

Discourse Segment and Japanese Referring Expressions: Are These Bare NPs or Proper Names?

Etsuko Yoshida

Mie University

1577 Kurimamachiya-cho, Tsu, Mie

514-8507 Japan

tantan@human.mie-u.ac.jp

Abstract

Forms of Japanese referring expressions are mainly divided into four types: bare NPs, demonstrative NPs (i.e. either as determiner or as pronoun) and zero pronouns. Out of the four types of the referring expressions, bare NPs are the most common type as a subsequent mention and zero pronouns are used only in limited conditions. Based on the centering framework, the results suggest that the center of attention is maintained by the chain of NPs rather than zero pronouns, and the chain of NPs is correlated with the global focus of discourse coherence. There is no doubt that bare NPs mainly carry the topic entity and continue to be used both within the border of discourse segment and over the discourse segment boundaries, while the zero pronoun can carry the topic entity only in the limited context of discourse and is likely to discontinue within the discourse segment. This result is not fully explained by the existing anaphora resolution and it is difficult to predict the typical pattern of referential transitions in naturally occurring discourse. It is worth noting that the repetitive use of bare NPs tends to function as proper names in the Japanese spoken discourse.

1. Introduction

Forms of Japanese referring expressions are mainly divided into four types: bare NPs, demonstrative NPs (i.e. either as determiner or as pronoun) and zero pronouns. Out of the four types of the referring expressions, bare NPs are the most common type as a subsequent mention and zero pronouns are used only in limited conditions. In English, on the other hand, NPs are the major type of reference used in the discourse and there seems to be a parallelism in distribution between English and Japanese when the topic entity is in the process of being established in discourse. Based on the discourse understanding model, I will argue that the forms of anaphor are not always shorter, and the center of attention is maintained by the chain of NPs rather than (zero) pronouns both within the discourse segment and over the segment boundaries.

2. General view

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

However, are these always the case? It seems that, according to the common ground they can share, the discourse participants negotiate over the appropriate expressions, replace them with better expressions, and establish them as a distinctive form of expression that may appear to function like a proper name. This observation suggests that the choice and the distribution of referring expressions in the task-oriented dialogues depends on the way the participant collaborate to judge the most salient entity in the current discourse against their common ground. In this paper I will clarify how the different forms of referring expression are exploited in the different stages of discourse, especially focusing on the chain of NPs and its implication in discourse development.

3. Method: Cache Model as an integrated discourse model

To investigate how the types of referring expressions of Japanese and English are correlated with the center transition, I use the original centering model. In the centering framework, the determined elements of Cf ('forward-looking center) are commonly ranked as Cf ordering. Based on Grosz, Joshi and Weinstein (1995) and Walker, Joshi and Prince (1998), I adopt this ranking in analyzing the data. Cf ranking for English is simply ordered by the canonical word order:

(1) subject > object(s) > other

(Grosz, Joshi and Weinstein, 1995)

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

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

(Walker, Iida and Cote, 1994)

This ranking explains that the higher element in the Cf is likely to become the Cb ('backward-looking center') in the current utterance. That is, in English, the subject is the highest candidate of the center, while in Japanese the topic is the highest candidate of the center.

Although the original centering model only pays attention to the local focus within the discourse segment, Walker's (1998, 2000) cache model can cover the center transition of the global focus as an integrated model of centering, which is strongly supported by Grosz and Sidner's stack model and its notion of attentional state. In the cache model, cache is the significant notion: cache is the size of short-term memory, and is limited to 2 or 3 sentences, or approximately 7 propositions. In the cache model, 'centering applies to discourse entities in the cache, and the contents of the cache can be affected by the recognition of intention. However, centers can be carried over segment boundaries by default, and only displaced from the cache when they are not being accessed' (Walker 2000: 18) Thus, as far as the cache memory is limited within the appropriate size, the center can be recovered without any effort as shown in the example below :

(3)

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

H: I missed your name.

C: Hank

H: Go ahead Hank

C: *as well as her uh husband*

They have a child

and they bring the child to us every day for babysitting

In the middle of the utterance that starts the problem statement, *my daughter is working*, the talk show host H interrupts the caller C to ask for his name. The call C, after his interruption, continues his statement as *as well as her uh husband*. So here the interrupted segment does not affect the coherence of the utterance. If the size of the interrupted segment, which is part of the same discourse segment as the previous utterance, happen to be longer than this, *her husband* can be more difficult to interpret (Walker 2000:3).

As for the present analysis, I use the notion of 'cache', 'push', and 'return pop', respectively, to explain how the entity that is signified as center can be retained after a set of utterances

interfering (i.e. 'push') with the previous utterances. That is, 'push' is the new discourse segment (what is called 'side sequence' by conversation analysts) and 'return pop' is the subsequent discourse segment following push. This is important because, depending on the size of cache, a cache model enables us to explain the link between the last utterance prior to the push and the initial utterance in the return pop. That is, the center is accessible as far as the cache is within the limited size. It can be noted that the return pop is a common phenomenon in naturally occurring discourse, and the utterance preserved in the cache can be accessible as a salient entity in the current discourse.

4. Results

For the present study, I selected two Japanese Map Task dialogues, which are collected from the data based on the same labelless maps and the same experimental design as English parallel corpus with different participants. The tables below show the correlation between the Cf ranking and the distribution of the four types of referring expressions in Japanese: the type of reference in Japanese are bare NPs, demonstrative NPs (i.e. either as determiner or as pronoun), and zero pronouns. In addition to classifying each referring expression according to its type, I have also divided them according to whether they were the first or a subsequent mention of an entity.

The result of Japanese data is shown in Table 1 and 2 as first mentions and Table 3 and 4 as subsequent mentions. In Japanese, referring expressions used for first mention are mainly bare NPs and only a small number of demonstrative determiner with nouns, while there are four types of referring expressions which are used in subsequent mentions that includes two types that are never used in first mentions, these being demonstrative pronouns and zero pronouns. I wish to focus on how the reference of an entity develops throughout a discourse and so it was not important to me who made the utterance but rather what type of referring expressions was used at different stages in the discourse.

4.1 First mentions in Japanese data

Here is the result of first mentions in two Japanese dialogues:

Table 1 (da: Japanese) FIRST MENTIONS

form Cf	Bare NP (%)	Demonstrative Determiner +N <i>sono</i> N 'that N' (%)	Demonstrative Pronouns <i>sore</i> 'that' <i>soko</i> 'there' (%)	Zero NP (%)	TOTAL (%)
Topic with 'wa'	2 (100.0)	0	0	0	2 (100.0)
Subject with 'ga'	5 (83.3)	1 (16.7)	0	0	6 (100.0)
Object with 'wo'	0	0	0	0	0
Others	2 (66.7)	1 (33.3)	0	0	3 (100.0)
No case marker	2 (100.0)	0	0	0	2 (100.0)
TOTAL	11 (84.6)	2 (15.4)	0	0	13 (100.0)

Table2 (dc: Japanese) FIRST MENTIONS

form Cf	Bare NP (%)	Demonstrative Determiner +N <i>sono</i> N 'that N' (%)	Demonstrative Pronouns <i>sore</i> 'that' (%)	Zero NP (%)	TOTAL (%)
Topic with 'wa'	0				0
Subject with 'ga'	10 (90.9)	1 (9.1)			11 (100.0)
Object with 'wo'	0	0	0	0	0
Others	1 (50.0)	1 (50.0)	0	0	2 (100.0)
No case marker	0	0	0	0	0
TOTAL	11 (84.6)	2 (15.4)	0	0	13 (100.0)

First mentioned references of Japanese are mostly bare NPs that are frequently introduced with the subject marker *ga*. In introducing the discourse entity into the discourse, the giver utters several ways of 'initiating reference'. The type of noun phrases that the speaker tends to use are called 'an elementary NP' such as '*doshakuzure mitaina e*' (*a picture like a slide*) or, put it more simply as '*koya*' (*a hut*).

4.2 Subsequent Mentions in Japanese data

Here is the result of subsequent mentions in two Japanese dialogues:

Table 3 (da: Japanese)SUBSEQUENT MENTIONS

Cf \ form	Bare NP (%)	Demonstrative Determiner +N <i>sono</i> N 'that N' (%)	Demonstrative Pronouns <i>sore</i> 'that' (%)	Zero NP (%)	TOTAL (%)
Topic with 'wa'	7 (53.8)	1 (7.7)	1 (7.7)	4 (30.8)	13 (100.0)
Subject with 'ga'	9 (60.0)	4 (26.7)	2 (13.3)	0	15 (100.0)
Object with 'wo'	2 (28.6)	1 (14.3)	4 (57.1)	0	7 (100.0)
Others	59 (80.8)	14 (19.2)	0	0	73 (100.0)
No particle	3 (15.8)	1 (5.3)	0	15 (78.9)	19 (100.0)
TOTAL	80 (62.5)	21 (16.4)	7 (5.5)	20 (15.6)	128 (100.0)

Table 4(dc: Japanese) SUBSEQUENT MENTIONS

Cf \ form	Bare NP (%)	Demonstrative Determiner + N <i>sono</i> N 'that N' (%)	Demonstrative Pronouns <i>sore</i> 'that' (%)	Zero NP (%)	TOTAL (%)
Topic with 'wa'	2 (20.2)	1 (10.0)	2 (20.0)	5 (50.0)	10 (100.0)
Subject with 'ga'	5 (83.3)	0	0	1 (16.7)	6 (100.0)
Object with 'wo'	6 (16.2)	1 (2.7)	30 (81.1)	0	37 (100.0)
Others	57 (65.5)	16 (18.4)	2 (2.3)	12 (13.8)	87 (100.0)
No particle	10 (83.3)	0	0	2 (16.7)	12 (100.0)
TOTAL	80 (52.6)	18 (11.8)	34 (22.4)	20 (13.2)	152 (100.0)

As subsequently mentioned reference, bare NPs are the major type of reference that are used in most of the Cf ranking. Demonstratives are the second major type of reference as both determiners and pronouns. Zero pronouns are only a quarter of bare NPs in frequency. Zero

pronouns are mostly recovered in a topic position, but it is often difficult to determine their Cf ranking if case markers are being omitted.

5. Discussions

Here I will examine three types of expressions that can significantly affect the coherence of discourse, zero pronouns, different types of NPs and demonstrative NPs concerning how they are used both within the discourse segment and over the discourse segment boundaries.

5.1 zero pronouns

In Japanese dialogue data, as seen in the Table 3 and 4, the frequency of its occurrence is unexpectedly low, and tends to be discontinued without being established as a topic entity. Consider the dialogue below:

(4)

G: shita ni <360>kou_doshakuzuremitaina <260> e ga arimasu ka
 under this landslide-like picture SUBJ is (Pol) Q

F: [∅] gake mitai nan ga att te doshakuzure ({tte koto de*su ka[?]})
 cliff like thing SUBJ is and landslide ((REL thing is (Pol) Q))

G: *a <390> a watashi no e niwa sono gake no
 Uh uh my picture TOP that cliff GEN

e ga naindesu ne
 picture SUBJ is not (Pol) Pat

F:({hai[?]})+
 yes

G:+ n

G:* ta

F:* [∅] doukutu towa chigai masu yone
 (it) the cave from different is (P) isn't it (Pat)

G: hai[∅] doukutu towa chotto chigai ma*su
 Yes, it the cave from a bit different is (P)

(English translation)

G: Is there a picture of something like a landslide below?

F: That means there is something like a cliff and there is a landslide (below)?

G: Oh. There isn't a picture of cliff in my picture, isn't there?

F: Yes?

G: n

G: ta

F: It's different from a cave, isn't it ?

G: Yes, it is a little different from the case.

Here zero pronouns are used in the subject position of copula sentence: in the first utterance, the information follower is confirming the position of the signposts '[\emptyset (*sore wa* 'it's')] gake mitai nan ga attte doshakuzure ({tte koto de*su ka[?]})' ('That means there is something like a cliff and there is a landslide (below)?'); in the latter part, the information follower is comparing one entity with the other competing entity in his map in the interaction: '[\emptyset] doukutu towa chigaimasu yone' ('It's different from a cave, isn't it ?') and 'hai[\emptyset] doukutu towa chotto chigaima*su' ('Yes, it is a little different from the cave.'). That is, the speaker is confirming whether 'A is B' in the utterance is correct or not. Most of the zero pronouns in the subject position are also considered as zero topic in the copula sentence in answering whether the target entity can exist in either map or not: '[\emptyset (*koya wa*)] nai desu' ('there isn't [\emptyset (hutch)]') In these exchanges the entities that the giver and the follower who are dealing with are frequently not shared, so that they are only confirming their own specific entity in each map.

Thus, although the combination of the zero pronoun and the zero topic is the highest ranking of the Cfs, zero pronouns only tend to occur in the current exchanges within the discourse segment in which the topic entity is shared. Obana (2003) points out that the chain of zero pronouns in Japanese narratives is different from the 'topic chain' that Givon (1983) defined, in which the topic chain can easily reflect the dynamic change of context of the discourse such as discourse segment boundaries. In narratives, in addition, it is pointed out that zero pronouns tend to occur in the context in which the human is the topic entity and his or her chain of actions and events are successively described, especially in the condition that competing entities do not exist in the current discourse. Therefore, zero pronouns can be a center only in a limited stage of the current discourse, but it is unlikely to predict that zero pronouns can carry a topic over the border of discourse segment.

5.2 NPs

As seen in Table 3 and 4 in Japanese, NPs are the type of reference that are most frequently used in every Cf ranking. Once NPs are introduced as first mention mainly with the Japanese subject marker 'ga' in *taki ga* ('waterfall-SUBJ') as an initiating reference, they tend to reiterate as *taki* 'waterfall' in the subsequent discourse.

Then, the bare NP *taki* ('waterfall'), which is replaced with the zero topic pronoun (*taki wa* 'the waterfall-TOP') in the middle of the discourse, continues to be used as the center of

attention to identify which *taki* is mentioned. The entity the NPs *taki wa* ('waterfall-TOP') continue to be established as a topic even over the segment boundaries after the 'push' of the discourse segment (Seg.2 and 3), and finally returns to the 'pop' of the subsequent segment, Seg 4.

(5)

Seg.	U	Sp
1	(1)	F:+e sono <350>* etto <330>minami ni sagatta ten <370>*wo massugu kita ni sen nobashite iku to <i>taki wa</i> [the waterfall TOP]
	(2)	G: *haha (back-channel)
		G: *un
	(1)	F:higashi ni arimasu ka nishi ni arimasu ka [[\emptyset] [the waterfall ZERO TOPIC]]
2	(3)	G: e sono fune kara
	(4)	[that-DEM ship from]
		F: fune janakute ima * <210> sansennchi minami ni sagarimashita yone+
	(3)	G: *a ima
	(4)	G:+ a hai hai hai
3	(5)	F: sore tte <240>*sono su
	(6)	G: *hai
	(7)	G: hoko kara
	(5)	F: so<300>ko kara *makita ni agatte sen wo hiite
	(8)	G: *un
	(9)	G: un
	(10)	G:*makita ni agatte
4	(11)	F:* <i>taki wa</i> <250>higashi ni ari *masu ka [the waterfall TOP the east in is POL Q]
	(12)	G: * <i>taki wa</i> [the waterfall TOP]
	(13)	F:nishi ni ari<200>masu ka [the west in is POL Q]
	(12)	G: [\emptyset (<i>taki wa</i>)] higashi ni ari masu [\emptyset (the waterfall TOP)] the east in is POL

Here *taki* ‘waterfall’ that is introduced in the discourse segment 1 returns to the initial utterance of the discourse segment 4, after the digression of the ‘push’, Seg 2 and 3. Obana (2003)’s argument that the continuity of the full nouns contribute to the topic chain does appear to be the case in dialogic data. Above all, the center of attention, which is temporarily distracted by the push segment, is again connected with the first utterance of the ‘return pop’ segment over the discourse segment boundaries.

5.3 Demonstratives

Demonstratives are more frequently used in Japanese data than in English data. In this section I focus on the use of Japanese demonstrative *sono*-N as a significant marker contributing to discourse coherence. First of all, *sono* NPs are used to identify the entity that is introduced in the immediately preceding discourse. In example (4), the follower introduce *gakemitainan* ‘something like a cliff’ to refer to the element in the follower’s map, contrasting with the giver’s preceding element *doshakuzure mitaina e* (‘something like a picture of landslide’). Then the giver refers to the follower’s entity as *sono gake* (‘that cliff’), which the giver does not have in his map. It is natural to assume that *sono* NP (‘that NP’) is used to refer to the element that is not likely to be the current center of the utterance.

The other type of *sono* NP is that the element introduced to the initial discourse segment, *mominoki no ega* (‘fur tree of-GEN picture’) ‘a picture of fur tree’ functions as the reference point of the new topic that is to be introduced to the subsequent discourse. After the two ‘push’ segments, *sono* NP is introduced in the initial utterance of the return pop segment. as *sono mominoki* (‘that fir tree’), and this time it functions as a reference point to introduce a new entity *doshakuzuremitaina e* ‘something like a picture of landslide’ in the return pop segment. Sakahara (2000) notes that the demonstrative determiner has the focus function, and ‘it gives the referential object a kind of proximity, then its zoom-up effect enables us to pay the special attention to the identified object (227)’ Here *sono mominoki* (‘that fur tree’) is focused attention on the initial utterance of Seg 4 to introduce the following element *doshakuzuremitaina e* (‘something like a picture of landslide’).

Furthermore, *sono* NP does not only focus on the element but also plays a role of controlling the flow of information of the discourse. Sakahara (2000: 240) also points out that the demonstrative determiner can search for a target entity in the small territory, and can pinpoint the single entity out of a number of candidates, as we can see below:

(6)

Seg.	U	G: eto
	(1)	G: ima <i>sono kaigan no e ga</i> ari masu yo*ne [now that coastline of-GEN picture SUBJ is POL PAR]
	(2)	F: *hai

Mentioned as *sono kaigansen* ‘that coastline’ in the previous segment, the entity is again realized as *sono* NP: *sono kaigan no e* (‘a picture of that seaside’) in the subsequent segment. It is observed that *sono* N is the only demonstrative determiner with nouns that can serve to develop its function of focusing on the specific entity in discourse, while *a-* and *ko-* type of demonstratives can not carry it (Sakahara 2000: 245).

6 . Conclusion

In this paper I have mainly observed zero pronouns, NPs and demonstratives in Japanese and their interaction with the discourse coherence. Why bare NP and *sono* NP are immediately identified as a current topic across the discourse segment borders when they appear in the return pop after the push? Focusing on the functions of these expressions in discourse in correlation with the center transition both within the discourse segment and over the border of discourse segment, I have investigated the possibilities for how the context is created so that NPs in pop segment can be interpreted as a topic chain.

It is still difficult to evaluate the result as reliable, but the result itself is interesting. The results suggest that the center of attention is maintained by the chain of NPs rather than zero pronouns, and the chain of NPs is correlated with the global focus of discourse coherence. There is no doubt that bare NPs mainly carry the center of topic and continue to be used both within the border of discourse segment and over the discourse segment boundaries, while the zero pronoun can carry the center of topic only in the limited context of discourse and is likely to discontinue only within the discourse segment. Demonstratives supportively focus on the current center in searching for the new entity in the subsequent discourse segments.

This result is not fully explained by the existing anaphora resolution and it is difficult to predict the typical pattern of referential transitions in naturally occurring discourse. It is worth noting that the repetitive use of NPs tends to function as proper names in the current discourse. Furthermore, the speaker’s short-term memory is repeatedly activated by the combination of these expressions, which will be the focus in the further research.

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