falling. (It is not snowing.)' (patient S)
(Allen et al. 1984; Baker 1988)

Table 5.11: Order of subject, object, and verb (Dryer 2013c)

Word Order	# of Lgs
SOV	565
SVO	488
VSO	95
VOS	25
OVS	11
OSV	4
No dominant order	189

5.6 Summary

5.6.1 Summary of this chapter

This chapter analyzed associations between **word order** and **information structure** in spoken Japanese. I made it clear that shared topics appear clause-initially, while strongly evoked topics appear post-predicatively. Also, new, i.e., focus, elements appear immediately before the predicate. Based on these findings, I proposed the information-structure **continuity principle**, in addition to from-old-to-new principle and persistent-element-first principle.

5.6.2 Remaining issues

As I briefly discussed in §5.5.1, **information structure** is not the only feature contributing to **word order** in spoken Japanese. It is necessary to employ statistical analyses.

6 Intonation

6.1 Introduction

This chapter investigates the relation between **information structure** and intonation units. I propose that an **intonation unit** corresponds to a chunk of information, which often corresponds to a unit of **information structure**. I employ two methods; one is a corpus study that I have employed in the previous chapters (§6.2), and the other is a **production experiment**, where I ask native speakers of Japanese to read aloud sentences and measure F_0 of their speech (§6.3). From these findings and the results of the experimental study, I propose principles governing intonation (§6.4).

Before going into the analyses, I discuss two types of intonation units (IUs) investigated in this study: phrasal IU and **clausal** IU. For the definition of intonation units, see §2.4.4.

I assume that there are many factors to determine IUs and it is impossible to investigate all of them. To study **information structure** factors determining IUs, I distinguish two types of intonation units: phrasal IU and **clausal** IU. A phrasal IU is an IU where an element (NP regardless of grammatical functions) is uttered in an IU separate from its predicate, whereas a **clausal** IU is an IU where an element is uttered in the same IU as its predicate. IUs where elements themselves are predicates are excluded from the analysis. Phrasal and **clausal** IUs are schematized as in (1), where an IU corresponds to a box.

- (1) a. Phrasal IU:

NP

Predicate

 b. Clausal IU:

NP Predicate

The motivations for this distinction come from the observation that IUs in Japanese are more frequently smaller units than a clause (Iwasaki 1993), while IUs in **English** often correspond to a clause (Chafe 1994). This distinction is also employed in Matsumoto (2003: Chapter 4), who investigated intonation units in Japanese in terms of information flow. (2) is an example of a Japanese IU, where a single line corresponds to a single IU.

- (2) a. atasi-wa-ne
1SG-wa-FP
b. uti-de kii-ta-no-ne
home-LOC listen-PAST-NMLZ-FP
c. sono are-wa-ne
FL that-wa-FP
d. hoosoo-wa-ne
broadcast-wa-FP
e. kazoku-de
family-with
'I listened to the broadcast at home with my family.' (Iwasaki 1993: p. 40)

Iwasaki states that IUs in (2) are typical examples in Japanese. An IU corresponds to a phrase rather than a clause. Note that the definitions of IU in Iwasaki (1993) and Matsumoto (2003) are different from those in Den et al. (2010) and Den et al. (2011) employed in this study, while they share some similarities. In this particular example (2), most IUs end with the discourse particle *ne*, which often appears IU-finally also in the criteria of Den et al.

6.2 Intonation unit and unit of information structure: corpus study

Table 6.1: IU vs. information status

	Anaphoric	Non-anaphoric
Phrasal IU	501 (65.2%)	571 (59.4%)
Clausal IU	267 (34.8%)	391 (40.6%)
Sum	768 (100%)	962 (100%)

This section explores the associations between IUs and information structure by investigating our corpus. I will argue that, in general, topics tend to be uttered in phrasal IUs (§6.2.1), while foci tend to be produced in clausal IUs (§6.2.2). I also

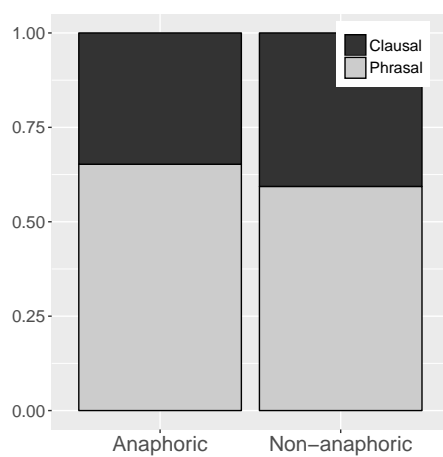


Figure 6.1: IU vs. information status

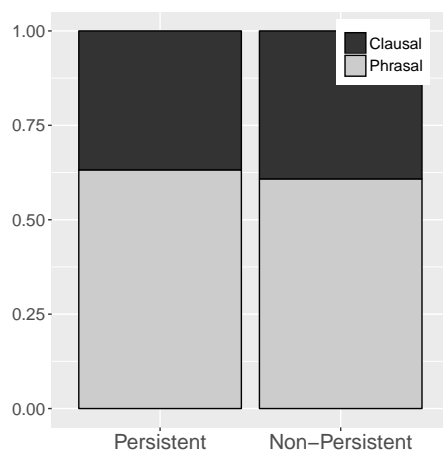


Figure 6.2: IU vs. persistence

Table 6.2: IU vs. Persistence

	Persistent	Non-Persistent
Phrasal IU	524 (63.2%)	548 (60.8%)
Clausal IU	305 (36.8%)	353 (39.2%)
Sum	829 (100%)	901 (100%)

discuss exceptional cases for each tendency.

Table 6.1 and Figure 6.1 show the distribution of phrasal vs. clausal IUs in different information statuses (anaphoric vs. non-anaphoric). Anaphoric elements refer to those whose referents have been mentioned in the previous discourse, whereas non-anaphoric elements refer to those whose referents have newly been mentioned (see 3.4.3.3 for the annotation procedure more in detail). A linear mixed effects model was employed to predict information status, as we have seen in §4.2 and §5.1. Intonation (phrasal vs. clausal IU), particles (*toiuno-wa*, *wa*, *mo*, *ga*, *o*, *ni*), and word order (nth in CSJ, see §5.1 for the definition of this annotation) are included as fixed effects, and the speaker (TalkID in the corpus) is included as a random effect. The model with the effects of intonation, particles, and word order is significantly different from that without each of them (likelihood ratio test, $p < 0.05$ without intonation, $p < 0.001$ a model without particles, and $p < 0.01$ that without word order).

Table 6.2 and Figure 6.2 show the distribution of phrasal vs. clausal IUs in terms of persistence (persistent vs. non-persistent). Persistent elements are those whose referents are to be mentioned again in the following discourse, whereas non-persistent elements are those whose referents are not to be mentioned. Again, a linear mixed effects model was applied to predict persistence, as discussed in §4.2 and §5.1. Intonation, particles, and word order are included as fixed effects and the speaker as a random effect. The model with the effects of particles, word order, and intonation is not significantly different from that without the effect of intonation ($p = 0.423$), whereas it is significantly different from the model without each of the effects of particles and word order (likelihood ratio test, $p < 0.001$ a model without particles, $p < 0.01$ that without word order).

6.2.1 Topics tend to be uttered in phrasal IUs

This section and the next section discuss associations between topics and IUs and argue that evoked, **inferable**, declining and unused topics tend to be uttered in phrasal IUs (§6.2.1.1, 6.2.1.2). I also claim that some strongly evoked topics, especially pronouns, are in fact part of the following IU and should be counted as **clausal** IUs by modifying the definitions of IU (§6.2.1.3). It also discusses exceptional cases where topics appear in **clausal** IUs (§6.2.1.4). I will argue that topics to be established tend to be uttered in phrasal IUs (§6.4).

Table 6.3: Intonation unit vs. particles

	<i>toiuno-wa</i>	<i>wa</i>	<i>mo</i>	<i>ga</i>	<i>o</i>	<i>ni</i>
Phrasal IU	64 (95.5%)	157 (83.5%)	81 (68.6%)	270 (60.0%)	160 (47.1%)	259 (58.6%)
Clausal IU	3 (4.5%)	31 (16.5%)	37 (31.4%)	180 (40.0%)	180 (52.9%)	183 (41.4%)
Sum	67 (100%)	188 (100%)	118 (100%)	450 (100%)	340 (100%)	442 (100%)

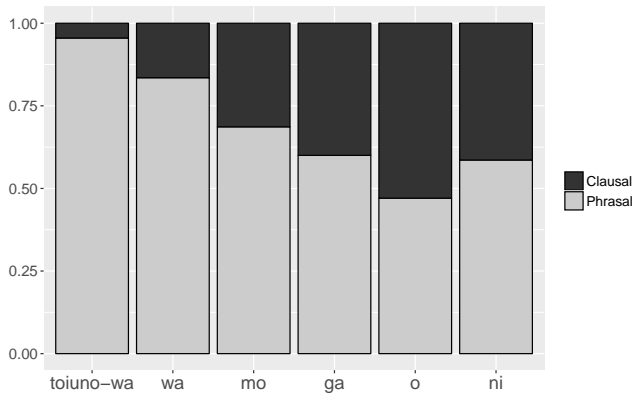


Figure 6.3: Intonation unit vs. particles

6.2.1.1 Evoked, inferable, and declining elements with topic markers in phrasal IUs

As Table 6.1, Figure 6.1, and the results of statistical analysis indicate, **anaphoric** elements are more likely to be uttered in phrasal IUs. Also, Table 6.3 and Figure 6.3 show that elements with **topic** markers such as *toiuno-wa* and *wa* are more likely to be in phrasal IUs than those with case markers. Elements with **topic** markers are uttered in phrasal IUs most of the time, while the ratio of elements with case markers (without **topic** markers) in **clausal** IUs is larger. These observations indicate that at least evoked and **inferable** topics tend to be produced in phrasal IUs. This conclusion results from the observation that elements coded by **topic** markers such as *toiuno-wa* and *wa* are evoked or **inferable** elements as argued for in Chapter 4. Below I show that declining elements are also uttered in phrasal IUs. I will argue that strongly evoked elements, especially pronouns, are in fact part of the following IUs, although in the current criteria they are included in phrasal IUs, and should be counted as phrasal IUs in §6.2.1.3.

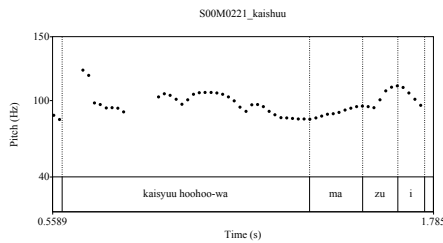


Figure 6.4: Pitch contour of (3)

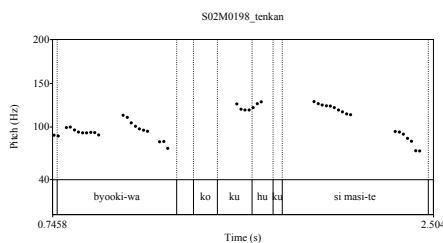


Figure 6.5: Pitch contour of (4)

(3) exemplifies an evoked element with **topic** marker uttered in a phrasal IU (“||” indicates IU boundaries). In this talk, the speaker is talking about his former

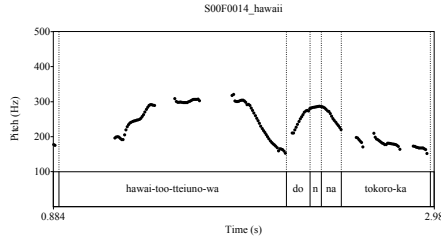


Figure 6.6: Pitch contour of (5)

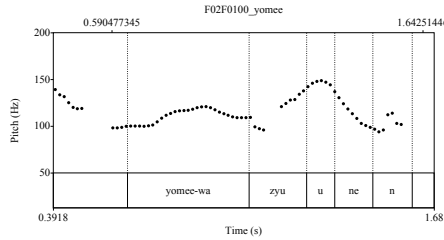


Figure 6.7: Pitch contour of (6)

job, collecting debt from people. There is an IU boundary after *kaisyuu hoohoo-wa* ‘collecting method-*wa*’, the element coded by a **topic** marker. *kaisyuu hoohoo* ‘collecting method’ is evoked because it is mentioned in the immediate context as indicated by *koo it-ta* ‘this way of’.

- (3) *koo* *it-ta* || *kaisyuu hoohoo-wa* || *mazui-to* ||
 this.way say-PAST collecting method-*wa* wrong-QUOT
 ‘This way of collecting (debt) is wrong...’ (S00M0221: 580.21-582.06)

Figure 6.4 shows the **pitch contour** of (3). In the figure, one can observe a **pitch reset** in the **first mora** of the predicate *mazui* ‘wrong’.

(4) is another example, where the speaker is talking about his dog, who had epilepsy. There is an IU boundary after *byooki-wa* ‘disease-*wa*’. *Byooki* ‘disease’ is also evoked because it is mentioned in the immediate context as indicated by the **demonstrative** *sono* ‘that’.

- (4) *sono byooki-wa* || *kokuhuku si-masi-te* ||
 that disease-*wa* overcome do-PLT-and
 ‘(The speaker’s dog) overcame that disease.’ (S02M0198: 480.52-482.47)

The **pitch contour** of (4) is shown in Figure 6.5. In the figure, one can observe not only a **pitch reset**, but also **falling intonation**, which typically occurs IU-finally.

(5) is an example of *toiuno-wa*-coded element uttered in a phrasal IU. The **pitch contour** is shown in Figure 6.6. *Hawai-too* ‘Hawaii island’ is also evoked as is clear from the **demonstrative** *kono* ‘this’.

- (5) de kono || **hawai-too-tteiuno-wa** || don’na tokoro-ka-tte
 then this Hawaii-island-*toiuno-wa* how place-Q
 ii-masu-to ||
 say-PLT-COND
 ‘What kind of place is this Hawaii island?’ (S00F0014: 166.53-169.71)

As shown in the figure, one can observe the **pitch reset** in the **first mora** of the predicate *don’na* ‘how’.

Similarly, the **inferable** element *yomee-wa* ‘life.expectancy-wa’ is produced in a phrasal IU as indicated in Figure 6.7. *Yomee* ‘life.expectancy’ is **inferable** because the speaker is talking about her disease and it is reasonable to assume that life expectancy is part of the knowledge about disease.

- (6) osoraku || **yomee-wa** || zyuu-nen || -da-to ||
 probably life.expectancy-wa ten-CL.year -COP-QUOT
 iwa-re-masi-ta
 say-PASS-PLT-PAST
 ‘(I) was told that (my) life expectancy was 10 years.’ (S02F0010:
 312.22-314.91)

Declining elements are also produced in phrasal IUs rather than **clausal** IUs. Consider the following example. In (7), two competing topics, *meisei* ‘fame’ and *sigoto* ‘job’, are introduced in line a. Then, the speaker starts to talk about fame first and moves onto ‘job’ in line g, where the **topic** *sigoto* ‘job’ is considered to be declining. In this case, there is an intonation-unit boundary after *sigoto-no bubun-na-n-desu-keredomo* ‘concerning the other one, job’.

- (7) a. I have two goals: one is for fame and the other is for job.
 b. Concerning fame,
 c. I have been participating in various **piano** competitions
 d. So far the best award I received was the fourth best place in the China-Japan International Competition.
 e. Beyond that, I would like to receive higher awards.

- f. Titles matter a lot for pianists, so I will work hard.
 g. de || ato-wa || **sigoto-no** || **bubun-na-n-desu-keredomo** ||
 then remaining-wa job-GEN part-COP-NMLZ-COP.PLT-though
 ‘Concerning the other one, job,’
 h. to receive higher wages... (S00F0209: 495.77-539.19)

6.2.1.2 Unused elements with topic markers in phrasal IUs

Unused elements with **topic** markers also tend to be uttered in phrasal IUs. Elements coded by a **copula** plus *kedo* or *ga* appear in phrasal IUs most of the time. For example, in (8-a), the element *sutairu* ‘style’, which is introduced for the first time, are produced in a phrasal IU.¹

- (8) a. nde || ee || kono || tabi-no || **sutairu** || **-tteiu**
 and FL this travel-GEN style -toi
mono-na-n-desu-keredomo ||
 thing-COP-NMLZ-COP.PLT-though
 ‘Regarding my style of travelling,’
 b. uh, I’m kind of getting used to travelling,
 c. uh, I want to travel cheaply and
 d. go anywhere freely by myself,
 e. that was my style of travelling, so... (S00F0014: 300.43-317.95)

Similarly, in (9-a), *kandoo* ‘emotion’ is mentioned for the first time and is produced in a phrasal IU.

- (9) a. de eberesuto-o mi-ta **kandoo-na-n-desu-keredomo** ||
 and Everest-o see-PAST emotion-COP-NMLZ-COP.PLT-though
 ‘Talking about the emotion of seeing Everest,’
 b. um, Himalaya Mountains have a very unique shape I’ve never seen before,
 c. Actually, local people call them holy mountains,
 d. hm, somehow their shapes are sacred. (S01F0151: 460.73-477.82)

Readers might speculate that these elements appear in phrasal IUs because they are long expressions. However, examples of the experimental study in §6.3 that force the speakers to assume topics to be unused, are short expressions (one

¹In fact, the predicate of ‘style’ is not clear in this example. This is a general characteristics of topics. See discussion in §4.4.3 for more detail.

word). The experiment show that these short unused topics are still produced in phrasal IUs.

6.2.1.3 Strongly evoked elements in clausal IUs

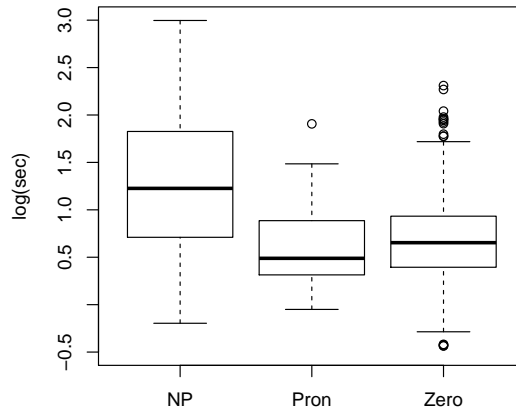


Figure 6.8: Anaphoric distance vs. expression type (all)

I propose that strongly evoked elements, usually pronouns coded by **topic** markers, are uttered in **clausal** IUs, although they are categorized into phrasal IUs by the current definition. Because strongly evoked elements tend to be uttered in **low pitch** with smaller **pitch range** than the following **accentual phrase**, they are likely to be counted as phrasal IUs. However, I argue that they should be regarded as **clausal** IUs. The number of pronouns are very small, which does not influence the overall tendency in Figure 6.3 and Table 6.3 and hence this change does not affect the conclusion proposed in the last section. The claim that pronouns are strongly evoked elements is supported in Figure 6.8, repeated from Figure 4.7, which shows the time difference between when the **first mora** of the element in question is produced and when that of its **antecedent** is produced. This is assumed to approximate the **activation cost** of elements. As indicated in the figure, pronouns have as **low activation** costs as zero pronouns.

First, I show examples of strongly evoked elements and their **pitch** contours.

The **pitch** contours are different from evoked elements we have seen in the previous section. (10) is one of the few examples from the corpus of the current study, CSJ, whose **pitch contour** is shown in Figure 6.9. The IU boundary “||” is inserted based on the current definition. I argue that there is no boundary after *sore-wa* ‘that-wa’.

- (10) **sore-wa** || nan-daroo-to omot-te ||
 that-wa what-COP.INFR-QUOT think-and
 ‘(I) was wondering what it was...’ (S00F0014: 654.06-655.18)

Since the number of pronouns is small in the current corpus, I provide examples from another corpus. Examples (11) and (12) are from *the Chiba three-party conversation corpus*, which is a corpus of three people’s casual conversation (Den & Enomoto 2007). Their **pitch** contours are shown in Figures 6.10 and 6.11 respectively. Again, the IU boundary is inserted based on the current definition that I challenge.

- (11) **are** || kir-en-no-ka-na ||
 that cut-CAP-NMLZ-Q-Q
 ‘Can (you) cut it?’ (chiba0232: 442.56-443.33)
- (12) **sore** || dame-zyan ||
 that wrong-FP
 ‘It’s wrong, isn’t it?’ (chiba1232: 155.92-156.64)

As shown in Figure 6.9-6.11, there is neither a pause nor **vowel** lengthening, which is often observed IU-finally. Moreover, the accent nucleus is not clearly observed in these pronouns. This suggests that a phrasal IU of evoked elements coded by **topic** markers and that of strongly evoked elements are qualitatively different. Since strongly evoked elements are already evoked and do not need to attract the **hearer**’s attention, they are uttered with lower **pitch**. When they are followed by the predicate, which is typically not evoked and needs to attract the **hearer**’s attention, the predicate is uttered with higher **pitch**, which causes a **pitch reset**.

I challenge the claim that this type of strongly evoked element actually forms a single chunk of processing. First, in addition to the qualitative difference between phrasal IUs of evoked elements and of strongly evoked elements, the transition from the IU with a single strongly evoked element such as *are* and *sore* in Figure 6.9-6.11 to the next is too fast for the speaker to plan the next **utterance**, assuming that an IU represents some kind of processing unit. This suggests that the current

element and the following element(s) belong to a single processing unit.

Second, a single strongly evoked element is too small a number for a processing unit. Pronouns in particular are of relatively high frequency (although they are less frequent than zero pronouns) and the referent is assumed to have been evoked both in the speaker's and the **hearer**'s mind. Although "the magic number" is still controversial (including the skepticism about "expressing capacity limits of human cognition in terms of a number" (Oberauer 2007: p. 245)), Cowan (2000; 2005) estimates that the magic number is around four in healthy young adults, whereas, in the original proposal in Miller (1956), the number is seven plus or minus two. Anyway, one element is too small in terms of this magic number.

Third, it is known that, historically, unstressed pronouns can change into clitics, then into affixes (Givón 1976). Japanese pronouns such as *are* and *sore* are not exceptions; *r* in *are* and *sore* are sometimes reduced and are uttered very quickly, which is highly likely to become a motivation for them to change into clitics in the future. Moreover, these pronouns often do not seem to have a clear **pitch peak** any more. The original **pitch accent** of *kore*, *sore*, and *are* is LH (The accent type of *kore*, *sore*, and *are* is a flat type; i.e., they do not have accent nucleus). However, at least the **pitch** contours of the pronouns in Figure 6.9-6.11 are not LH any more.² The **pronoun** *are* in Figure 6.10 is completely low, and *sore-wa* in Figure 6.9 is HL, whose first **pitch** I believe is high because the **pronoun** appear utterance-initially. When such **clitic** pronouns start to phonologically depend on other words, it becomes harder to argue that a single **clitic** corresponds to a single processing unit.

From the observations above, I propose that IUs with a single **anaphoric element** do not form a single processing unit; rather, it is more appropriate to integrate it to the following IU and regard the whole chunk as a unit of processing. How to decide to integrate some IUs into the following IUs but not others is necessary to investigate in the future research.

6.2.1.4 Elements with topic markers in clausal IUs

I have claimed that evoked topics tend to be uttered in phrasal IUs, while strongly evoked topics tend to be uttered in **clausal** IUs. This section discusses cases where lexical NPs coded by **topic** markers are produced in **clausal** IUs for several reasons.

²This breaks one of the **pitch accent** principles of Japanese discussed in §2.4.1, which states that the pitches of the first and the second morae within a word must be different. I claim that this is one of the motivations for pronouns to appear after the predicate. See also §5.3.2.1 for discussion.

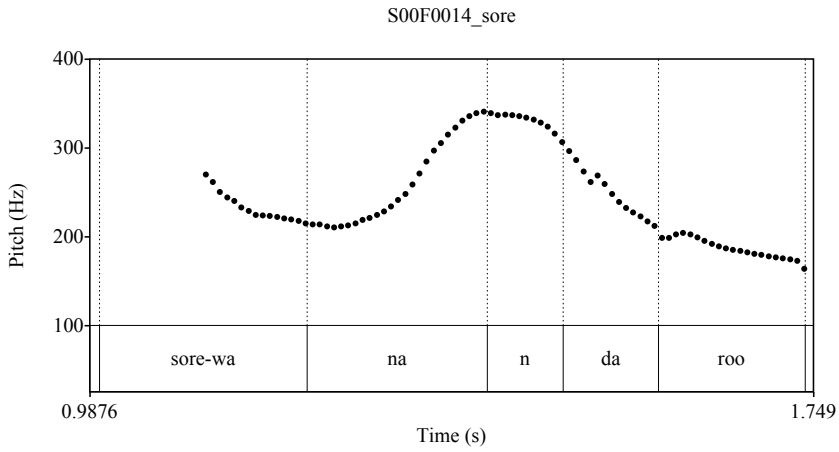


Figure 6.9: Pitch contour of (10)

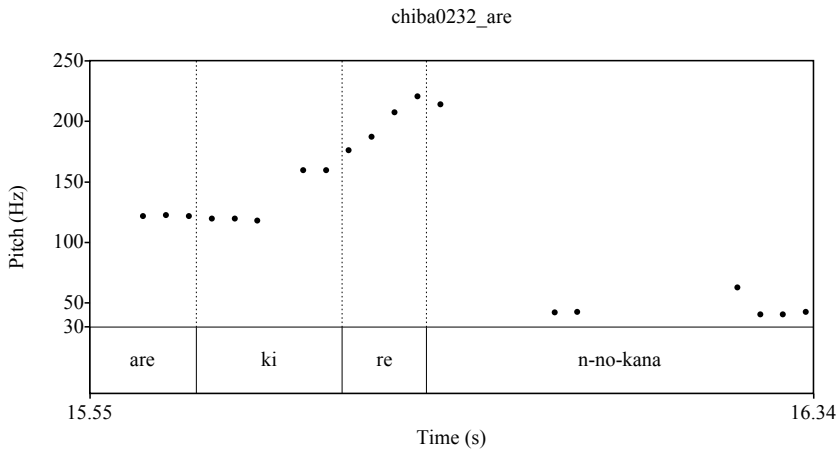


Figure 6.10: Pitch contour of (11)

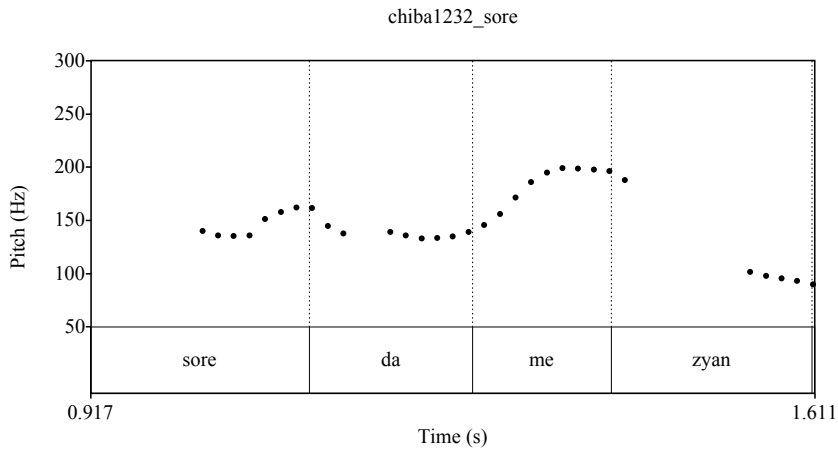


Figure 6.11: Pitch contour of (12)

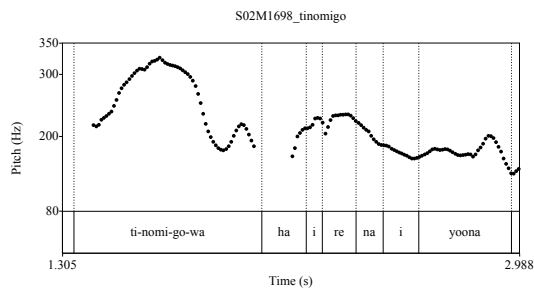


Figure 6.12: Pitch contour of a in (13)

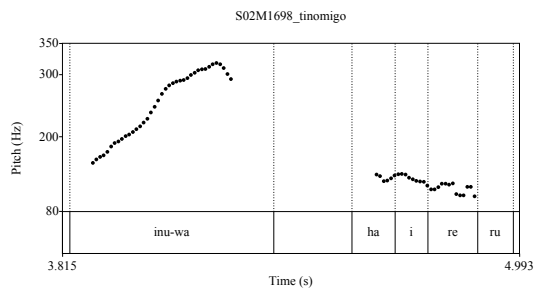


Figure 6.13: Pitch contour of b in (13)b

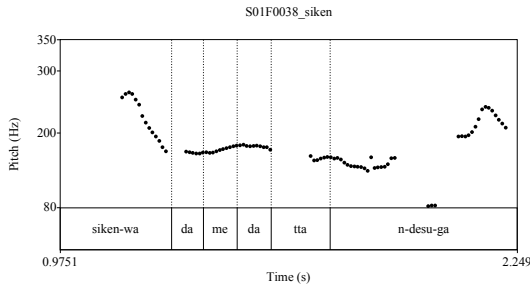


Figure 6.14: Pitch contour of (14)

First, contrasted elements coded by **topic** markers are typically uttered in a **clausal** IU; the **pitch range** of contrasted elements with the **topic** marker *wa* is larger than that of the predicate. In (13), for example, where the speaker is talking about his life with his dog in Germany, *ti-nomi-go* ‘infant’ and *inu* ‘dog’ are contrasted.

- (13) a. **ti-nomi-go-wa** hair-e-nai-yoona resutoran-mo ||
 milk-drink-child-*wa* enter-CAP-NEG-like restaurant-also
 ‘Restaurants where infants are not allowed to enter,’
 b. **inu-wa** hair-eru-to ||
 dog-*wa* enter-CAP-QUOT
 ‘dogs are allowed to enter.’ (S02M1698: 252.32-256.10)

As shown in Figures 6.12 and 6.13, the **pitch range** of the contrasted elements coded by the **topic** marker *wa* are larger than that of the predicates.

In a similar vein, in (14), *siken* ‘exam’ is implicitly contrasted with *mensetsu* ‘interview’. Although the speaker did not do well in the exam, she had a fun time in the interview and she successfully passed the admission.

- (14) a. tabun **siken-wa** dame-dat-ta-n-desu-ga ||
 probably exam-*wa* bad-COP-PAST-NMLZ-PLT-though
 ‘Probably (the result of) the exam was bad, but’
 b. (I) successfully passed the admission. (S01F0038: 257.69-261.75)

In this case, as shown in Figure 6.14, *siken* ‘exam’ is uttered in a wider **pitch range** than the predicate.

Also, when the clause is in a special status and is uttered faster, elements coded by **topic** markers are typically uttered in **clausal** IUs. For example, inserted clauses

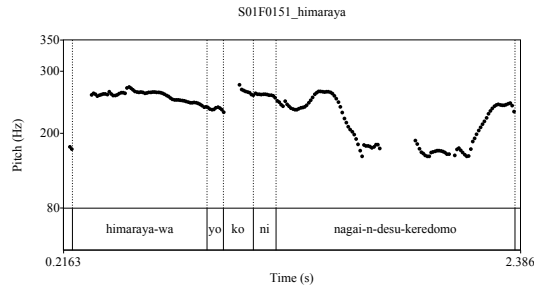


Figure 6.15: Pitch contour of c in (15)c

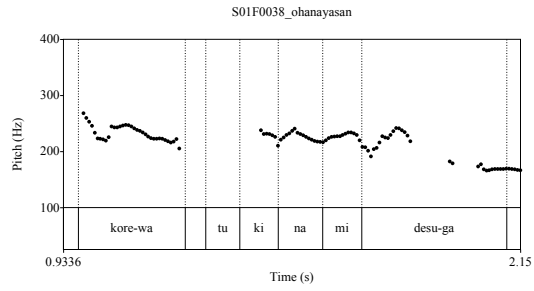


Figure 6.16: Pitch contour of a in (16)a

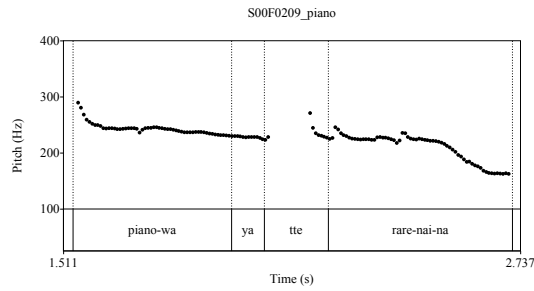


Figure 6.17: Pitch contour of (17)

are uttered faster relative to other utterances and their **pitch** is lower than the surrounding utterances. In (15), where the speaker explains Everest treks and which course she took, she inserts the clause describing the geometry of the Himalayas in (15-c). This clause contains an element coded by a **topic** marker, i.e., *himaraya-wa* ‘Himalaya-wa’, which is uttered in a **clausal** IU.

- (15) a. de watasi-ga || zissaini || it-ta || torekkingu-koosu-wa ||
 then 1SG-ga actually go-PAST trekking-course-wa ||
 b. eberesuto-kaidoo-to yob-areru || masani ||
 Everest-trail-QUOT call-PASS exactly
 c. ee **himaraya-wa** yokoni nagai-n-desu-keredomo ||
 FL Himalaya-wa horizontally long-NMLZ-COP.PLT-though
 d. ee sono || ee higasi-gawa-ni ataru ||
 FL that FL east-side-DAT correspond
 e. eberesuto-o || nn -ni mukat-te iku || ruuto-desu
 Everest-o FL -DAT face-and go route-COP.PLT
 ‘The course I took for trekking is called the Everest Trail, which exactly, **uh the Himalayas are long horisontally**, uh on the east side is Everest and we walked toward Everest.’ (S01F0151: 89.71-105.25)

As shown in Figure 6.15, the F_0 peak of *himaraya-wa* ‘Himalaya-wa’ is higher than that of the following predicate; therefore there is no IU boundary between the noun and the predicate.³ In a similar way, in (16), where the speaker talks about her childhood dream, she comments on her dream in the inserted clause (16-a).

- (16) a. maa **kore-wa** tukinami-desu-ga ||
 FL this-wa ordinary-COP.PLT-though
 ‘This (dream) might be too ordinary, but’
 b. because I liked beautiful flowers,
 c. (my dream was) florist. (S01F0038: 53.90-58.93)

Figure 6.16 shows the **pitch contour** of (16-a). As in the figure, the F_0 peak of

³In (15), **pitch range** difference cannot be used to determine the IU boundary because the F_0 of the phrase *himaraya-wa* is always high and hence one cannot meaningfully measure the **pitch range**. In this case, the IU boundary is identified after the phrase in question if the F_0 peak of the phrase is lower than that of the following phrase. In (15), the F_0 peak of *himaraya-wa* is higher than that of the predicate. Therefore, the IU boundary is not identified after the phrase *himaraya-wa* (see Igarashi et al. 2006: p. 420 ff.).

the **topic** phrase *kore-wa* ‘this-wa’ is higher than that of the predicate. Therefore, there is no IU boundary after *kore-wa*.

Another type of topic-coded element uttered in an **clausal** IU is embedded in a noun-modifier clause or quotation clause. For example, in (17-a), *piano-wa* ‘piano-wa’ is embedded in a quotation clause; the clause is the content of what the speaker thought.

- (17) a. aa moo || kore-wa totemo **piano-wa**
 oh any.more this-wa ever piano-wa
 yat-te-rare-nai-na-to omot-tara ||
 do-PROG-CAP-NEG-FP-QUOT think-COND
 ‘When I thought that (I) cannot play **piano** any more,’
 b. it was so painful that I could not stand. (S00F0209: 214.53-219.84)

As indicated in Figure 6.17, which shows the **pitch contour** of (17-a), the F₀ peak of the **topic** phrase *piano-wa* is higher than that of the predicate and the whole clause is interpreted as a single IU.

6.2.2 Foci tend to be uttered in clausal IUs

6.2.2.1 *Ga*-coded S and *o*-coded P that appear in clausal IUs

Table 6.4: Intonation unit vs. particles

	<i>toiuno-wa</i>	<i>wa</i>	<i>mo</i>	<i>ga</i>	<i>o</i>	<i>ni</i>
Phrasal IU	64 (95.5%)	157 (83.5%)	81 (68.6%)	270 (60.0%)	160 (47.1%)	259 (58.6%)
Clausal IU	3 (4.5%)	31 (16.5%)	37 (31.4%)	180 (40.0%)	180 (52.9%)	183 (41.4%)
Sum	67 (100%)	188 (100%)	118 (100%)	450 (100%)	340 (100%)	442 (100%)

Table 6.3 and Figure 6.3, repeated here as Table 6.4 and Figure 6.18, indicates that *ga*- and *o*-coded elements are more likely to appear in **clausal** IUs than those coded by **topic** markers. In terms of grammatical function, it turned out that especially Ss are more likely to be uttered in **clausal** IUs than As, as shown in Table 6.5 and Figure 6.19, which show the distribution of grammatical function in terms of **intonation unit** regardless of whether elements are coded by **topic**

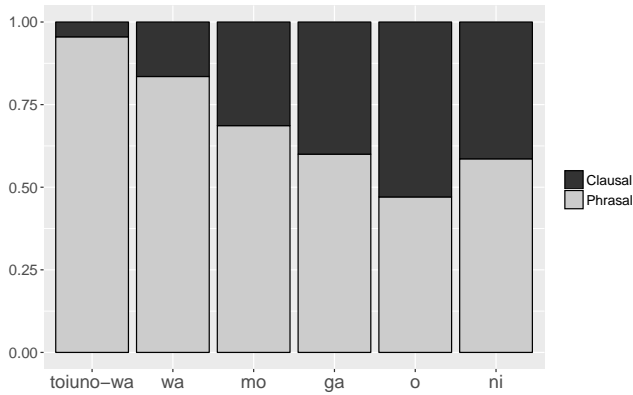


Figure 6.18: Intonation unit vs. particles

Table 6.5: Intonation unit vs. grammatical function

	Ex	A	S	P	Dative
Phrasal IU	38 (97.4%)	41 (80.4%)	463 (66.0%)	202 (49.1%)	328 (62.2%)
Clausal IU	1 (2.6%)	10 (19.6%)	239 (34.0%)	209 (50.9%)	199 (37.8%)
Sum	39 (100%)	51 (100%)	702 (100%)	411 (100%)	527 (100%)

markers or case markers. Since *ga* and *o* codes focus and S and P also correlate with focus, it is reasonable to conclude that focus in general tends to appear in **clausal** IUs.

(18-b) is an example of S in **clausal** IUs. The element *o-hanasi-ga* ‘PLT-speech-*ga*’ is uttered in a **clausal** IU.

- (18) a. our way of collecting debt might be problematic,
 b. oo mina-san || zisyuku suru-yooni-to iu || **o-hanasi-ga**
 FL everyone-HON control do-IMP-QUOT say PLT-speech-*ga*
de-masi-te ||
 come.out-PLT-and
 ‘somebody proposed that employees should improve the method.’
 (S00M0221: 503.23-511.02)

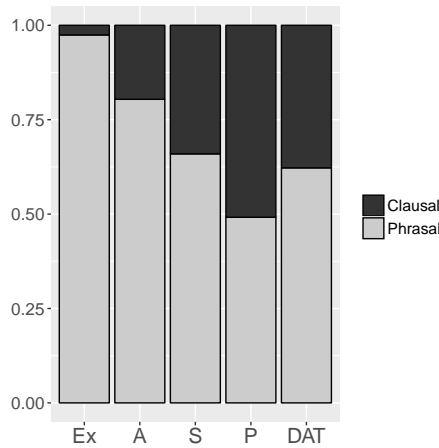


Figure 6.19: Intonation unit vs. grammatical function

As shown in Figure 6.20, there is no **pitch reset** in the **first mora** of the predicate. Also, the **pitch range** of *o-hanasi-ga* ‘PLT-speech-ga’ is larger than that of the predicate *de-masi-te* ‘come.out-PLT-and’, which indicates that the S element and the predicate are uttered in a single IU.

In a similar vein, in (19), whose **pitch contour** is shown in Figure 6.21, the S element *sikitari-ga* ‘tradition-ga’ and the predicate are uttered in a single IU; there is no **pitch reset** observed in the **first mora** of the predicate.

- (19) hizyooni kanasii || anoo || **sikitari-ga** ari-masi-te ||
 very sad FL tradition-ga exist-PLT-and
 ‘There was a very sad tradition...’ (S05M1236: 297.99-305.33)

(20-a) is an example of P uttered in a **clausal** IU.

- (20) a. ee zyaa || ano **puro-raisensu-o** tori-tai-toka ||
 FL then FL professional-license-o take-want-HDG
 ‘OK, next, (I) wanna take a professional (boxing) license, or something like that,’
 b. (I) started to think like this. (S01M0182: 251.43-257.40)

As shown in Figure 6.22, since there is no **pitch reset** at the **first mora** of the predicate *tori-tai* ‘take-want’ and the **pitch range** of the element *puro-raisensu-o* ‘professional-license-o’ is larger than that of the predicate, there is no IU bound-

ary after the element *puro-raisensu-o* ‘professional-license-o’.

Similarly, in (21-c), whose **pitch contour** is shown in Figure 6.23, the clause is uttered in a single IU. The **pitch range** of the element *syuzyutu-o* ‘operation-o’ is larger than that of the predicate.

- (21) a. Since I was young,
 b. many times (I) stayed in the hospital and
 c. **syuzyutu-o** uke-tei-tari || si-tei-ta-node ||
 operation-o receive-PROG-HDG do-PROG-PAST-because
 ‘received operations, so’
 d. when I die,
 e. (I) was thinking that (I) would probably die in an accident or from
 disease. (S02F0100: 387.22-399.08)

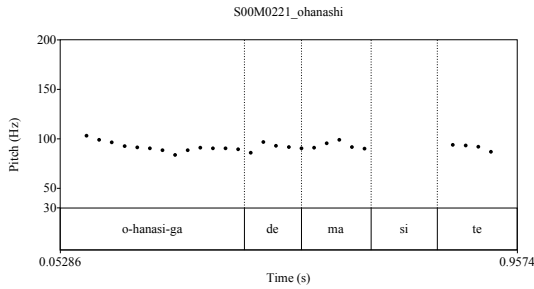


Figure 6.20: Pitch contour of (18)

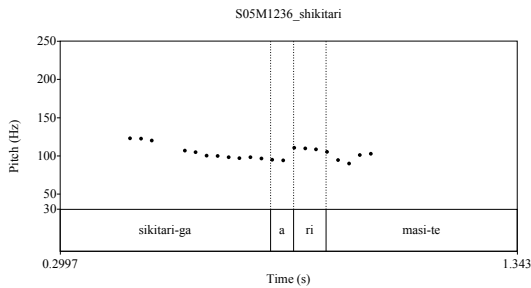


Figure 6.21: Pitch contour of (19)

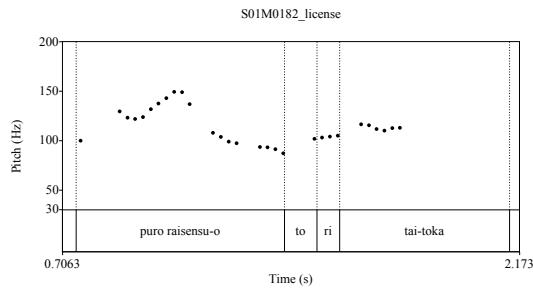


Figure 6.22: Pitch contour of a in (20)

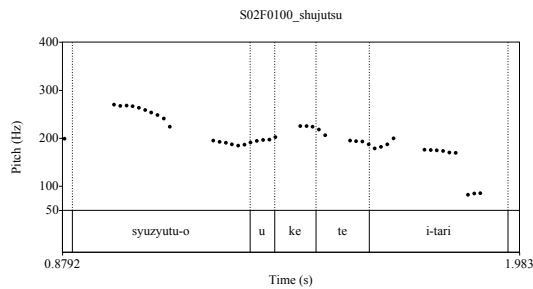


Figure 6.23: Pitch contour of c in (21)

6.2.2.2 *Ga*-coded S and *o*-coded P that appear in phrasal IUs

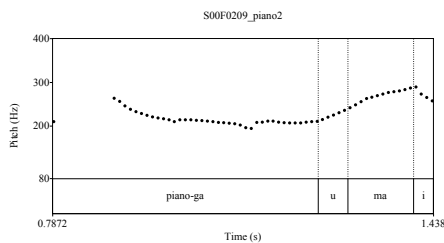


Figure 6.24: Pitch contour of a in (22)

Here, I discuss *ga*-coded S and *o*-coded P that appear in phrasal IUs. Although they are more likely to be uttered in **clausal** IUs than those coded by **topic** markers, there are many of those uttered in phrasal IUs as shown in Table 6.5 and Figure 6.19. I point out two types of focal elements uttered in phrasal IUs.

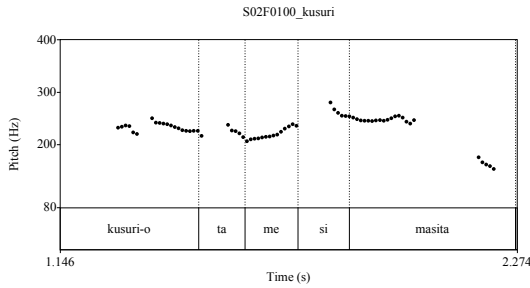


Figure 6.25: Pitch contour of a in (23)

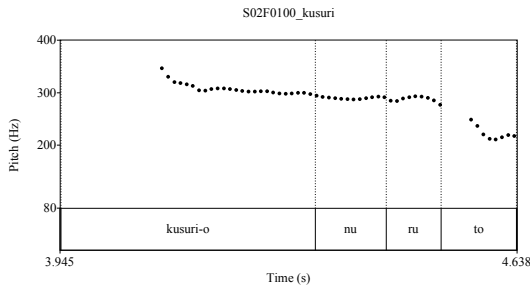


Figure 6.26: Pitch contour of b in (23)

The first type of this kind is strongly evoked elements which are uttered in lower **pitch** than their predicate and therefore have an IU boundary after these elements. They are uttered in phrasal IUs for the same reason as pronouns as discussed in §6.2.1.3. For example, in (22), whose **pitch contour** is shown in Figure 6.24, *piano* is strongly evoked and is uttered in lower **pitch** than its predicate. Therefore, the F_0 range of *piano* is smaller than that of the following predicate and there is an IU boundary between the element *piano* and the predicate. *Piano* is considered to be strongly evoked because the speaker mentions it repeatedly throughout her talk.

- (22) a. zibun-yori **piano-ga** || umai hito-ga yononaka-ni-wa takusan
 self-than piano-ga good.at person-ga world-DAT-wa a.lot
 ||
- b. takusan iru...
 many exist...

‘There are so many people who are better at (playing) **piano** than me...’

(S00F0209: 204.28-206.81)

Similarly, in (23-a), whose **pitch contour** is shown in Figure 6.25, *kusuri* ‘medicine’ is strongly evoked and uttered in lower **pitch** than the predicate *tamesu* ‘try’. *Kusuri* ‘medicine’ is strongly evoked because it also has been mentioned immediately before (23-a), as indicated by *sono* ‘that’.

- (23) a. sono s **kusuri-o** || tamesi-masi-ta ||
 that FRG medicine-o try-PLT-PAST
 ‘(I) tried that medicine (because I was told that there was no other way).’
 b. de || tasikani sono **kusuri-o** nuru-to ||
 then certainly that medicine-o put-COND
 ‘As the doctor said, when (I) put on the medicine,’
 c. (my disease) becomes a little bit better... (S02F0100:
 155.34-159.32)

However, in (23-b), which immediately follows (23-a), the F_0 peak of *kusuri* ‘medicine’ is higher than that of the predicate *nuru* ‘put on’, as shown in Figure 6.26. This contrasts with what I have claimed so far. I believe that the F_0 peak of *kusuri* in (23-b) is higher than that of the predicate because this appears sentence-initially. Japanese is a clause-chaining language, which combines multiple clauses to form a thematic unit (Longacre 1985; Martin 1992; Givón 2001). F_0 of sentence-initial clauses are the highest and it declines as the sentence goes on (Koiso & Ishimoto 2012; Ishimoto & Koiso 2012; 2013). Therefore, the elements in the sentence-initial position are the highest among other elements. As I have argued in §6.2.1.3, a pair of strongly evoked element and the following phrase should be considered to form a single processing unit. As in Figure 6.24 - 6.26, there is no pause or **vowel** lengthening between the **anaphoric element** and the predicate, which typically appear IU-finally. This supports the notion that they should be integrated into a single unit at the level higher than **intonation unit**.

The second type is not as clear as the first one. I am not sure whether examples of the second type share the same characteristics. Rather, it is likely that they are still heterogeneous. Here I try to capture some characteristics they have. In some examples of the second type, the element is non-**anaphoric** and the F_0 is high, however, the F_0 of the predicate is also high for some reason. Examples of this kind are shown in (24) and (25). In (24), *kusa* ‘grass’ is non-**anaphoric** and

is uttered with prominence, but there is a **pitch reset** before the predicate, which has its own F_0 peak as in Figure 6.27.

- (24) a. **kusa-ga** || hae-te ki-ta || tokoro-ni ||
 grass-ga grow-and come-PAST place-DAT
 ‘The place where grasses grow up’
 b. some people build houses... (S00F0014: 276.80-279.30)

In (25), in a similar vein, there is a **pitch reset** before the predicate; the **non-anaphoric element** *tatoe* ‘metaphor’ and the predicate *warui* ‘bad’ have their own F_0 peak as in Figure 6.28.

- (25) a. ee tyotto || **tatoe-ga** || warui-n-desu-ga ||
 FL a.bit metaphor-ga bad-NMLZ-COP.PLT-though
 ‘This might be a bit bad metaphor, but’
 b. it’s kind of kamikaze-like idea. (S00M0199: 360.76-365.14)

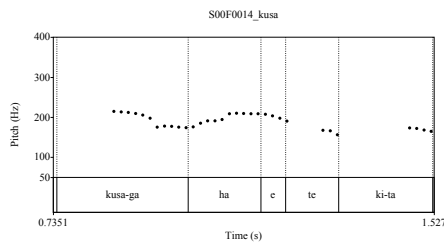


Figure 6.27: Pitch contour of a in (24)

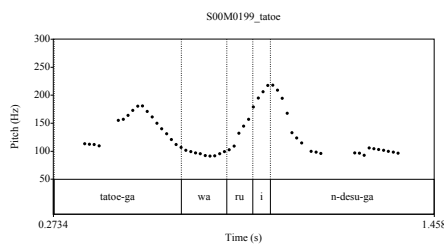


Figure 6.28: Pitch contour of a in (25)

In other examples of the second type, non-anaphoric elements are uttered in **low pitch** without prominence as though they are strongly evoked. In example (26),

the brand-new element *nyuukinbi* ‘the deadline of repayment’ is produced in **low pitch** against our prediction as shown in Figure 6.29.

- (26) a. “Do you forget (about the deadline)?”
 b. oo || **nyuukinbi-ga** || sugi-te ori-masu-toiu koto-de ||
 FL deadline-ga pass-and PROG.PLT-PLT-QUOT thing-COP
 “The deadline of repayment has passed” something like that...
 (S00M0221: 220.24-225.28)

In this case, however, *nyuukinbi* ‘the deadline of repayment’ can be also regarded to be **inferable** through the previous context, because the speaker has been talking about the people who did not return money, although the speaker has not specifically mentioned *nyuukinbi* ‘the deadline’. However, it is more natural for **inferable** elements to acquire their own **pitch peak**.

Moreover, there are also cases where perfectly brand-new elements are uttered in **low pitch** as if they were strongly evoked. In (27), neither the element *kyoomi* ‘interest’ nor the related concepts have been mentioned in the previous **discourse**, while it is still uttered in **low pitch** as in Figure 6.30.

- (27) a. ee sono ritoo-no || hoo-ni **kyoomi-o** || moti
 FL FL neighbour.island-GEN direction-to interest-o have
 hazime-masi-te ||
 start-PLT-and
 ‘(We) started to be interested in neighbour islands (in Hawaii),’
 b. and the first island in Hawaii we went to is Maui. (S00F0014:
 149.92-156.93)

I do not have a clear explanation for why this happens. Intuitively, the F_0 peak can be either on the element *kyoomi* ‘interest’ or on the predicate *moti* ‘have’ and the nuance does not change. However, it is unnatural if both the element and the predicate have their own F_0 peaks. Typically there is no pause or **vowel** lengthening between the element and the predicate in this type of example. Therefore, I tentatively conclude that uttering both the element and the predicate in a coherent **pitch contour** is important and I leave open the question of which one should have the F_0 peak. I am inclined to think that the element and the predicate form a single processing unit.

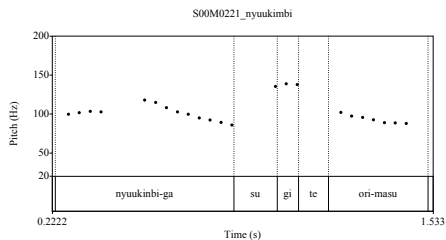


Figure 6.29: Pitch contour of b in (26)

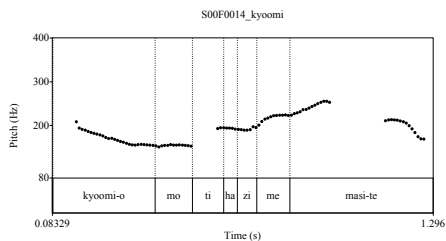


Figure 6.30: Pitch contour of a in (27)

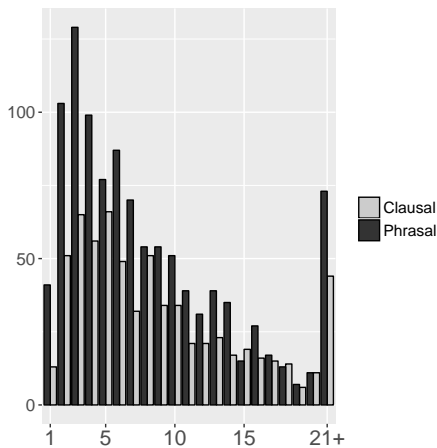


Figure 6.31: Intonation unit vs. word order

6.2.3 Summary of corpus study

This section argued that evoked, **inferable**, and declining topics tend to be produced in phrasal IUs, separately from the IU with the predicate; and strongly evoked topics are typically produced in **clausal** IUs together with the IU with the predicate; whereas foci tend to be produced in **clausal** IUs, although there are explainable exceptions.

However, as discussed in Chapter 5, topics tend to appear clause-initially and foci tend to appear right before the predicate. An element is more likely to be uttered in **clausal** IUs if it is closer to the predicate, which implies that foci are more likely to be uttered in **clausal** IUs. Therefore, it is not entirely clear whether **information structure** really affects the difference between phrasal and **clausal** IUs independent of **word order**. As an example, let us assume that (28) is a possible **utterance** that the speaker bears in his/her mind. “(||)” indicates a potential IU boundary. For simplicity, let us assume that only one out of the three potential IU boundaries realizes in this **utterance**.

(28) A (||₁) B (||₂) C (||₃) Predicate

If the speaker wants to put an IU boundary in ||₁, the IU which includes A is a phrasal IU, whereas the IU which includes B and C is a **clausal** IU as schematized in (29).

(29)

A

 ||₁

B C Predicate

On the other hand, if the speaker wants to put the IU boundary in ||₂, now the IU which includes A and B is a phrasal IU, whereas the IU which includes C is a **clausal** IU. This is schematized in (30).

(30)

A B

 ||₂

C Predicate

This indicate that even though the speaker does not want to put the IU boundary in ||₁, A are uttered in a phrasal IU because of ||₂ and ||₃; A is more likely to be uttered in a phrasal IU than B and C because it is uttered earlier. Similarly, B is more likely to be uttered in a phrasal IU than C. The effects of **word order** should not be ignored in the distinction between phrasal and **clausal** IUs. In fact, as Figure 6.31 shows, earlier elements are more likely to be produced in phrasal IUs than later elements.

In the next section, I discuss an experiment, controlling **word order**, and show that topics tend to be followed by an IU boundary, while foci are not.

6.3 Intonation unit and unit of information structure: experimental study

In the previous sections, I investigated the corpus of spoken Japanese. In this section, I will show that my argument so far is also supported by a production experiment keeping word order constant.

6.3.1 Method

This section gives an overview of the method of the experiment. First, I explain how stimuli are made (§6.3.1.1), then go over the procedure of the experiment (§6.3.1.2). Finally, I explain how the recordings acquired are annotated (§6.3.1.3).

6.3.1.1 Stimuli

First, I made a list of three-mora nouns without accent nucleus (the pitch formation is expected to be LHH). I chose basic words that are used in everyday life, such as *sakura* ‘cherry blossom’ and *koinu* ‘puppy’. I used an electronic dictionary of Japanese called *UniDic* to search words (Den et al. 2002; 2007).⁴ I chose words of this accent type to exclude the potential effect of the accent of these words on the following words. Second, I collected a list of verbs starting with low pitch. The second mora of the verbs should be high because the first and the second morae of a word should be distinct as discussed in §2.4.1. I chose these words to see the F_0 difference between the first and the second morae. Third, I made 14 pairs of a noun and a verb of high collocation using *Case Frame* (Kawahara & Kurohashi 2006a,b).⁵ 7 pairs are subject-verb, and the remaining 7 pairs are object-verb, using the same noun. The stimuli can be schematized as in (31), where N indicates noun and V indicates verb.

(31) [LHH]_N [LH...]_V

Finally, I made two contexts for each pair; in one context, the noun is interpreted as topic, and in the other context, the noun and the verb as a whole are interpreted as focus.

Examples of two kinds of contexts and noun-verb pairs are shown in (32) and (33). The target sentence is *koinu yuzut-ta* ‘(I/we) gave (a/the) puppy’. In (32), where the noun is intended to be interpreted as topic and the verb to be focus, the

⁴<http://sourceforge.jp/projects/unidic/>

⁵<http://reed.kuee.kyoto-u.ac.jp/cf-search/>

referent of the noun *koinu* ‘puppy’ has already been shared between the speaker and the **hearer**. Only the **verb** *yuzu-ta* ‘gave’ is news to the **hearer**. In all examples, the context forces the speakers to assume topics to be unused.

- (32) **Predicate-focus context:** Yesterday the speaker and his/her friend found an abandoned puppy on the street. The speaker brought it to his/her home. Today, the speaker tells the friend what happened to the puppy.

sooieba [koinu]_T [yuzut-ta]_{F-yo}
 by.the.way puppy give-PAST-FP
 ‘By the way, (I) gave the puppy (to somebody).’

In (33), on the other hand, where both the noun and the **verb** are intended to be interpreted as focus, the referent of the noun *koinu* ‘puppy’ has not been shared. Not only the **verb** ‘gave’, but also ‘a puppy’ is brand-new to the **hearer**.

- (33) **All-focus context:** The speaker and his/her friend are working in an animal shelter. The friend was absent yesterday and wants to know what happened yesterday.

kinoo-wa [koinu yuzut-ta]_{F-yo}
 yesterday-wa puppy give-PAST-FP
 ‘Yesterday (we) gave puppies.’

After I made stimuli, I randomized the order of them so that the same target sentences (with predicate-focus and all-focus contexts) do not appear adjacent with each other.

6.3.1.2 Experimental procedure

I asked seven native speakers of standard Japanese to read aloud the stimuli. All of the participants grew up in Tokyo or near Tokyo (such as Saitama), where standard Japanese is spoken. All of them have lived for more than a year outside of the areas where standard Japanese is not spoken. Four of the participants are male, and three are female. I recorded their production using EDIROL (R09-HR) and the internal microphone.

6.3.1.3 Coding process

After the recording, I coded their speech using Praat.⁶ First, I divided each target sentence into morae, then I divided each mora into a consonant (if any) and a

⁶<http://www.fon.hum.uva.nl/praat/>

vowel. Second, I measured F_0 of the midpoint of the vowels with a Praat script.

6.3.2 Results

Figure 6.32-6.35 show the F_0 of vowels of each target sentence based on information structure. The graphs of Speaker 5–7 are omitted. In the x-axis, n1 indicates the first mora of the noun, n2 indicates the second mora, and v1 indicates the first mora of the verb, and so on.

In some cases, there are less than 14 data points. This is because some vowels are devoiced. In standard Japanese, high vowels are often devoiced between two voiceless consonants such as *kusuri* [kʰʊsʉɾi] ‘medicine’. However, this is not always the case. Therefore, the numbers of data points vary depending on the speaker.

The red lines indicate the plot of the predicate-focus context, while the blue lines indicate the plot of the all-focus context. The error bars indicate the standard variations of F_0 . Although the error bars are too large, it is clear that there is a pitch reset in v1, i.e., the first mora of the verb, and the pitch rises again in v2, i.e., the second mora of the verb.

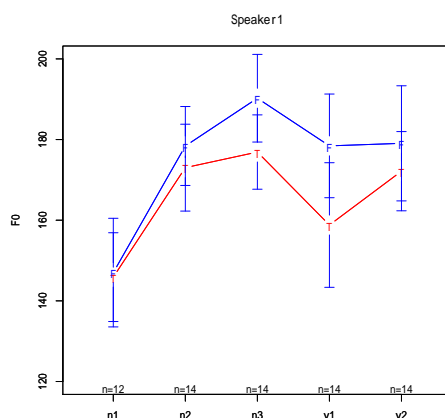


Figure 6.32: F_0 of vowels (Speaker 1)

A logistic regression analysis supports this impression. Table 6.6 and 6.7 show the results of the regression analysis. The dependent value is the F_0 difference between the adjacent morae of each utterance; in Table 6.6, the dependent value is the F_0 difference between n3 and v1, while, in Table 6.7, it is the difference

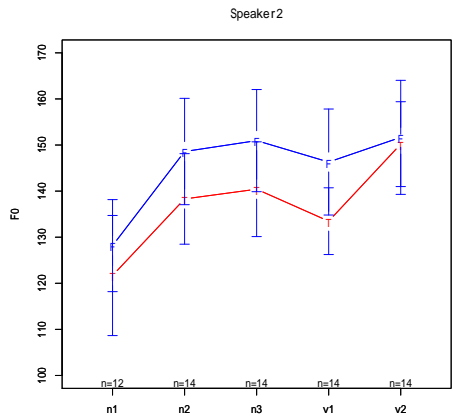


Figure 6.33: F_0 of vowels (Speaker 2)

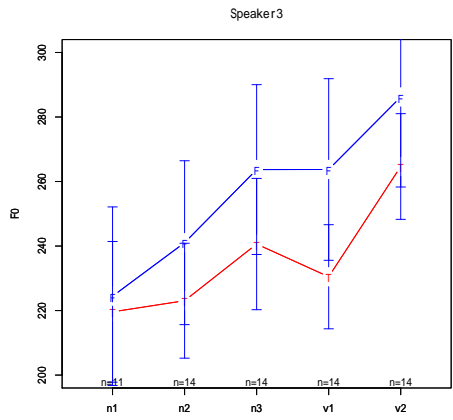
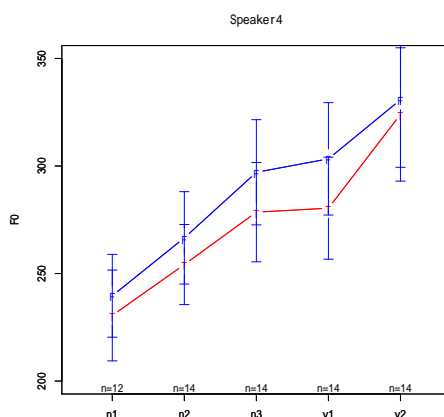


Figure 6.34: F_0 of vowels (Speaker 3)

Figure 6.35: F₀ of vowels (Speaker 4)

between v1 and v2. The independent values (predictors) are **information structure** (the distinction between the predicate- vs. all-focus contexts), **grammatical relation** (the distinction between the subject and the object), in addition to speakers and items as random effects.

Table 6.6 shows that the **predicate-focus context** significantly contributes to the F₀ difference between n3 and v1. The fact that the estimate is minus indicates that the F₀ value of v1 is lower than that of n3, which leads to the conclusion that there is a **pitch reset** in v1. Table 6.7 shows that, on the other hand, both the **predicate-focus structure** as well as the subject significantly contribute to the F₀ difference between v1 and v2. The estimate is plus this time, which indicates that there is a **pitch** rising from v1 to v2.⁷ To summarize, there is a **pitch reset** in the **first mora** of the **verb** in the **predicate-focus context**, where the noun is **topic**, while the **pitch reset** is not observed in the all-focus context.

Examples of the **pitch** contours of actual production are shown in Figure 6.36 and 6.37. In Figure 6.36, where one of the participants of the experiment uttered (32), there is a **pitch reset** in the **first mora** of the **verb** *yuzut-ta* ‘gave’, while in Figure 6.37, where the same participant uttered (33), there is no **pitch reset**.

I also measured the **vowel** length of the last mora of the nouns. However, neither **information structure** nor **grammatical relation** significantly contributes to

⁷I do not have an explanation why the subject also contributes to the **pitch** difference of verbs. Further investigation is definitely necessary.

Table 6.6: Results of logistic regression analysis (v1-n3)

Coefficients	Estimate	p-value
Information structure (predicate-focus)	-5.591	0.0437 *
Grammatical relation (subject)	0.7901	0.7758

Table 6.7: Results of logistic regression analysis (v2-v1)

Coefficients	Estimate	p-value
Information structure (predicate-focus)	8.5667	0.0149 *
Grammatical relation (subject)	8.2356	0.0221 *

(0 ≤ ‘***’ ≤ 0.001 ≤ ‘**’ ≤ 0.01 ≤ ‘*’ ≤ 0.05 ‘.’ ≤ 0.1 ≤ ‘ ’ 1)

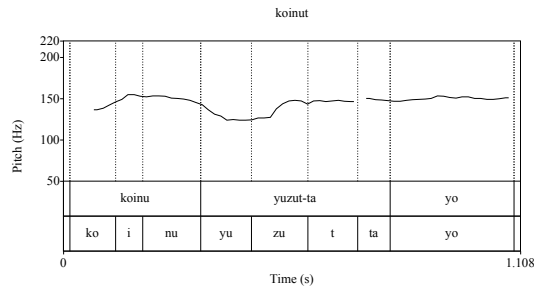


Figure 6.36: Pitch contour of (32)

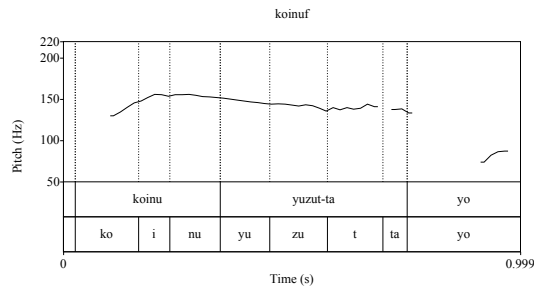


Figure 6.37: Pitch contour of (33)

the **vowel** length. In addition, I conducted the regression analysis using the pitch-range difference between the noun and the **verb** as a dependent variable. Again, however, neither **information structure** nor **grammatical relation** significantly contribute to the pitch-range difference.

6.3.3 Summary of experimental study

In this section, I discussed the results of the **production experiment** and concluded that **topic** elements are produced intonationally separated from the focus predicate, namely, in phrasal IUs; while elements which consist of focus with the predicate are produced intonationally unified with the predicate, namely, in **clausal** IUs.

6.4 Discussion

This section discusses motivations for intonation units.

6.4.1 Principles of intonation unit, information structure, and activation cost

I propose two closely related motivations for evoked, **inferable**, declining, and unused topics in phrasal IUs and for foci in **clausal** IUs. First, uttering an evoked, **inferable**, declining, or unused **topic**, typically a noun followed by a **topic** particle, in an IU and a focus, typically the predicate and optionally a noun, in another IU is iconic and easy to process for both the speaker and the **hearer**. I call it the iconic principle of **intonation unit** and **information structure** (34).

- (34) The iconic principle of **intonation unit** and information structure: In spoken language, an IU tends to correspond to a unit of **information structure**.

This motivates the tendency that an evoked **topic** tends to be uttered in a phrasal IU and a focus uttered in a **clausal** IU.

Second, strongly evoked elements are proposed to be produced in a coherent IU with the predicate, namely, in a **clausal** IU; elements with **low activation cost** are not produced by themselves. Based on this observation, I propose the principle of IU and **activation cost**.

- (35) The principle of **intonation unit** and activation cost: all substantive IUs have similar activation costs; there are few IUs with only a strongly evoked element or those with too much new elements.

This is inspired by, but also elaborates, “one new idea at a time” constraint in Chafe (1987; 1994). Chafe (1987; 1994), and Matsumoto (2003), who follows Chafe, considers this “one idea” corresponds to a grammatical category such as subject, object, and **verb**. Chafe (1994: p. 110 ff.), for example, discusses IUs consisting of an object and a **verb** as exceptional IUs. He argues that, in such IUs, there are special reasons for an object and a **verb** to be produced in an IU; verbs have been already evoked, the IU includes a low-content **verb** (such as “*have, get, give, do, make, take, use* and *say*”, p. 111), or the object and **verb** is a lexicalized phrase (such as *wash dishes*). However, in my corpus, IUs with an object and a **verb** (or a subject and a **verb**) which do not apply to these conditions are not rare. For example, *toti-o uba-u* ‘deprive (somebody) of land’ is produced in a single IU. However, the expression is not frequently used in everyday life and the predicate *uba-u* ‘deprive’ is mentioned for the first time in this **monologue**. The **verb** *uba-u* ‘deprive’ is not low-content, either.

- (36) wareware-no || **toti-o** ubat-te ||
 1PL-GEN land-o deprive-and
 ‘(They) deprived our land...’ (S00M0199: 473.79-475.65)

Similarly, in (37-b), *i-nai kata-ga nana-wari* ‘those who are absent consist of 70%’ is neither conventionalized nor evoked, but it is still produced in a single IU.

- (37) a. Those who do not pay back their debt consist of 30 %.
 b. sorekara || **i-nai** kata-ga nana-wari-to ||
 then exist-NEG person-ga seven-ratio-QUOT
 ‘And, those who are absent consist of 70%.’
 (S00M0221: 348.22-356.07)

I argue that the NP and the **verb** are produced in a **clausal** IU because they consist of a unit of **information structure**: focus. At the same time, they form a syntactic constituent: VP. A unit of focus can contain several clauses through clause-chaining, but they are usually not realized as a single IU, but as several IUs because of the limitation of processing, which is captured by the principle (35).

The principles (34) and (35) compete with each other and form an actual IU.

- (39) a.

Topic

 ||
- b.

Clause1

 ||
- c.

Clause2

 ||
- d.

Clause3

 ||
- e. ...

First, the **topic** is uttered clause-initially (often coded by **topic** markers) in a phrasal IU. Then the explanation about the **topic** follows the **topic**. In other words, expressions like (39-a) followed by an IU boundary establishes topics to be mentioned in the following **discourse**.

This type of example is small in number per **monologue** because there is only a few topics introduced in each **monologue**. This blurs the pattern like (39) in simple count of raw numbers like the one shown in Table 6.2 and Figure 6.2.

I argue that the tendency schematized in (39) is a realization of the principle of the separation of reference and role proposed by Lambrecht (1994). Lambrecht (1994: 184-185) argues: “[t]he non-canonical configurations thus allow speakers to separate the REFERRING function of noun phrases from the RELATIONAL role their denotata play as arguments in a proposition. [...] I will call the grammatical principle whereby the lexical representation of a **topic** referent takes place separately from the designation of the referent’s role as an argument in a proposition the PRINCIPLE OF THE SEPARATION OF REFERENCE AND ROLE (PSRR) for **topic** expressions. The communicative motivation of this principle can be captured in the form of a simple pragmatic maxim: ‘Do not introduce a referent and talk about it in the same clause’”. In Japanese, PSRR is reflected by the fact that **topic** elements are also separated intonationally from the clause.

6.5 Summary

6.5.1 Summary of this chapter

This chapter analyzed intonation units in Japanese in terms of whether an NP is intonationally separated from the predicate or not. It argued that evoked, **inferable**, declining, and unused topics tend to be separated intonationally from the predicate, while strongly evoked topics tend to be integrated into the predicate. On the other hand, focus elements tend to be integrated into the predicate to form a unit of focus with the predicate. I proposed three inter-related principles at work to determine intonation units in Japanese.

6.5.2 **Remaining issues**

In this chapter, I proposed to modify the definitions of intonation units. Further studies are needed to investigate cognitively-valid definitions of intonation units. Furthermore, it is also necessary to come up with methodology to find a unit of processing independent of intonation to avoid circularity.

7 Discussion: Multi-dimensionality of linguistic forms

7.1 Summary of findings

The findings so far are summarized in Table 7.1 and 7.2.

Table 7.1: Summary of topic

Activation status	Given-new taxonomy	Particles	Word order	Intonation
Active	Strongly evoked	(Zero pronoun)		
	Evoked	<i>toiuno-wa, wa, Ø</i>	Post-predicate	Clausal IU
Semi-active	Inferable	<i>wa, Ø</i>	Clause-initial	Phrasal IU
	Declining	<i>cop-kedo/ga, Ø</i>		
Inactive	Unused			
	Brand-new	–	–	–

Table 7.2: Summary of (broad) focus

	Particles	Word order	Intonation
A	<i>ga</i>	Pre-predicate	Clausal IU
Agent S	<i>ga</i>		
Patient S	<i>ga, Ø</i>		
P	<i>Ø</i>		

Overall, I showed that correlated but distinct features affect the choice of particles, **word order**, and intonation in spoken Japanese. The features proposed are summarized in (2) in Chapter 3, which is repeated here as (1) for convenience.

	topic	focus
a.	presupposed	asserted
b.	evoked	brand-new
(1) c.	definite	indefinite
d.	specific	non-specific
e.	animate	inanimate
f.	agent	patient
g.	inferable	non- inferable

In Chapter 4, I concentrated on particles. Topic markers such as *toiuno-wa*, *wa*, and *kedo/ga* are sensitive to the assumed statuses in the given-new taxonomy of the referent in question. All **topic** markers code elements that are presupposed to be shared between the speaker and the **hearer** and cannot be negated in a normal way. Namely, **topic** markers are sensitive to a and b in (1). The marker *toiuno-wa* codes elements referring to an entity in evoked status in the **hearer**'s mind. The marker *wa* codes elements referring to an entity in **inferable** status, in addition to elements that can be coded by *toiuno-wa*. The marker *kedo/ga* preceded by the **copula** *da* or *desu* codes elements referring to an entity that is declining or unused in the assumed **hearer**'s mind. Topic markers are optional except for contrastive topics. In a formal speech style, **topic** markers tend to appear. In addition to whether the referent in question is evoked or not, I also showed that the **topic** markers are partially sensitive to grammatical function (f in (1)); when the clause has two evoked arguments, A and P, A is more likely to be coded by **topic** markers (in this case, *wa*), rather than P.

Case markers are, on the other hand, sensitive to whether the referent is (part of) an assertion or not (a in (1)), in addition to grammatical functions (f in (1)). A, agent S, and optionally patient S are coded by *ga*, whereas patient S and P tend to be coded by \emptyset . A, S, and P in the **argument focus** or **narrow focus** environment are coded by explicit markers. I (and the previous literature) also suggested the possibility that *ga* and *o* are sensitive to **animacy** (e in (1)).

In Chapter 5, I focused on **word order**. I showed that shared elements, which correlate with topics, tend to appear clause-initially irrespective of the status of the given-new taxonomy. Strongly evoked elements can appear post-predicatively especially in conversation. Post-predicate elements are sensitive to the given-new taxonomy (b in (1)), while clause-initial elements are sensitive to identifiability. On the other hand, foci tend to appear pre-predicatively (i.e., immediately before the predicate). Pre-predicate elements tend to refer to non-shared entities, in contrast with clause-initial topics. Word order is also sensitive to grammatical function (f in (1)), as classically observed. The referent of clause-initial

elements is referred to by zero pronouns in the following **discourse**, while the referent of pre-predicate elements repeatedly appears as full NPs. In terms of **word order**, I proposed that three inter-related principles, repeated here as (2), (3), and (4) are working to determine **word order** of spoken Japanese. Principles (2) and (4) predict that topics appear clause-initially, while Principle (3) and the assumption that Japanese is a **verb-final language** predict that the focus appears pre-predicatively.

- (2) **From-old-to-new principle**: In languages in which **word order** is relatively free, the unmarked **word order** of constituents is old, predictable information first and new, unpredictable information last. (Kuno (1978: 54), Kuno (2004: p. 326))
- (3) **Information-structure continuity principle**: A unit of **information structure** must be continuous in a clause; i.e., elements which belong to the same unit are adjacent to each other.
- (4) **Persistent-element-first principle**: In languages in which **word order** is relatively free, the unmarked **word order** of constituents is persistent element first and non-persistent element last.

Perhaps, there is no principle that predicts the order of strongly evoked elements because they are not necessary; the **hearer** is assumed to be able to identify the referent because it is strongly evoked. They are produced for some intonational or **interactional** reasons as has been discussed in 5.3.2.

In Chapter 6, I discussed intonation. I showed that evoked, **inferable**, declining, and unused topics tend to be produced in an **intonation unit** separately from the predicate, while strongly evoked topics tend to be produced in an **intonation unit** together with the predicate. On the other hand, the **broad focus** tends to appear in an **intonation unit** with the predicate to form a unit of **predicate focus** structure. I proposed two principles determining intonation units in Japanese, repeated here as (5) and (6). Principle (5) predicts that a **topic** appears in an **intonation contour** and a focus appears in another **intonation contour**, whereas Principle (6) predicts that strongly evoked topics are glued to an IU of focus.

- (5) **Iconic principle of intonation unit and information structure**: In spoken language, an IU tends to correspond to a unit of **information structure**.
- (6) **Principle of intonation unit and activation cost**: all substantive IUs have similar activation costs; there are few IUs with only a strongly evoked element or those with too many new elements.

To be more precise, these principles predict that when the **activation cost** of a **topic** is high, it is separated intonationally from the focus predicate, as in (7-a); whereas when the **activation cost** of a **topic** is low, it is produced with the focus predicate, as in (7-b-c). A box corresponds to an IU.

- (7) a.

Topic

Focus

 b.

Topic Focus

 c.

Focus Topic

7.2 Competing motivations

As summarized above, there is no single feature (such as **topic** or focus) which determines the choice of particles, **word order**, and intonation; multiple features influence a single linguistic expression. This is not a rare phenomenon; rather, it is frequently observed in languages and it is a source of language change. **Comrie (1979)** called this variability “seepage”. As has been discussed in §4.3.1.3, *ko* in **Hindi** codes definite or **animate direct object**; there is no single feature that determines the use of *ko*. Citing (**Poppe 1970**), he discusses another example from **Mongolian**. According to Poppe, the **accusative** suffix *-iig* only attaches to certain kinds of direct objects. Human direct objects are always followed by the suffix as exemplified in (8).

- (8) a. dorž bagš-iig zalav
 dorj teacher-DO invited
 ‘Dorj invited the teacher.’
 b. bid nar olan xün-iig üzsen
 we ? many people-DO saw
 ‘We saw many people.’ (**Comrie 1979**: 18)

On the other hand, non-human direct objects are optionally followed by the suffix, as in (9). In this case, **definiteness** plays an important role. To complicate things, the suffix also attaches to **indefinite** direct objects when they are apart from the **verb**.

- (9) a. čoidog zurag zurav
 Choidog picture painted
 ‘Choidog painted a picture’
 b. zurag-iig Choidog zurav
 picture-DO Choidog painted

‘Choidog painted the picture. (As for the picture, it was Choidog that painted it.)’ (Comrie 1979: 19)

The distinction between the so-called **accusative marker** *o* and the zero particles in Japanese is similar to the use (or non-use) of this suffix *-iig* in **Mongolian**. The choice between *o* and the zero particles is reported to be determined by **definiteness**, **animacy**, and **word order**. Definite or **animate** objects are more likely to be coded by *o* rather than the zero particles (Minashima 2001; Fry 2001; Kurumada & Jaeger 2013; 2015). Also, according to Tsutsui (1984); Matsuda (1996), and Fry (2001), verb-adjacent objects are more likely to be zero-coded (hence less likely to be *o*-coded), while non-verb-adjacent objects are more likely to be coded by *o*, although the distinction is subtle.

Du Bois (1985) argues that multi-dimensionality of a linguistic expression is based on “competing motivations”. An example of competing motivations that Du Bois provides and is relevant to this study is that of the distinction between ergative-absolutive and nominative-**accusative** languages.

The reason that not all languages are ergative – i.e. that some languages choose the ‘option’ of categorizing S with A rather than with O [P in terms of this study] – is that there is another motivation which competes for the same limited good, the structuring of the person-number-role paradigm. [...] S and A are united by their tendency to code referents which are human, (relatively) agentive, and maintained as topics over significant stretches of **discourse** (‘thematic’). Thus, a **discourse** pressure to roughly mark **topic**/agent motivates nominative-**accusative** morphology, while a **discourse** pressure to roughly mark new information motivates ergative-absolutive morphology. These two pressures may be seen as competing to overlay a secondary function on the existing A/S/O base (though this formulation is of course somewhat oversimplified). [...] Thus the answer to the question as to why not all languages are ergative is simply that, while there is a strong **discourse** pressure which motivates an absolutive category, there is an equally strong – possibly stronger – **discourse** pressure which motivates a **nominative** category. Both motivations cannot prevail in the competition for control of the linguistic substance of this paradigm. (Du Bois 1985: 354–355)

My study showed competing motivations that affect choices of particles, **word order**, and intonation in spoken Japanese. For example, as has been discussed in §4.5.2 and Nakagawa (2013), case particles are sensitive to focushood and thus P and patient S are unmarked (zero-coded). On the other hand, **topic** markers are

sensitive to topichood and thus A and agent S are unmarked in another dialect, Kansai Japanese.

If a single feature “topic” or “focus” determines the choice of word order and particles, it is expected, for example, that all clause-initial elements are coded by topic markers because both clause-initial elements and those coded by topic markers are topics. However, this is not the case, as shown in §5.2.1.1. Although clause-initial elements tend to be coded by topic markers, not all clause-initial elements are coded by topic markers. This is because word order and topic coding are sensitive to different features, while both of them are sensitive to topichood and focushood; clause-initial elements are sensitive to identifiability, whereas topic markers are sensitive to activation status of the referent in question.

The claim of this study is an elaboration of the claim made by Li & Thompson (1976) that Japanese is a subject-prominent and topic-prominent language. In terms of this study, the claim is elaborated in the following way; Japanese is sensitive to various features related to topichood and focushood such as presupposition vs. assertion (a in (1)) and the status of the given-new taxonomy (b in (1)), in addition to grammatical function (f in (1)).

The theory of competing motivations and correlating features of topic and focus (1) predicts that there are other types of languages such as animacy-prominent languages and specificity-prominent languages. As far as I am aware, there are at least what I call animacy-prominent languages according to the literature (Dahl & Fraurud 1996; Minkoff 2000; de Swart et al. 2007: *inter alia*). For example, in grammatical sentences in Mam-Maya, the subject is as animate as, or more animate than the object (Minkoff 2000). Another well-known example is Navajo (Athapaskan). In Navajo, the order of S and P can be either SP or PS. In the case of an SP order, the marker *yi* attaches before the verb; in the case of a PS order, the marker *bi* attaches to the verb (Hale 1972; Frischberg 1972). This is exemplified in (10). In (10-a), where the subject ‘horse’ precedes the object ‘mule’, the affix *yi* attaches to the verb. In (10-b), on the other hand, where the object precedes the subject, *bi* is used.

- (10) a. lhíí dzaanééz yi-ztalh
horse mule him-kicked
‘The horse kicked the mule.’ (SP)
- b. dzaanééz lhíí bi-ztalh
mule horse him-kicked
‘The horse kicked the mule.’ (PS)

(Hale 1972: 300)

When the subject and the object are equally **animate**, as in (10), both *yi*- and *bi*-constructions can be used. However, when the subject is more **animate** than the object, only *yi*-construction with the SP order is grammatical; while when the object is more **animate** than the subject, only *bi*-construction with the PS order is grammatical. These languages can be called animate-prominent languages in the sense that **animacy** constrains **word order** or grammatical functions.

Finally, I point out that this kind of multivariate analysis is not compatible with theories like generative grammar. For example, Endo (2014), following Rizzi's cartography theory (e.g., Rizzi 1997; 2004), points out that "an information focus occurs immediate left to the **verb**" (p. 170).¹ This observation is compatible with that of Kuno (1978). In the following example (11-A), *hon* 'book' is a focus because it is the answer to the *wh*-question (11-Q). The focus appears immediately before the **verb** *kai-masi-ta* 'bought'.

- (11) Q: What did you buy?
 A: watasi-wa **hon-o** kai-masi-ta
 1SG-TOP book-ACC buy-PLT-PAST
 'I bought a book.' (Endo 2014: 170–171)

As we immediately notice, however, the focus *hon* 'book' is the object (P) of the sentence at the same time. In the cartography framework, it is not clear how to represent an element which is a focus and the object at the same time.

7.3 Languages with hard constraints

This study showed a variety of statistical tendencies of particle choice, **word order**, and intonation in Japanese. Especially, in Chapter 5 and 6, I discussed the distinction between elements that appear close to the predicate (in terms of **word order**) and are glued to the predicate (in terms of intonation) and elements that appear separately from the predicate (in terms of both **word order** and intonation). In this section, I discuss other languages that have conventionalized the statistical tendency shown in this study. As Bresnan et al. (2001) state, "soft constraints mirror hard constraints"; namely, "[t]he same categorical phenomena which are attributed to hard grammatical constraints in some languages continue to show up as statistical preferences in other languages, motivating a grammatical model that can account for soft constraints" (p. 29). See also (Givón 1979; Bybee & Hop-

¹An information focus is "the answer to *wh*-questions and the target of negation" (ibid.), which is the same focus discussed in this study.

per 2001).

In §7.3.1, I discuss languages that integrate some elements into the predicate. In §7.3.2, I focus on languages that separate some elements from the predicate.

7.3.1 Elements glued to the predicate

There are two kinds of elements proposed in this study that are glued to the predicate: strongly evoked elements that are postposed and focus elements.

7.3.1.1 Affixation of pronouns

First, I discuss languages where strongly evoked elements, especially pronouns, are glued to the predicate. As discussed in §5.3, strongly evoked elements in spoken Japanese can appear immediately after the predicate, with a single **intonation contour** with the predicate. This is a statistical tendency (i.e., soft constraint) rather than a categorical phenomenon (i.e., hard constraint), showing that strongly evoked elements tend to be glued to the predicate. I argue that in languages with hard constraints, this corresponds to so-called “grammatical agreement”. In languages with grammatical agreement, an **affix**, which is coreferential with the subject or the object, typically attaches to the **verb**. As Givón (1976: 151) states, “[grammatical agreement and pronominalization] are fundamentally one and the same phenomenon, and [...] neither diachronically nor, most often, synchronically could one draw a demarcating line on any principled grounds.” He argues that “subject grammatical agreement” arose from topic-shift constructions like (12-a), which are reanalyzed as “subject-**verb** agreement”, as in (12-b).

- (12) a. Topic shift
 The man, **he** came.
 (**topic**) (**pronoun**) (**verb**)
 b. Neutral (reanalyzed)
 The man **he**-came.
 (subject) (agreement)-(**verb**)

(Givón 1976: 155)

Givón argues that “[t]he morphological binding of the **pronoun** to the **verb** is an inevitable natural phenomenon, cliticization, having to do with the unstressed status of pronouns, their decreased information load and the subsequent loss of resistance to phonological attrition” (p. 155). The following are examples from **Swahili** (Bantu). In (13-a), the subject *m-toto* ‘child (class 1)’ has an agreement

relationship with the **verb** prefix *a* ‘he (class 1)’. According to Givón, the **verb** prefix *a* originates from a **pronoun**. Similarly, in (13-b), the subject *ki-kopo* ‘cup (class 7)’ agrees with *ki* ‘it (class 7)’. The examples are glossed based on Contini-Morava (1994).

- (13) a. **m-toto** a-li-kuja
CL1-child 3SBJ.CL1-PAST-come
‘The child came.’
b. **ki-kopo** ki-li-vunjika
CL7-cup 3SBJ.CL7-PAST-break
‘The cup broke.’ (Givón 1976: 157)

Also, preposed objects are attested in **Swahili**, and they have an agreement relationship with a **verb affix** in a way similar to subject agreement. The object *m-toto* ‘child (class 1)’ agrees with the interfix *kw* ‘him (class 1)’, as in (14-a), and the object *ki-kopo* ‘cup (class 7)’ with *ki* ‘it (class 7)’, as in (14-b).

- (14) a. **m-toto**, ni-li-mw-ona
CL1-child 1SG-PAST-3OBJ.CL1-see
‘The child, I saw him.’
b. **ki-kopo**, ni-li-ki-vunja
CL7-cup 1SG-PAST-3OBJ.CL7-break
‘The cup, I broke it.’ (ibid.)

Dryer (2013b) states that “[l]anguages in which **pronominal** subjects are expressed by **pronominal** affixes are widespread throughout the world.” According to him, in 437 out of 711 languages, “**pronominal** subjects are expressed by affixes on verbs.” **Mian** (Ok, Papua New Guinea) is one of those languages. As shown in (15), in **Mian**, the subject is expressed by the suffix *i*, and the object are expressed by the prefix *a*.

- (15) **nē** naka=e a-temê’-b-i=be
1SG man=SG.M 3SG.M.OBJ-see.IMPFV-IMPFV-1SG.SBJ=DECL
‘I am looking at the man.’ (Fedden 2007: 261)

Givón (1976) argues that the subject-agreement stems from topic-shift constructions like (12), while the object-agreement originates from afterthought-**topic** constructions like (16), i.e., post-predicate constructions, at least in SVO languages

- (16) a. Topic shift

- The man, I saw **him**.
 b. Afterthought
 I saw **him**, the man.
 c. Neutral
 I saw-**him** the man.

Deaccented pronouns in Japanese can be interpreted as premature **pronominal** affixes.

7.3.1.2 Noun incorporation

While focus elements tend to be produced pre-predicatively in a coherent **intonation contour** with the predicate in Japanese, I propose that, in languages with hard constraints, focus elements are incorporated into the predicate. In this section, I point out some similarities between focus elements in the **predicate focus** environment and incorporated nouns. Also, I discuss similarities between focus zero-coding and **noun incorporation** based on Mithun (1984). In **noun incorporation**, a nominal and predicate form a unit; nominals and the predicate are phonologically, morphologically, and syntactically cohesive. According to Mithun (1984), zero-coding is the first stage of **noun incorporation**.

First, as Mithun (1984) states, typically incorporated nouns are indefinite and/or non-specific, which are features correlating with focus. Definite and/or specific nouns, which are closer to topics, are not incorporated into the **verb**. Examples are shown below from Onondaga. Woodbudy (1975: 11) states that “[i]t is generally agreed that a noun which is incorporated makes a more general reference than one which is free of the **verb** stem.” In (17-a), the noun ‘tobacco’, which is not incorporated into the **verb**, refers to specific tobacco, and, as the translation shows, it is interpreted as definite. On the other hand, in (17-b), the incorporated noun ‘tobacco’ refers to tobacco in general rather than a specific tobacco, as the translation shows.

(17) **Onondaga (Iroquoian)**

- a. waʔ-ha-hninú-ʔ neʔ oyéʔkwa-ʔ
 TR-3SG-buy-ASP the **tobacco**-n.s.
 ‘He bought the tobacco.’
 b. waʔ-ha-yéʔkwa-hní:nu-ʔ
 TR-3SG-**tobacco**-buy-ASP
 ‘He bought tobacco.’

(Woodbudy 1975: 10)

Similarly, in pseudo-noun incorporation in Niuean (Oceanic), definite nouns cannot be incorporated into the verb. Niuean is a VSO language; canonically, the object appears after the subject. On the other hand, incorporated objects appear after the verb (before the subject), from which one can see noun incorporation. Unlike typical noun incorporation, incorporated nouns can accompany modifiers, as shown in (18). This is why Massam (2001) calls this pseudo-noun incorporation. Note that the A argument *mele* is coded as absolutive instead of ergative.

(18) Niuean (Oceanic)

- a. ne inu kofe kono a mele
 PAST drink coffee bitter ABS Mele
 ‘Mele drank bitter coffee.’
- b. ne holoholo kapiniu kiva fakaeneene a sione
 PAST wash dish dirty carefully ABS Sione
 ‘Sione washed dirty dishes carefully.’ (Massam 2001: 158)

Niuean does not allow nouns coded by case markers or number articles to be incorporated because they are interpreted as definite and non-specific.

- (19) a. *ne inu e kofe kona a mele
 PAST drink ABS coffee bitter ABS Mele
 ‘Mele drank the bitter coffee.’
- b. *kua holoholo tau kapiniu a mele
 PFV wash PL dishes ABS Mele
 ‘Mele washes the dishes.’ (op.cit.: 168)

In Southern Tiwa, all inanimate direct objects must be incorporated, while animate direct objects are optionally incorporated (Allen et al. 1984). As shown in the contrast between (20-a) and (20-b), the inanimate object *shut* ‘shirt’ is incorporated, otherwise it is ungrammatical.

(20) Southern Tiwa (Tanoan)

- a. ti-shut-pe-ban
 1SG.A-shirt-make-PAST
 ‘I made the/a shirt.’
- b. *shut ti-pe-ban
 shirt 1SG-make-PAST

(Allen et al. 1984: 293)

On the other hand, **animate** objects are only optionally incorporated, they are grammatical irrespective of whether they are incorporated or not, as shown in (21-a-b).

- (21) a. ti-**seuan**-mũ-ban
 1SG.A-man-see-PAST
 ‘I saw the/a man.’
 b. seuanide ti-mũ-ban
 man 1SG.A-see-PAST
 ‘I saw the/a man.’ (Allen et al. 1984: 294-295)

Southern Tiwa is sensitive to **animacy** instead of **definiteness**. However Southern Tiwa is like **Onondaga** and **Niuean** discussed above in the sense that Ps with features correlating with focus are incorporated, while Ps with features correlating with **topic** can be not incorporated.

Second, while patient nouns tend to be incorporated into the **verb**, agent nouns are not incorporated (Mithun 1984; Baker 1988). In Southern Tiwa, for example, the patient Ss, ‘dipper’ and ‘snow’, are incorporated, as in (22), while the agent S, ‘dog’, cannot be incorporated, as in (23).

- (22) Southern Tiwa (Tanoan)
 a. i-**k’uru**-k’euwe-m
 B-dipper-old-PRES
 ‘The dipper is old.’
 b. we-**fan**-lur-mi
 C.NEG-snow-fall-PRES.NEG
 ‘Snow isn’t falling. (It is not snowing.)’ (Allen et al. 1984: 300)
 (23) a. **khwienide** Ø-teurawe-we
 dog A-run-PRES
 ‘The dog is running.’
 b. *Ø-**khwien**-teurawe-we
 A-dog-run-PRES
 ‘The dog is running.’ (op.cit.: 299)

This is parallel with **Onondaga**, as shown by the contrast between (24) and (25). Patient S is incorporated into the **verb**, as in (24), while agent S cannot be incorporated, as in (24-b). Glosses are based on Baker (1988: 87-89).

- (24) **Onondaga** (Iroquoian)

- a. ka-hsaheʔt-ahí-hw-i
3N-**bean**-spill-CAUS-ASP
'Beans got spilled.' (Woodbury 1975: 15)
- (25) a. h-até-ʔsé:-ʔ neʔ o-tsíʔkt-aʔ
3MS-REFL-drag-ASP the PRE-**louse**-SUF
'The louse crawls.'
- b. *h-ate-tsiʔktí-ʔse:-ʔ
3MS-REFL-**louse**-drag-ASP
'The louse crawls.' (ibid.)

Mithun (1984: 875) argues that, verb-internally, incorporated nouns bear a limited number of possible semantic relationships to their host verbs. This applies no matter whether the language is basically of the ergative, **accusative**, or agent/patient type. She proposes the following hierarchy of possible noun incorporations in different languages. Agent S and A are put in parentheses because they are not attested in Mithun's data. The hierarchy implies that languages which incorporate patient S can also incorporate P, but not necessarily vice versa.

- (26) P > patient S (> agent S > A)

I point out that the same hierarchy (26) explains the variety of zero-coding cross-linguistically. According to Mithun (1984), simple juxtaposition of a noun (without any markers) and a **verb** is the first stage of **noun incorporation**. There are many examples of languages without P-coding discussed in the literature (Comrie 1979; 1983; Croft 2003; Aissen 2003; Haspelmath 2008: *inter alia*). In these languages, Ps with features correlating with **topic**, i.e., **animate**, human, and/or definite Ps, are overtly coded, while Ps with features correlating with focus are zero-coded. Some examples are discussed above as (8)-(9) in §7.2. Another example is from **Russian**, which has a special marker for **animate** (or human) Ps, but not for **inanimate** Ps. As shown in the following examples, *nosorog* 'rhinoceros' in (27-a), an **animate** P, is overtly coded by the **direct object** marker *a*, whereas *il* 'slime', an **inanimate** P, is zero-coded.

- (27) a. begemont ljubit nosorog-a
hippopotamus loves rhinoceros-DO
'The/a hippopotamus loves the/a rhinoceros.'
- b. begemont ljubit il
hippopotamus loves slime
'The hippopotamus loves (the) slime.'

Examples for languages without P- and patient-S-codings are (Standard) Japanese and Lahu. In (Standard) Japanese, as discussed in §4.3.1, the agent S tends to be coded overtly, as in (28-a), while the patient S tends to be zero-coded, as in (28-b-c) (Kageyama 1993: 93).

- (28) a. a kodomo-{ga/??Ø} ason-deru
oh child-{NOM/Ø} play-PROG
'Look! A child is playing.' (Agent S)
- b. a saihiu-{ga/Ø} oti-teru
oh wallet fall-PROG
'Look! A wallet has fallen!' (Patient S)

(29) and (30) are examples from Lahu. As in (29-a), the definite P 'the liquor' is coded with the accusative marker, while the indefinite P 'liquor' is not.

- (29) Lahu (Tibeto-Burman)
- a. jì thà' dō
liquor ACC drink
'to drink (the) liquor'
- b. jì dō
liquor drink
'to drink liquor' (P)
- (Matisoff 1981: p. 307)

As in (30), the indefinite patient S is also zero-coded in Lahu (ibid.).

- (30) mû-yè² là
rain comes
'it is raining.' (Patient S)

There are also languages which zero-code P, patient S, and agent S. In Kansai Japanese, for example, agent Ss can be also zero-coded in addition to Ps and patient S. (28-a) without *ga* is acceptable in Kansai Japanese (see also Nakagawa 2013).³

²The expression *mû-yè* as a whole means 'rain (noun)'; which originates from *mû* 'sky' and *yè* 'water' (Matisoff 1981: 60).

³Although the form of the sentence is identical, the pitch accent is drastically different and it is easy to distinguish Standard Japanese from Kansai Japanese. Grammaticality judgements are of mine.

7.3.2 Elements separated from the predicate

As discussed in §§6.2.1 and 6.3, topics which have not been established are produced intonationally separate from the predicate. This section explores the possibility of the existence of languages with hard constraints, i.e., languages that do not allow unestablished topics to appear together with the predicate or **main clause**.

I did not find languages which match this exact condition. However, one of the related phenomena is that, in some languages, **indefinite** non-generic NPs cannot in general be the subject; they can only be the subject of existential constructions (Givón 1976: 173ff.). I assume that, in these languages, the connection between the subject (A and S) and **topic** is so strong that non-topical subjects are not allowed. Canonical pre-verbal subjects in many Bantu languages are inherently topical and subjects cannot be focus in situ (See Downing & Hyman (2016) and works cited therein for the summary of **information structure** in Bantu languages). For example, in Northern Sotho, it is possible for the subject to appear in the canonical pre-verbal position, as in (31-a) or in the post-verbal position, as in (31-b).

- (31) a. **Mo-nna** o ngwala le-ngwalo
 CL1-man CL1 write CL5-letter
 ‘The man is writing a letter.’
 b. Go fihla **mo-nna**
 CL17 arrive CL1-man
 Lit. ‘There arrives a man.’ (Zerbian 2006: 171)

It is ungrammatical to put *wh*-words in the canonical pre-verbal position, as shown in (32).

- (32) a. ***Mang** o nyaka ngaka?
 who CL1 look.for CL9.doctor
 Intended: ‘Who is looking of the doctor?’
 b. ***O** nyaka ngaka **mang**?
 CL1 look.for CL9.doctor who
 Intended: ‘Who is looking for the doctor?’ (Zerbian 2006: 69)

In many Bantu languages, it appears that an NP must be introduced in a special clause of non-canonical VS order and, only after that, can the NP be mentioned in a normal clause of canonical SV(P) order to bring the narrative forward.

Also in **French**, which is a SV(P) language, VS order is used to focalize the

subject and the predicate typically expresses existence, emergence, and motion (Togo & Ohki 1986). Because the inverted subject is focus, the scope of negation is the subject, as shown in (33-a), and it is unnatural to provide alternatives incompatible with the subject, as in (33-b).

- (33) a. Dans cet immeuble n'habitent pas **des ouvriers français**, mais
in this building not.live NEG some workers **French** but
des ouvriers espagnols.
some workers **Spanish**
'In this building, **French** workers do not live, but **Spanish** workers.'
- b. ??Dans cet immeuble n'habitent pas **des ouvriers français**, mais
in this building not.live NEG some workers **French** but
dans l'autre immeuble.
in the.other building
'In this building, **French** workers do not live, but in the other building.'
- (Togo & Ohki 1986: 3, translated by NN)

It is infelicitous to put more new elements after the inverted subject. For example, (34-a), which is a typical subject inversion, is acceptable, whereas (34-b), which is (34-a) followed by another phrase 'by **French** and Japanese educators', is not acceptable.

- (34) a. Dans ce débat ont été discutés **problèmes de l'éducation morale**.
in this debate have be discuss problems of the.education
morale.
moral
'In this debate, problems of moral education were discussed.'
- b. ??Dans ce débat ont été discutés **problèmes de l'éducation morale** par des pédagogues français et japonais.
in this debate have be discuss problems of the.education
morale par des pédagogues français et japonais.
moral by some educators **French** and Japanese
'In this debate, problems of moral education were discussed by **French** and Japanese educators.'
- (op.cit.: 4)

Interestingly, however, if a pause is inserted between the VS part (*ont été discutés problèmes de l'éducation morale* 'problems of moral education were discussed') and the additional phrase (*par des pédagogues français et japonais* 'by **French** and Japanese educators') in (34-b), the acceptability improves. This sug-

gests that a new NP is introduced in a special construction of VS order, and additional new information cannot be introduced within the same **intonational phrase** in **French**.

7.4 Summary

This section outlined a summary of the study and discussed languages that grammaticalize the tendencies proposed in this study. Of course the discussion provided more possibilities than conclusion. Further investigation is needed to analyze the exact associations between languages with hard constraints and those with soft constraints. Also, it is intriguing to account for the factors that determine whether a language has hard constraints or soft constraints.

8 Conclusion

8.1 Summary

This study attempted to partially answer a larger question of how Japanese speakers communicate with each other through abduction of the mental state of other people. It revealed that Japanese speakers employ a variety of cues to express the speaker's assumption about the **hearer**'s mental state.

While a great amount of literature has discussed the distinction between *wa* and *ga*, the relationships among other kinds of particles have not been discussed as thoroughly. Chapter 4 in this study revealed the distinction between *wa* and other **topic** particles such as *toiuno-wa* and *kedo/ga* preceded by **copula**, as well as the distribution of case markers, by drawing a **semantic map** of particles. It also investigated the distribution of the zero particles and their associations with **information structure**.

The previous literature investigated clause-initial, pre-predicate, and post-predicate constructions independently in different frameworks; however, there was no unified account of **word order** in Japanese. In Chapter 5, I described **word order** in spoken Japanese in a unified framework.

Chapter 6 investigated intonation. While the previous literature mainly concentrates on **contrastive focus**, this study discussed both **topic** and focus. I investigated intonation as a unit of processing and argued that **information structure** influences the form of intonation units.

To the best of my knowledge, particles, **word order**, and intonation in Japanese have been investigated separately in the literature; there was no unified theory to account for the whole phenomena. This study investigated the phenomena as a whole in a consistent way by annotating the same information for all linguistic expressions and by employing the same analytical framework.

8.2 Theoretical and methodological implications

This section discusses some theoretical and methodological implications this study has. First, I proposed that **topic** and focus are multidimensional rather than ho-

mogeneous; **topic** and focus are interpreted to be a bundle of features and each feature is scalar rather than binary. Different languages are sensitive to different features to different degrees. Even within a language, different linguistic expressions are sensitive to different features to various extents. Moreover, it is often the case that a single linguistic expression is sensitive to multiple features. As outlined in Chapter 2, different authors discuss different kinds of **topic** and focus, which is a confusing situation. I argue that linguistic research would be clearer if one asks “what feature(s) is/are sensitive to what linguistic expression(s)?”, instead of asking “which feature best predicts the distribution of some linguistic expressions?”

Second, I proposed methods of annotation and analysis that are cross-linguistically applicable. I did not annotate all the features proposed in (2) in §3.3; however, all the features can be defined independent of language-specific categories and can be applied universally. Some features such as specificity and **definiteness** are hard to annotate, and it is highly likely that different annotators have different intuitions about the expression in question. I argue that this is not a problem. In real life, some people might interpret some expression to be definite, while other people might interpret the same expression to be **indefinite**. This is a source of linguistic variation, and there is no single right answer. Ideally, a statistically sufficient number of annotators annotate the same corpus, and all the annotations are used in analyses.

Third, I point out the importance of qualitative analysis in addition to quantitative analysis. In §4.2, for example, I concluded that *toiuno-wa* and *wa* attach to elements in different statuses in the given-new taxonomy by examining each example, even though the difference was not visible from the raw numbers. This is because my annotation is not fine-grained enough to capture the subtle difference between these markers. Of course, it is necessary to run statistical tests in the future. However, it is also important to examine each example to make sure that the results do not contradict observations.

8.3 Remaining issues

This study has many remaining issues to be investigated in the future. I discuss two of these in this section.

8.3.1 Predication or judgement types

As discussed in Chapter 2, traditional Japanese linguistics scholars have paid attention to **predication** types or judgement types. Predication or judgement types include the distinctions between **thetic** vs. categorical judgements and between attribute vs. phenomenon judgements (Matsushita 1928; Yamada 1936; Mio 1948/2003; Kuroda 1972; Masuoka 2008a; Kageyama 2012). Although this study focused on the distinction among nominal types such as **topic** and focus, the findings of this study can be integrated into theories of **predication** or judgement types. This implies that **information structure** is not only related to properties of NPs; rather, it is also associated with properties of predicates. Especially, grammatical categories such as tense, aspect, modality, and evidentiality are highly likely to related to types of **information structure**. For example, as Masuoka (2012) points out, the **topic** marker *toiuno-wa* cannot be used in event **predication** (or stage-level **predication**); it can only be used in property **predication** (or individual-level **predication**).¹ This is shown in the contrast between (1-a) and (1-b). (1-a), where *toiuno-wa* is used in event **predication** with simple past tense, is unacceptable. (1-b), on the other hand, where *toiuno-wa* is used in property **predication**, is acceptable.

- (1) a. *sachiko-**toiuno-wa** uso-o tui-ta
 Sachiko-*toiuno-wa* lie-o spit-PAST
 ‘Regarding Sachiko, she lied.’ (Masuoka 2012: p. 96)
- b. sachiko-**toiuno-wa** uso-tuki-da
 Sachiko-*toiuno-wa* lie-spitter-COP
 ‘Regarding Sachiko, she is a liar.’ (Constructed)

Masuoka (2012) concludes that *toiuno-wa* is used only for property **predication**.

Moreover, it is well known that the interpretations of *wa* and *ga* change depending on predicate types (Kuroda 1972; Kuno 1973b). In property **predication**, *wa* is the default marker, and *ga* tends to be interpreted to be exhaustive listing. As exemplified in (2-a-b), both of which are copular sentences (i.e., property **predication**), the sentence with *wa* (2-a) is considered to have a common topic-comment structure, while the sentence with *ga* (2-b) is considered to focus only John. Specifically, (2-b) is interpreted as the answer to the question ‘who is a student?’ In Kuno’s term, *ga* is interpreted to be exhaustive listing.

¹See §2.4.2.5 in Chapter 2 for the distinction between property vs. event **predication**.

8 Conclusion

- (2) a. zyon-wa gakusei-desu
John-wa student-cop
'John is a student.'
- b. zyon-ga gakusei-desu
John-ga student-cop
'JOHN is a student. (it is John who is a student.)' (Kuno 1973b: 38)

In event **predication**, on the other hand, *ga* is the default marker and is interpreted to be a neutral description, while *wa* tends to be interpreted as contrastive. In (3-a-b), which involve event **predication**, the NP followed by *wa* in (3-a) is interpreted to be contrastive, while the whole sentence including the NP with *ga* in (3-b) is interpreted to have **broad focus** structure; as above, in Kuno's term, *ga* is considered to be neutral description.

- (3) a. ame-wa hut-te i-masu-ga...
rain-wa fall-and PROG-PLT-though
'Though it IS raining..'
- b. ame-ga hut-te i-masu
rain-ga fall-and PROG-PLT
'It is raining.' (ibid.)

I am aware of only a few studies investigating the question of why sentences of some **information structure** type are associated with particular **predication** types.

8.3.2 Genres

Genres are also an important factor to influence the phenomena investigated in this study. As pointed out in §2.4.2.7, for example, the choice between zero vs. overt particles is sensitive to styles (casual vs. formal). However, it is not clear why the formal style requires overt particles more often than the casual style.

Also, I have argued that post-predicate constructions are more frequent in conversations than monologues. Although I suggested a few possible answers why this is the case (§5.3, there is still no clear answer. Since there is a corpus of conversations annotated in the same way as the corpus used in this study (Nakagawa & Den 2012), it is useful to compare these corpora.

In monologues like the ones employed here, it is likely that **predicate-focus structure** appears more frequently than in usual conversations; the speaker usually talks about what s/he did or what happened to him/her in narratives, which fixes a **topic** (typically the speaker), and fixing a **topic** elicits a **predicate-focus**

structure. Moreover, because of the absence of hearers who ask *wh*-questions and misunderstand what the speaker means, the speaker less frequently has to answer *wh*-questions or correct hearers, which typically elicit an argument-focus structure. It is important also for this reason to investigate other genres of spoken language.

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