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Title	Aboutness Conditions on Japanese Contracted Relative Clauses
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Citation	OUPEL(Osaka University Papers in English Linguistics). 2003, 7, p. 1-12
Version Type	VoR
URL	https://doi.org/10.18910/72925
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ABOUTNESS CONDITIONS ON JAPANESE CONTRACTED RELATIVE CLAUSES*

1 INTRODUCTION

This paper focuses on particular relative clause in Japanese, which is considered to be an apparent gapless relative.

(1) a. [[Atama-ga yoku naru] hon]
head-NOM good become book
'the book (with the help of) which one becomes smarter'
b. [[Hashi-ga kowareta] ooame]
bridge-NOM broke down heavy rain
'the heavy rain (because of which) the bridge broke down'

Unlike the following sentences, the head nouns in (1) do not seem to be linked to the predicate of the modifying clause.

(2) a. [[Naomi ga φ tabeta] ringo]
Naomi-NOM ate apple
'the apple that Naomi ate'
b. [[Naomi-ga ringo-o tabeta] heya]
Naomi-NOM apple-ACC ate room
'the room in which Naomi ate an apple'

It is widely accepted that the relationship between the head noun and the modifying clause is not rigid; Japanese relative clauses can be licensed by the 'aboutness condition' mentioned by Kuno (1973a). This condition, which is often applicable to many analyses of relative clauses and topic sentences in Japanese, has not been defined clearly. It is certain that what is expressed in the relative clause is understood as 'about' the head noun, but this explanation does not lend itself to a clear characterization. We will examine this condition in detail in the next section.

The goal of this paper is to formalize the vague notion of the aboutness condition in the framework of the Generative Lexicon proposed by Pustejovsky (1995) and discuss Japanese relative clause which motivates Pustejovsky's hypothesis that a lexical item contains information called 'qualia structure' in the Generative Lexicon.

* I would like to express my gratitude to Seisaku Kawakami and Yukio Oba for their useful comments and encouragement. Thanks also go to Paul A. S. Harvey for proof-reading. All errors are my own.

S. Kawakami & Y. Oba (eds.) Osaka Univ. Papers in English Linguistics, 7, 1-12.

2 ABOUTNESS CONDITIONS ON JAPANESE RELATIVE CLAUSES

2.2 Aboutness Condition

Relative clauses in Japanese have received much attention in transformational grammar and are still controversial in many respects. It is fair to say however that some aspects in Japanese relative clauses, which are problematic for a purely syntactic and structural analysis, have received little attention in previous approaches. Consider the following examples.

(3) a. [[Syuushoku-ga muzukasii] buturigakui]
employment-NOM difficult physics
'As for physics, finding jobs is very difficult'
b. [[Sakana-ga yakeru] nioi]
fish-NOM burn smell
'the smell of burning fish'

These examples can be generated without movement because they apparently have no corresponding thematic role in the modifying clause. The acceptability has thus been considered not to be relevant to syntax. Rather, it is often assumed that the 'aboutness condition,' which is proposed by Kuno (1973a, 1973b), plays a crucial role in these Japanese relative clauses. Based on the argument in Kuno (1973a), who states that relativization in Japanese involves the deletion of theme, he proposes that the thematic constraints on relative clauses; a relative clause must be a statement about its head noun (Kuno 1976:420).[1]

Arguing from a generative perspective, Saito (1985) suggests that the aboutness condition does not suffice to license all topic sentences. He points out that the aboutness-based approach that a topic sentence can be licensed by the aboutness condition, which eventually allows the corresponding relative clause, cannot explain why adjunct topicalization shows Subjacency effect, but argument topicalization does not. Thus, his conclusion is that Japanese relatives may involve movement. It should be noted however that he states that some relative clauses may be generated without movement, adopting the constraint of aboutness on relativization (Saito 1985:291).

Interestingly, we find a generative account such as in Murasugi (2000), who returns to the aboutness condition for an explanation of relatives in Japanese. She extends her 1991 analysis to broader relative clauses and tries to claim that Japanese

[1] Note that Kuno (1973a, 1973b) does not state the example in (3) contains no gap. His main observation is that there is parallelism between topic constructions and relative clauses; the deletability of Case particles (i.e., topic marker *wa*); the occurrence of resumptive pronouns; both allow elements in adverbial clauses, complex noun phrases, and sentential subjects. Thus, he assumes that (3) has the topic sentence as shown in (i), and proposes that Japanese relatives are derived by deleting the topic constituent under identity with the head noun.

(i) Buturigaku-wa syuusyoku-ga muzukasii
physics-TOP employment-NOM difficult
'As for physics, finding jobs is difficult'
(ii) [[~~Buturigaku~~ wa syuusyoku ga muzukasii] buturigaku]

relative clauses are all pure complex NPs, which are licensed by the aboutness condition.[2] First, she points out that the aboutness condition on pure complex NPs is quite loose in Japanese, as shown in (4).

(4) a. [[Doa-ga simaru] oto]
door-NOM shut sound
'the sound of a door shutting'
b. [[Zyagaimo-o yudeta] mono]
potato-ACC boiled thing
'the thing that was produced by boiling potatoes'
Lit.: (the) thing (that) one boiled potatoes.
(Murasugi 2000:215)

Second, examining the possibility of a gap in the modifying clauses (e.g. Subjacency effect and Reconstruction effect), she argues that Japanese relatives can never involve movement, that is, they cannot contain a gap at all and the head noun is base-generated. If this analysis is correct, then is required some licensing condition for gapless-relatives, that is, the aboutness condition.

However, as Kuno (1973a: 254) admits that 'at present it is not clear what kind of relationship the theme and the comment must hold for the sentence to be grammatical,' the notion of 'aboutness' is not clearly defined in any literature; it only says that the modifying clause is about the head noun, or the head noun is pragmatically bound to a specific noun constituent in the modifying clause.[3] In fact, most of the analyses for Japanese relative clauses have accepted and suggested that the aboutness condition plays a crucial role in some cases, but even now we cannot tell what the aboutness condition actually is. Now consider the following contrast:[4]

(5) a. [[Atama-ga yoku naru] hon]
head-NOM good become book
'the book (with the help of) which one becomes smarter'

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[2] Following Saito's treatment for the relativization of adjuncts, Murasugi (1991) classifies adjuncts into two types; 'quasi adjuncts,' which allow a corresponding *pro* to be base-generated in the modifying clause, and 'pure adjuncts,' which do not. The evidence for this distinction would come from the following Subjacency effect (Murasugi 1991:132-133).

(i) [[John-ga [Mary ga e_i sentaku sita to] itta] hi_i]
John-NOM Mary-NOM washed comp said day
'the day$_i$ that John said that Mary washed e_i '
(ii) *[[John ga [Mary ga e_i sentaku sita to] itta] $riyuu_i$]
John-NOM Mary-NOM washed comp said reason
'the reason$_i$ why John said that Mary washed e_i.

She then concludes that the relativization of a pure adjunct as in (ii) is not allowed in Japanese and furthermore that apparent relative clauses whose head functions as an adjunct in the modifying clause are pure complex NPs.

[3] The pragmatic-based approach is advocated by Kitagawa (1982), who proposes that the relation between the head noun and the modifying clause is licensed by 'pragmatic linking.'

[4] It should be noted that (5b) may be acceptable if some special context is supplied.

b. ?* [[Atama-ga yoku naru] isi]
head-NOM good become stone
'the stone (with the help of) which one becomes smarter'

What specific condition determines the well-formedness at some relevant interpretive level? If we adopt the existing definition of the aboutness condition, we will claim that the predication *one becomes smarter* (*atama ga yoku naru*) has something to do with a book *hon*, but this is not the case with a stone *isi*. Alternatively, we may say that the predication links pragmatically with the head noun *hon*. It seems that either statement assigns the explanation of the (un)acceptability to pragmatics excessively; rather, I would like to reduce the explanatory reliance on pragmatics. This paper will try to clarify the vague term 'aboutness' and give a more formal definition by means of semantic representation.

2.2 Contracted Relative Clauses

In this section, we will briefly present a brief review of previous approaches for contracted relative clauses.

Teramura (1975-78) examines the relation between a head noun and a modifying clause in detail, showing a wide variety of Japanese relative clauses, and classifying Japanese modifying clauses into two types: 'internal relationship' (uti no kankei) and 'external relationship' (soto no kankei). Especially, he calls the following relatives 'a contracted relative clause' (tanraku teki kankeisetu), as repeated as in (6).[5]

(6) [[Atama-ga yoku naru] hon]
head-NOM good become book
'The book (with the help of) which one becomes smarter'

As the translation in (6) indicates, (6) can be paraphrased by the following conditional:

(7) [[Kono hon-o yome ba] atama-ga yoku naru]
this book-ACC read if head-NOM good become
'If you read this book, you become smarter'

Considering other aspects such as the semantics of head nouns and the corresponding sentence in (7) he concludes that (6) belongs to internal relationship types. That is, (6) has a hidden conditional clause which contains a gap associated with the head noun. Note that he admits that he is not sure whether this can be classified as internal relation construction (i.e., gapped relatives).

On the other hand, an analysis of the contracted relatives in terms of the

[5] One of the definitive differences between these two types (i.e., internal and external relationship) is that the head noun in the former type seems to function as a complement, while this is not the case with the latter type, in which the head noun does not have any grammatical function in the modifying clause. Another difference is that the modifying clause in internal relationship supplements additional content with the head noun, while the external one assigns the content to the content-less head noun directly.

'aboutness condition' is advocated by Ishii (1991), who argues that contracted relative clauses in Japanese are analyzed as gapless relatives. First, since most adjuncts are not allowed to be relativized because of the Empty Category Principle violation, he claims that the means adjunct also cannot be relativized. That is, (6) does not involve movement. Second, based on Murasugi (1991), he states that there is no *pro* for means adjunct in (6). His conclusion is then that contracted relatives are licensed by the aboutness condition. One can explain according to intuition these phenomena under the aboutness condition, but his analysis faces some difficulties. One is the reliance on the vague aboutness condition, as we will see below. Another is the constraint on the aboutness condition.[6] He suggests that the aboutness condition must be clause-bound.[7] If so, how can this condition license the following sentence?

(8) [[Naomi-ga [Ken-ga atama-ga yoku naru to] omotteiru]hon]
Naomi-NOM Ken-NOM head-NOM good become think book
'the book (by reading) which Mary thinks that Ken becomes smarter'

Kameshima (1990) claims that restrictive relative clauses in Japanese involve movement and cannot be licensed by the aboutness condition alone. As for contracted relatives, she thus argues for a gapped analysis and shows that (6) has a corresponding sentence as shown in (9):

(9) Sono hon-de atama-ga yoku naru
the book-MEANS head-NOM good become
'by means of the book one's head improves'
(Kameshima 1990: 256)

Therefore (6) is represented as follows:

(10) [t_i atam-ga yoku naru] hon$_i$]
head-NOM good become book
'by means of the book one's head improves'

However, there are differences between the relative clauses and the corresponding sentences. The book *hon* in (9) can be interpreted as a direct causer in the improving

[6] This contrast is also problematic for Teramura's classification (i.e., internal relation types). If a contracted relative clause can be paraphrased as a conditional, which ensures it is a gapped sentence, (8b) is predicted to be felicitous, contrary to the fact.

(i) ?*Atama-ga yoku naru isi
head- NOM good become stone
'the stone (with the help of) which one becomes smarter'
(ii) Kono isi-o oke ba atama-ga yoku naru
this book- ACC put if head -NOM good become
'If you put this stone (to somewhere), you become smarter'

[7] Ishii (1991) argues for Kameshima's claim that the aboutness condition licenses the base-generated adjunct structure (e.g., non-restrictive relative clauses), that is, clause-bound.

event, but not in (6).[8]

Here I do not intend to discuss whether relative clauses in Japanese involve movement or not. Even if there is evidence that some relative clauses must be derived by movement operations, we should admit that some other examples (e.g. pure complex NP types) cannot be explained by movement alone. That is, we cannot dispense with the aboutness condition when dealing with Japanese relative clauses. In fact, the aboutness condition just says that the modifying clause is 'about' the head noun. In what follows, we will see what the aboutness condition is defined in previous analyses.

3 GENERATIVE LEXICON REPRESENTATION

I have noted that the aboutness condition plays a crucial role in analyses of Japanese relative clauses. To examine what 'about' is in the aboutness condition, it is helpful to introduce the Generative Lexical framework by Pustejovsky (1995).

3.1 Semantic Representation in the Generative Lexicon

In the Generative Lexicon, words have detailed lexical entries, which can be further extended dynamically by generative operations such as type coercion. Each entry can have lexical information in the following levels of representation: ARGUMENT STRUCTURE, EVENT STRUCTURE, LEXICAL INHERITANCE STRUCTURE and QUALIA STRUCTURE. QUALIA STRUCTURE is further broken down into CONSTITUTIVE, FORMAL, TELIC AND AGENTIVE qualia which describe an entry's constituent parts; its relation to other things; its purpose; and its origin, respectively. Note that what we call ARGUMENT STRUCTURE here is slightly different from traditional one: it can take four types of arguments: TRUE ARGUMENT, DEFAULT ARGUMENTS, SHADOW ARGUMENTS, and TRUE ADJUNCTS. What is relevant here is DEFAULT ARGUMENTS; their values participate in the qualia, but these are not necessarily expressed overtly. Taking as an example *John built the house out of the bricks*, the NP *John* and *the house* are the value of a true argument, while the PP *out of the bricks* is the value of a default argument.

Let us consider the lexical semantics for a book *hon* and a stone *isi*.

(11)
$$\begin{bmatrix} \textbf{hon (book)} & \\ \text{AGRSTR} & \begin{bmatrix} \text{AGR1 x: information} \\ \text{AGR2 y: art-physobj} \end{bmatrix} \\ \text{QUALIA} & \begin{bmatrix} \text{CONST} & \text{hold(y, x)} \\ \text{TELIC} & \text{read(e, w, x.y)} \\ \text{AGENTIVE} & \text{write(e, v, x.y)} \end{bmatrix} \end{bmatrix}$$

[8] Note that contrary to the movement analysis of restrictive relatives, her analysis for non-restrictive relatives does require the aboutness condition.

(12)
$$\begin{bmatrix} \textbf{isi (stone)} \\ \text{AGRSTR} \begin{bmatrix} \text{AGR x: natural-obj} \end{bmatrix} \\ \text{QUALIA} \begin{bmatrix} \text{FORMAL x} \end{bmatrix} \end{bmatrix}$$

Following Pustejovsky's view that the semantics for an artifactual (physical) object states that it is something that was created, manufactured or brought about by some human activity (Pustejovsky 1995:146), I show that a book *hon* takes **read (e, w, x.y)** as its quale value and **write (e, v, x.y)** as its agentive value. On the other hand, a stone *isi* underspecifies these roles in lexical information because it is not an artifactual object. As is clear in the end, these representations within a generative lexicon enable us to capture the generative nature of lexical creativity flexibly. Later, I will show that these differences in (11) and (12) shed light on the contrast between (5a) and (5b).

3.2 Encoded Causation

To analyze finely how semantic information in lexical items influences the acceptability of contracted relative clauses, we need to look at semantics for the predicate in a modifying clause. I will explore how event structure and qualia structure interact in the lexical representation of the predicate and how contracted relative clauses are construed.

We first examine the specific lexical semantics of the predicate in the relative clause. The relative clauses in (13) are examples of contracted relatives.

(13) a. Atama-ga yoku naru hon
head-NOM good become book
'The book (with the help of) which one becomes smart'
b. Yaseru kusuri
become slim medicine
'The medicine (with the help of) which one becomes slim'
c. Ki-ga taoreru jisin
tree-NOM fall-down earthquake
'The earthquake which causes the tree to fall down'

Intuitively, we can see that these involve causal relation between the head noun and modifying clause as indicated by the translations. More specifically, the head noun plays the role of a causer of the sort which leads to the event denoted by the modifying clause. Pustejovsky (1995:185) states that traditional analyses have adopted a causal statement satisfying the five properties; conditionalness; one-sided dependence; invariability; uniqueness and productivity.[9] As for the sentences in (13), they all have the same meaning as the corresponding conditional form, as Teramura

[9] Pustejovsky notes that the first two properties (i.e. conditionalness and one-sided dependence) are encoded directly into the semantics of lexical items, but the other properties seem to be represented indirectly at best.

stated.

(14) a. Sono hon-o yome ba atama-ga yoku naru
the book-ACC read if head- NOM good become
'if one reads the book, one becomes smart'
b. Sono kusuri-o nome ba yaseru
the medicine-ACC take if become slim
'if one takes the medicine, one becomes slim'
c. Sono jisin-ga okore ba ki-ga taoreru
the earthquake-NOM occur if tree-NOM fall down
'if the earthquake occurs, the tree falls down'

This says that the sentences in (13) exhibit the first property, conditionalness. Furthermore, we can suggest that the event denoted by the modified event (e.g. improving event in (13a)) depends on the event denoted by the activity relevant to the head noun (e.g. reading event in (13a)), not vice versa. Thus, the contracted relatives like (13) can be construed as indicating causal relation. Following Pustejovsky's causative representation, consider first the semantics of the predicate *yokunaru* in the modifying clause, as illustrated in (15).

(15)
$$\left[\begin{array}{l}\textbf{yokunaru (improve)} \\ \text{ARGSTR} \left[\begin{array}{ll}\text{ARG} & \text{x: entity} \\ \text{D-ARG1} & \text{y: individual} \\ \text{D-ARG2} & \text{z: event}\end{array}\right] \\ \text{QUALIA} \left[\begin{array}{ll}\text{CONST} & \text{part\_of (y, x)} \\ \text{TELIC} & \text{improve\_result(e, w, x)} \\ \text{AGENTIVE} & \text{improve\_act(e, z, y)}\end{array}\right]\end{array}\right]$$

The representation associated with the causal relation involves an initial act and a resulting state, where they are mapped respectively onto the agentive and the formal roles. It should be noted here that the predicate *yokunaru* takes two roles of default arguments other than its true argument. One specifies an individual value and the other specifies an event value. The plausibility can be seen in the following typical example involving the predicate *yokunaru*.

(16) (Tokuni) kodomo-ga hon-o yomu koto-de atama-ga
Especially children-NOM book-ACC read thing-MEANS head- NOM
yoku naru
good become
'Especially children become smart by reading books'

The first NP *kodomo* corresponds to the value of the first default argument, the complex NP *hon wo yomu koto* to that of the second default argument. For the moment, it suffices to say that predicates such as change of state verbs exhibit the lexical structure in (11), which accounts for the causal relation.

4 EVENT INTERPRETATIONS IN CONTRACTED RELATIVE CLAUSES

As stated above, contracted relative clauses are construed as an event expressed by the modifying clause in association with the action relevant to the head noun. This section offers the mechanism of the construal in the light of the Generative Lexical framework. One important consequence is that the relevant mechanism sheds light on the investigation of the unclear concept 'aboutness.'

In the Generative Lexicon, the notion of 'selective binding' which allows adjectives to modify either eventualities or individuals is a useful generative device. To put it briefly, when an argument type of the modified element does not fit with the one specified by the modifying predicate, this mechanism makes it possible to apply the modification to another function in the qualia structure (e.g. telic role function). A typical case is an adjective like *fast*, which is seen as event predication. By means of selective binding, it can also modify an 'individual-denoting' entity like *writer*, whose telic quale includes 'event-denoting' function like *writing* (i.e., **write (e, x, y)**). Of course, an adjective like *expensive*, which can be seen as modifying an entity, binds the formal role of the qualia structure for the noun as *book*. An important consequence of this is that the framework does not require additional devices for the explanation.

Going back to the issue, selective binding also holds true for Japanese relatives. While the predicate *tabeta* in (17a) modifies the formal quale of the head noun *ringo*, *yokunaru* seems to modify the telic quale, which is suggested by the translation in (17b).

(17) a. [[Naomi-ga φ tabeta] ringo]
Naomi-ACC ate apple
'The apple that Naomi ate'

b. [[Atama-ga yoku naru] hon]
head-NOM good become book
'The book (by reading) which one becomes smart'

As illustrated above, natural objects like apples (*ringo*) are generally underspecified in their telic quale, but artifactual physical objects like books (*hon*) has a particular purpose, which is described in telic quale such as **read (e, x, y)**. Given the selective binding, we are led to claim that this difference in lexical specification provides a different interpretation of each head noun; the head noun in (17a) just denotes the entity itself and the predicate *tabeta* just modifies the property of the entity, that is, the formal quale value. On the other hand, in (17b), the telic value of the head noun *hon* is specified and the predicate *yokunaru* is an event predicate as illustrated in (15), which can modify the telic value rather than formal value through the selective binding. Then, the modification over the reading event assures us that (17b) is associated with the reading event. Suppose that the predicate *tabeta* refers to the physical object rather than an activity or state associated with the head noun, we could predict that the head noun in (18) can never be interpreted as reading event.

(18) ?*[[Naomi-ga φ tabeta] hon]
Naomi-NOM ate book
'the book that Naomi ate'

Even if the telic quale of the head noun *hon* in (18) is lexically specified, the predicate *tabeta* does not selectively bind the value. The only plausible interpretation of the head is the entity, not the event. What makes (18) infelicitous is the semantic incoherency between the modifying clause and the head. The predicate *eat* (*taberu*) requires the argument to be eligible, but eating book is unlikely. Note that I do not mean that this is a pragmatic matter rather than that of semantics. The Generative Lexicon is able to incorporate this information into the semantics of *hon*.

Now let us return to the main issue. According to the concept of selective binding, the following contrast will be successively attributed to the differences of the specification in the qualia structure.

(19) a. [[Atama-ga yoku naru] hon]
head-NOM good become book
'the book (with the help of) which one becomes smarter'
b. ?* [[Atama-ga yoku naru] isi]
head-NOM good become stone
'the stone (with the help of) which one becomes smarter'

Since the predicate *yokunaru* functions as an event predicate, it is able to selectively modify the event description in the telic quale of the noun. However, a natural object such as a stone (*isi*), as mentioned above, does not specify the value of the telic quale. The event reading facilitated by selective binding is thus not available, which results in an ill-formed relative clause.

It should be noted here that (19b) would be acceptable if there were a context established which could specify the telic quale value. For instance, we can infer that the stone in question improves our head when the context says that it has a special use, to the effect that putting it on the desk helps us to put all distracting thoughts out of our mind. In this case, the stone may be specified as [TELIC **put (e, x, y, z)**]. Thus, the predicate is able to make available a selective interpretation of an event expression contained in the qualia for the head noun. A similar fact can be seen in the following example:

(20) [[Atama-ga yoku naru] suishou]
head- NOM good become crystal ball
'the crystal ball (with the help of) which one becomes smart'

Compared with (19b), the causal relation between the modifying clause and the head noun is more inferable. This is because crystal balls (*suishou*) are commonly known as having a kind of divine healing, which is described as exploiting the qualia structure, like [TELIC **touch (e, x, y)**] or [TELIC **appreciate (e, x, y)**].

However, I should admit that the acceptability in (19b) and (20) vary in accordance with the construer's world view. As for the degree of the acceptability,

there are more marginal examples illustrated in (15).

(21) a. ?[[Atama-ga yoku naru] kutu]
head-NOM good become shoes
'the shoes (by wearing) which one becomes smart'
b. ?[[Atama ga yoku naru] denwa]
head-NOM good become phone
'the phone (by calling) which one becomes smart'

It is certain that both shoes (*kutu*) and phones (*denwa*) are artifactual objects which were manufactured with an explicit purpose: wearing or calling. That is, the telic values of these noun phrases can be said to be fully specified; [TELIC **wear (e, x, y)**] or [TELIC **call (e, x, y)**]. One might point out that the examples in (21) are problematic for my analysis in that the selective binding cannot give an appropriate interpretation of an event expression even though the telic value is defined lexically. Although I agree that pragmatic factors influence the acceptability, what I would like to emphasize here is that the semantic information in the Generative Lexicon can predict at least one possible and plausible interpretation when the context is supplied. All of the possible readings can be derived by the selective binding. In the case of (21a), the most plausible construal is that wearing the shoes constantly makes our head better, where the predicate selectively modifies the telic quale of the head noun. In purely syntactic and structural approaches, it is also difficult to account for the difference in degree of acceptability. Given the aboutness condition, we could refer to the differences, but could not explain why the sentences as in (21a) can be interpreted as having a relation between wearing shoes and improving one's head, in spite of the absence of event-denoting constituents.

5 CONCLUSION

This paper examined apparently gapless relatives which have been explained mostly in terms of the aboutness condition. Our main point is that the interpretation of these relative clauses is associated with the semantics of the head noun. I argued that given the Generative Lexical representation, we are led to conclude that the specification of the telic quale plays a crucial role in accordance with the selective binding mechanism. The predicate in the modifying clause which is considered to be an event predicate can selectively modify the telic event associated with the head noun. In doing so, we could account for the event reading despite the fact that the head noun just indicates the entity.

It has been widely assumed for some time that Japanese relative clauses have some peculiar properties. Thus, the aboutness condition has been applied to many mysterious cases so broadly even though we all know that the term aboutness is very loosely used. Although I agree that we cannot do without the condition in dealing with a wide variety of Japanese relative clauses, in at least one case, contracted relatives, the aboutness condition was shown to be reducible to the matter of lexical semantics of the head noun. One of our contributions is that what has been called "aboutness" so

far is no longer the unclear definition to the effect that the relative clause is 'about the statement of the head'; I could state that the aboutness relationship holds if the predicate in the modifying clause modifies the telic or formal role. In the case of contracted relatives, the telic quale denoting event is bound to the predicate in the modifying clause, while in typical relatives the formal quale is relevant. As illustrated above, the qualia structure has four quaila parameters; constitutive, formal, telic, and agentive. This paper only investigated the telic qualia binding in contracted relatives and suggested that in atypical relatives, which contain a gap in the modifying clause, formal qualia is modified by the predicates. There may be a possibility that the other two is associated with the modifying clause. If so, we will formalize the term aboutness more explicitly in the future.

Finally, our argument proposes a telic role in the qualia structure and the selective binding device in Pustejovsky's Generative Lexicon.

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