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A NOTE ON CLAUSAL COMPARATIVES IN JAPANESE*

1 INTRODUCTION

Previous studies of Japanese comparatives that focused on whether Japanese comparatives should be analyzed in the same way as English ones have presented some differences between English and Japanese comparatives, which lead them to conclude that the semantics of Japanese *Yori*-clauses (i.e., comparative clauses) are different from those of English *than*-clauses: *Yori*-clauses denote individuals, whereas *than*-clauses denote degrees. In this paper, I argue that the data presented in the previous literature to show differences between English and Japanese do not serve as evidence for their claims. The aim of this paper is to propose that Japanese *Yori*-clauses also denote degrees, and to demonstrate the semantics of Japanese comparative sentences in terms of degree semantics.

The organization of this paper is as follows. Section 2 introduces the previous analyses of Japanese comparative constructions, reviewing Beck, Oda and Sugisaki (2004). I point out their empirical problems, and in Section 3 I develop an alternative analysis, in which Japanese comparative clauses are considered as degree-denoting phrases. This analysis accounts for both the syntactic and semantic characteristics of Japanese comparatives. Section 4 shows that a further direction of this study will be to give an account of semantic behaviors of “Subcomparatives” in Japanese.

2 PREVIOUS ANALYSES OF THE SEMANTICS OF JAPANESE COMPARATIVES

2.1 *Yori*-clause as individual-denoting phrase

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The literature on Japanese comparatives claims that the process of interpreting Japanese comparatives is different from that of interpreting English comparatives in that comparative clauses of the latter denote degrees while Japanese comparative clauses do not (Beck Oda and Sugisaki 2004, Kennedy 2009, Sudo 2009, among others). Their claim is based on the differences between Japanese and English comparatives that are pointed out in Beck et al. (2004): (i) unacceptability of subcomparatives in Japanese and (ii) absence of English-like negative island effects in Japanese comparatives.

The first difference between Japanese and English is exemplified in (1), which shows that a certain type of Japanese comparatives is unacceptable, while the same type is acceptable in English.

- (1) a. This shelf is taller than that door is wide.
 b. * Kono tana-wa [ano doa-ga hiroi yori] (motto) takai.
 this shelf-TOP [that door-NOM wide than (more) tall
 ‘(lit.) This shelf is taller than that door is wide.’
 (Beck et al. 2004)

This type of clausal comparative constructions is called “Subcomparatives.” While (ordinary) comparative constructions (henceforth, OC) compare two quantities or degrees of the same sort as in (2), Subcomparatives (henceforth, SC) compare quantities of different sorts as in (3).

- (2) a. John invited more men than Bill invited.
 b. Mary bought more cookies than Pete had sold.
 (3) a. John invited more men than Bill invited women.
 b. Mary bought more cookies than Pete had sold candies.

According to Beck et al. (2004), Japanese does not accept the latter type of constructions.

The second difference is illustrated by the contrast in (4). It is well known that English comparatives are ungrammatical if the comparative clause is in a negative island context (von Stechow 1984, Rullmann 1995 and others). In contrast, according to Beck et al. (2004), (4a) shows that Japanese comparatives apparently do not show negative island effects.

- (4) a. * John bought a more expensive book than nobody did.
 b. John-wa dare-mo kawanakatta no yori
 John-TOP anyone buy-NEG-PAST one than
 takai hon-o katta.
 expensive book-ACC bought
 ‘John bought a more expensive book than the one nobody bought.’

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Focusing on the contrast seen in (1) and (4), Beck et al. (2004) argue that comparative clauses in Japanese do not denote degrees. Let us consider examples of SC in (1) first. If Japanese comparatives are interpreted in the same way as English ones, the sentence (1b) will be interpreted as follows.

- (5) a. MORE(λd . the door is d -wide)(MAX(λd . the shelf is d -tall))
 b. (λd . the shelf is d -tall) > MAX(λd . the door is d -wide)

In comparative sentences, the degrees denoted by the main clause (reference degrees) and those denoted by their comparative clause (standard degrees) are compared. What determines the relation between the two degrees is degree morphologies such as *-er*. (5b) is true iff the degree d such that the shelf is d -tall exceeds the maximal degree d' such that the door is d' -wide¹. If Japanese comparatives are interpreted in this way, it should be perfectly acceptable, as in English. Thus, Beck et al. claim that comparative clauses in Japanese do not denote degrees and (1b) cannot compare the degrees, making the sentence unacceptable.

Furthermore, according to Beck et al. (2004), (4a-b) also indicate that Japanese comparative clauses do not denote degrees. (4a) is unacceptable because the degree of the comparative clause that includes negation cannot be defined. For example, if nobody bought a book that costs as much as \$500, then it is also true that nobody bought a book that costs as much as \$510, \$520, and so on. That is, there is no maximal degree d such that nobody bought a d -expensive book. The example is unacceptable because it does not have a well-defined interpretation of the standard value. So Beck et al. (2004) claim that the acceptability of (4b) implies that the comparative clauses in Japanese do not return degrees but denote individuals. According to them, Japanese comparative clauses do not form a clause despite their appearance; instead, they form a structure of relative clauses. In other words, the *yori*-clause in (6a) has semantics as shown in (6b) and is paraphrased as (6c).

- (6) a. Hanako-wa [Taroo-ga katta] yori takusan-no
 Hanako-TOP Taroo-NOM bought than many-GEN
 hon-o katta.
 book-ACC bought
 'Hanako bought more books than Taro bought.'
 b. [[Taroo-ga katta]] = λx . Taro bought x .
 c. what Taro bought

As indicated in (6b) and (6c), the *yori*-clause includes no gradable adjectives (or noun phrases modified by them). That is to say, the comparative clause does not include a degree variable, so it cannot provide the standard degree compositionally.

Then Beck et al. (2004) propose that in Japanese comparatives, the standard degree is provided by a contextual variable over degree c . In effect, c is a kind of

¹ See Von Stechow (1984) and Rullmann (1995), for detailed discussion of the necessity of maximality operator.

degree anaphor whose value must be fixed in the context of utterance. In (7), the number of books Hanako bought is compared with the standard degree c , which is inferred from the context of utterance.

- (7) a. $(\lambda d. \text{Hanako bought a } d\text{-many books}) > c$
 b. $c =$ the number made salient by the utterance context
 $=$ the number of what Taro bought
 $=$ the number of books Taro bought

Building on the data presented in Beck et al. (2004), Kennedy (2009) also comes to the following conclusion: Japanese does not have English-style degree operators and lacks abstraction over degree variables. Japanese comparative clauses do not denote degrees, so the standard value is fixed by the context. However, he disagrees with the idea that the standard value cannot be provided compositionally. He attempts to show *yori*-clauses are interpreted directly from their structure. For example, the interpretation of (6a) is as follows:

- (8) a. Hanako-wa [Taroo-ga katta] yori takusan-no hon-o katta.
 b. $\lambda x \{n | \text{many}(x) \geq n\} > \text{MAX}\{m | \text{many}(\text{Hanako bought } x)\} \geq m$

The *yori*-clause is a relative clause like *what Taro bought* (or possibly *the books that Taro bought*), and the standard value that the *yori*-clause offers is the maximal number of things Taro bought. In this way, (8a) is interpreted compositionally, comparing the number of books Hanako bought to that of books Taro bought.

In summary, the previous analyses of Japanese comparatives arrived at the conclusion that *yori*-clauses do not denote degrees but rather individuals, based on the fact that show Japanese cannot form subcomparatives like (1b) and on the examples to show Japanese does not have the negative island effect. However, as the next section points out, the evidence they provide is insufficient to establish the claim.

2.2 Problems of the previous analyses

Following the observation of Beck et al. (2004) and Kennedy (2009), the standard analysis of Japanese comparatives assumes that Japanese comparative clauses are relative clauses, so they denote individuals not degrees. However, there are some problems in the data they present.

First, some types of subcomparatives are accepted in Japanese, as in English. (9a) and (9b) are examples of English subcomparatives, which include prenominal modifiers. (9a) compares the number of novels and that of papers and (9b) compares the length of a novel and that of a paper.

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- (9) a. Taro wrote more papers than Hanako did novels.
 b. Taro wrote a longer paper than Hanako did a novel.

In the same way, Japanese can compare different sorts of things, using prenominal modifiers, as shown in (10a) and (10b):

- (10) a. Taroo-wa [Hanako-ga shoosetsu-o kaita yori]
 Taro-TOP [Hanako-NOM novels-ACC write-PAST than
 takusan-no ronbun-o kaita.
 many-GEN papers-ACC write-PAST
 ‘Taro wrote more papers than Hanako wrote novels.’
 b. Taroo-wa [Hanako-ga shoosetsu-o kaita yori]
 Taro-TOP [Hanako-NOM novels-ACC write-PAST than
 nagai ronbun-o kaita.
 long papers-ACC write-PAST
 ‘Taro wrote a longer paper than Hanako wrote a novel.’

In (10a), the number of papers Taro wrote is compared with the number of novels Hanako wrote, and in (10b), the length of the paper Taro wrote is compared with that of the novel Hanako wrote. This indicates SC can be accepted in Japanese too, if attributive adjectives or quantifiers are used.

Second, Japanese comparatives show a negative island effect, contrary to Beck et al.’s (2004) observation. Like the ungrammatical English comparative sentence combined with negation in (11a), a sentence of the same form, (11b), is also unacceptable in Japanese.

- (11) a. * John bought a more expensive book [than nobody did/bought].
 b. * John-ha [dare-mo kawanakatta yori]
 John-TOP anyone buy-NEG-PAST than
 takai hon-o katta.
 expensive book-ACC buy-PAST
 ‘(lit.) John bought a more expensive book than nobody bought.’

If the ungrammaticality of (11a) is due to the impossibility of defining the maximal degree of the comparative clause, (11b) indicates that the comparative clause has a maximal degree in Japanese as well.

Here, let us check the grammatical example of Japanese comparatives presented in Beck et al. (2004). The example they provide to show Japanese comparatives lack the negative island effect is repeated in (12):

- (12) John-wa dare-mo kawanakatta no yori takai hon-o katta.

Notice that the complement of *yori* forms an NP because it includes *no* (formal noun).

It can be paraphrased into an English comparative sentence as in (13):

- (13) John bought a more expensive book than the one nobody did.

This is perfectly acceptable because the standard value can be defined. (13) presupposes that there is a particular book that nobody bought, and the degree that the *yor*i-clause denotes is the degree of expensiveness of the book that nobody bought. Thus, it is not plausible to conclude that the negative island effect does not exist in Japanese by comparing (11a) and (12). Instead, we should pay attention to (11b), which indicates Japanese comparatives show the negative island effect.

The third problem concerns Kennedy's (2009) compositional semantics of Japanese comparatives. As we saw in Section 2.1, Kennedy claims that Japanese comparative clauses are (free) relative clauses and, thus, the denotation of the *yor*i-clause in (14a) is the maximal number of what Taro bought.

- (14) a. Hanako-wa [Taroo-ga katta] yori takusan-no hon-o katta.
 b. $\lambda x\{n|\text{many}(x) \geq n\} > \text{MAX}\{m|\text{many}(\text{Hanako bought } x)\} \geq m\}$

The complement of *yor*i, *Taroo-ga katta*, corresponds to *what Taro bought* (or *the books Taro bought*) in English under Kennedy's analysis. Because it includes no measure function, the standard degree of (14a) is not generated through the calculation of a measure function. To derive the standard degree, max operator is applied to *what Taro bought*, that is, some plural objects that Taro bought. Thus, the standard degree refers to the maximal cardinality of what Taro bought or the maximal number of what Taro bought.

If we apply a similar analogy to the examples in (15), the *yor*i-clauses should represent the number of what Hanako wrote/bought. However, this example compares not the number but the length or price.

- (15) a. Taroo-wa Hanako-ga kaita yori
 Taroo-TOP Hanako-NOM write-PAST than
 nagai ronbun-o kaita.
 long paper-ACC write-PAST
 "Taro wrote a longer paper than Hanako wrote."
 b. Taroo-wa Hanako-ga katta yori
 Taroo-TOP Hanako-NOM buy-PAST than
 takai ie-o katta.
 expensive house-ACC buy-PAST
 "Taro bought a more expensive house than Hanako bought."

If the standard value of (15a) and (15b) is the number of what Hanako wrote/bought, the sentences would be unacceptable, contrary to the fact, because we cannot compare the number of what Hanako wrote/bought and the length of Taro's paper or the price

of Taro's house.

Fourthly, Japanese comparatives can take degree expressions in the complement of *yor*, as seen in (16), an example of phrasal comparatives:

- (16) Kono bilu-wa 500m yori takai.
 This building-TOP 500m than high
 "This building is higher than 500 m."

If the complement of *yor* denotes an individual and Japanese comparatives cannot compare degrees, (16) cannot be interpreted. This example clarifies that the *yor*-clause can denote degrees.

Finally, the standard analysis insists Japanese comparative clauses are not IPs but relative clauses without antecedents; however, in modern Japanese, relative clauses without antecedents are not allowed as (17) shows.

- (17) a. * [NP [CP Hanako-ga katta ϕ]] -ga
 takakatta.
 Hanako-NOM buy-PAST -NOM expensive-PAST
 'What Hanako bought was expensive.'
 b. * Taroo-wa [NP [CP Hanako-ga kaita ϕ]] -o yonda.
 Taro-top Hanako-NOM write-PAST -GEN read-PAST
 'Taro read what Hanako wrote.'

In modern Japanese, antecedents are necessary, as shown in (18):

- (18) a. [NP[CP Hanako-ga katta] no/hon]-ga takakatta.
 Hanako-NOM buy-PAST one/book-NOM expensive-PAST
 'The book Hanako bought was expensive.'
 b. Taroo-wa [NP[CP Hanako-ga kaita] no/hon]-o
 Taro-TOP Hanako-NOM write-PAST one/book-ACC
 yonda.
 read-PAST
 'Taro read the book Hanako wrote.'

It is unnatural to claim that relative clauses without antecedents are allowed only in comparative clauses².

² Some might suggest that Japanese clausal comparatives such as (ia) are derived by deleting *no* in (ib). If this is a correct assumption, the underlying structure of the *yor*-clause in (ia) will be like that in (ib). However, (ia) and (ib) have different implications.

- (i) a. Taroo-wa [Hanako-ga kai-ta yori]
 Taro-TOP Hanako-NOM write-PAST than
 nagai tantei shoosetsu-o kai-ta.
 long detective story-ACC write-PAST
 b. Taroo-wa [Hanako-ga kai-ta no yori]

Given the observation in this section, we can conclude that comparative clauses in Japanese comparatives form structures of CP or IP (not NP), deriving standard degrees directly through degree abstraction. The next section shows how to interpret the degrees in main clauses and comparative clauses.

3 AN ALTERNATIVE PROPOSAL

3.1 Degree-denoting comparative clauses

Now let us assume that *yor*i-clauses include invisible gradable adjectives. Japanese gradable adjectives, as well as English ones, denote measure functions, so gradable adjectives in *yor*i-clauses derive standard degrees. To take a brief look at the interpretation of Japanese comparatives, let us consider (19):

- (19) a. Taroo-wa Hanako-ga kaita yori
 Taro-TOP Hanako-NOM write-PAST than
 takusan-no ronbun-o kaita.
 many-GEN paper-ACC write-PAST
 ‘Taro wrote more papers than Hanako wrote.’
- b. Taroo-wa Hanako-ga kaita yori
 Taro-TOP Hanako-NOM write-PAST than
 nagai ronbun-o kaita.
 long paper-ACC write-PAST
 ‘Taro wrote a longer paper than Hanako wrote.’

Under the assumption here, (19a) and (19b) have the structures shown in (20). The *yor*i-clauses include phonologically null degree-denoting words and NPs modified by the degree-denoting words. (The italics indicate that the words are phonologically null.)

- (20) a. ... [Hanako-ga *takusan-no ronbun-o* kaita yori]...
 Hanako-NOM many-GEN paper-ACC read-PAST than

Taro-TOP Hanako-NOM write-PAST the one than
 nagai tantei shoosetsu-o kai-ta.
 long detective story-ACC write-PAST

In (ia), the *yor*i-clause refers only to *tantei shoosetsu* (‘detective story’), so the sentence compares the length of Hanako’s detective story and that of Taro’s. On the other hand, the *yor*i-phrase in (ib) can refer to any other type of novel because the referent of *no* is determined by the context. For example, we can compare the length of Taro’s detective story and that of Hanako’s historical novel. Thus, it is hard to consider that (ia) is derived from (ib).

- b. ... [Hanako-ga *nagai ronbun-o* kaita yori]...
Hanako-NOM long paper-ACC read-PAST than

As English comparatives compare reference values and standard values, degrees denoted by main clauses are compared with degrees denoted by comparative clauses in Japanese comparatives. The interpretations of (19a) and (19b) are shown in (21) and (22), respectively.

- (21) a. [[Taroo-wa Hanako-ga kaita yori takusan-no ronbun-o kaita]]
= MORE(λd . Taro bought d -many papers) (MAX(λd . Hanako wrote d -many papers))
b. (21a) = 1 iff (λd . Taro bought d -many papers) \succ MAX(λd . Hanako wrote d -many papers)
c. (21a) = 1 iff the degree of the number of the papers Taro wrote exceeds the maximal number of the papers Hanako wrote
- (22) a. [[Taroo-wa Hanako-ga kaita yori nagai ronbun-o kaita]]
= MORE(λd . Taro bought d -long papers) (MAX(λd . Hanako wrote d -long papers))
b. (22a) = 1 iff (λd . Taro bought d -long papers) \succ MAX(λd . Hanako wrote d -long papers)
c. (22a) = 1 iff the degree of the length of the paper Taro wrote exceeds the maximal length of the paper Hanako wrote

What is important here is that in the comparative clauses, the standard values are offered by unpronounced *many* or *long*. These prenominal elements denote measure functions, which take the NPs they modify and fix the standard values combined with the maximal operator.

In the process of fixing the standard value, degree phrases, *takusan-no* or *nagai*, undergo movement. The NP *ronbun-o* moves, accompanied with the degree phrase, functioning as a degree operator, as shown in (23a) and (23b).

- (23) a. [_{Yori-P} [CP [IP Hanako-ga [NP [DegP *d-takusan-no*] *ronbun-o*] kaita] yori] \Rightarrow
b. [_{Yori-P} [CP [NP [DegP *d-takusan-no*] *ronbun-o*] [IP Hanako-ga *t* kaita] yori]

This operator movement leads to degree abstraction and bears the interpretation we saw in (21).

This movement analysis of Japanese comparatives accords with the syntactic behavior that is often mentioned in the literature. In Japanese, as well as in English, comparative clauses show island effects. (24b)–(24d) are ungrammatical because the unpronounced elements, which are indicated as *ec* here, are in syntactic islands.

- (24) a. [[[Hanako-ga *ec* yonda to] iwareteiru] yori(mo)]
 Hanako-NOM read-PAST C⁰ be said than
 Taroo-wa takusan-no hon-o yonda.
 Taro-TOP many-GEN book-ACC read-PAST
 ‘Taro had read more books than it was said that Hanako read.’
- b. * [Hanako-ga [toshokan-de *ec* yonde-ita hito-o]
 Hanako-NOM library-in read-PROG-PAST man-ACC
 sikatta yori(mo)] Taroo-wa takusan-no hon-o yonda.
 scold-PAST than Taro-TOP many-GEN book-ACC read-PAST
 ‘(lit.) Taro read more books than Hanako scolded a man who read
 in a library.’
- c. * Hanako-ga *ec* yonde-ita tokini inemurisita
 Hanako-NOM read-PROG-PAST when fall-asleep-PAST
 yori(mo) Taroo-wa takusan-no hon-o yonda.
 than Taro-TOP many-GEN book-ACC read-PAST
 ‘(lit.) Taro read more books than Hanako fell asleep when she
 read.’
- d. * Minna-ga naze Hanako-ga *ec* yonda-ka shiritagatteiru
 Everyone-NOM why Hanako-NOM read-PAST-Q know-want
 yori(mo) Taroo-wa takusan-no hon-o yonda.
 than Taro-TOP many-GEN book-ACC read-PAST
 ‘(lit.) Taro read more books than everyone wants to know why
 Hanako read.’

(24a) exhibits an unbounded dependency, and (24b)–(24d) include a complex NP, adjunct, and *wh*-island, respectively, in their *yor*i-clauses. These island effects are seen in examples of SC, too.

- (25) a. [[[Hanako-ga ronbun-o yonda to] iwareteiru] yori(mo)]
 Hanako-NOM paper-ACC read-PAST C⁰ be said than
 Taroo-wa takusan-no hon-o yonda.
 Taro-TOP many-GEN book-ACC read-PAST
 ‘Taro had read more books than it was said that Hanako read
 papers.’
- b. * [Hanako-ga [toshokan-de ronbun-o yonde-ita
 Hanako-NOM library-in paper-ACC read-PROG-PAST
 hito-o] sikatta yori(mo)] Taroo-wa takusan-no
 man-ACC scold-PAST than Taro-TOP many-GEN
 hon-o yonda.
 book-ACC read-PAST
 ‘(lit.) Taro read more books than Hanako scolded a man who read
 papers in a library.’
- c. * Hanako-ga ronbun-o yonde-ita tokini
 Hanako-NOM paper-ACC read-PROG-PAST when

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inemurisita yori(mo) Taroo-wa takusan-no hon-o
 fall-asleep-PAST than Taro-TOP many-GEN book-ACC
 yonda.

read-PAST

‘(lit.) Taro read more books than Hanako fell asleep when she read papers.’

- d. * Minna-ga naze Hanako-ga ronbun-o yonda-ka
 Everyone-NOM why Hanako-NOM paper-ACC read-PAST-Q
 shiritagatteiru yori(mo) Taroo-wa takusan-no hon-o
 know-want than Taro-TOP many-GEN book-ACC
 yonda.

read-PAST

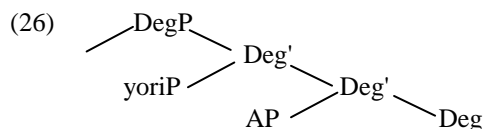
‘(lit.) Taro read more books than everyone wants to know why Hanako read papers.’

When the compared element (*ronbun* in each of the examples in (25)) is in a syntactic island, the sentence is ungrammatical. Thus, both OC and SC display island effects in Japanese as well as English. These data indicate Japanese comparatives undergo operator movement like English comparatives.

To sum up, I have shown that the apparent differences between English and Japanese presented in previous analyses do not provide evidence for the analysis of *yori*-clauses as individual-denoting expressions. So I propose that degree-denoting words exist in comparative clauses in Japanese and that their measure functions derive standard degrees.

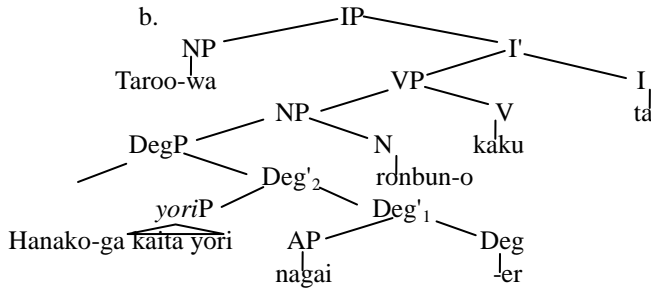
3.2 The semantic calculations of degree-denoting comparative clauses

Following the conclusion drawn in Section 3.1, this section shows the internal structures and semantic calculations of clausal comparative constructions in Japanese. Following Yoshimoto (2012), this paper adopts the structure of gradable adjectives below. As shown in (26), AP is extended to DegP, whose head is occupied by a phonologically null comparative morpheme like *-er* in English.



Japanese clausal comparatives such as (27a) have a structure like (27b).

- (27) a. Taroo-wa Hanako-ga kaita yori nagai ronbun-o kaita.



Under measure function analysis, (27a) is interpreted as follows:

- (28) a. $\text{Deg}^0 = \lambda G \lambda d \lambda x. \text{MORE}(G(x))(\text{MAX}(d))$
 b. $\text{Deg}'_1 = \lambda d \lambda x. \text{MORE}(\text{long}(x))(\text{MAX}(d))$
 c. $\text{DegP} = \lambda x. \text{MORE}(\text{long}(x))(d_s)$
 d. $\text{NP} = \lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)$ (Predicate Modification³)
 e. $\text{VP} = [[\text{V}]][[\text{NP}]]$
 $= \lambda y \lambda z. \text{kaku}(z, y)((\lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)))$
 $= \lambda z. \text{kaku}(z, (\lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)))$
 f. $\text{IP} = \text{kaku}(\text{Taroo}, (\lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)))$

In (28a) and (28b), *-er* combines with its argument, *nagai*, deriving the meaning of Deg'_1 , “ $\lambda d \lambda x. \text{MORE}(\text{long}(x))(d)$.” Then, it combines with the standard degree, d_s , the denotation of the *yori*-clause. The semantics of DegP are represented as “ $\lambda x. \text{MORE}(\text{long}(x))(d_s)$,” as shown in (28c). In (3d), applying Predicate Modification, $N_{\langle e, t \rangle}$ takes the modifier $\text{DegP}_{\langle e, t \rangle}$ and derives $\text{NP}_{\langle e, t \rangle}$, whose semantic representation is “ $\lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)$.” Then, V combines with the NP and the subject, deriving the representation of the sentence, “ $\text{kaku}(\text{Taroo}, (\lambda x. \text{MORE}(\text{long}(\text{paper}))(d_s) \& \lambda x. \text{paper}(x)))$.”

3.3 On the acceptability of Japanese SC

Now it may be helpful to consider the acceptability of SC examples, in order to support our analysis. Examining various examples of SC in Japanese, we find that some SCs are unacceptable. A comparison of examples (29a)–(29c) suggests the acceptability of SC has something to do with what kind of verbs are used.

³ Predicate Modification is defined as follows (cf. Heim and Kratzer 1998:65).

If α is a branching node, $\{\beta, \gamma\}$ is the set of α 's daughters, and $[\beta]$ and $[\gamma]$ are both in $D_{\langle e, t \rangle}$, then

$[\alpha] = \lambda x \in \text{De}. [\beta](x) = 1$ and $[\gamma](x) = 1$.

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- (29) a. Taroo-wa Hanako-ga shoosetsu-o kaita yori
 Taro-TOP Hanako-NOM novel-ACC write-PAST than
 nagai ronbun-o kaita.
 long paper-ACC write-PAST
 'Taro wrote a longer paper than Hanako wrote.'
- b. * Taroo-wa Hanako-ga shoosetsu-o yonda yori
 Taro-TOP Hanako-NOM novel-ACC read-PAST than
 nagai ronbun-o yonda.
 long paper-ACC read-PAST
 'Taro read a longer paper than Hanako read.'
- c. * Taroo-wa Hanako-ga shoosetsu-o motteiru yori
 Taro-TOP Hanako-NOM novel-ACC have than
 nagai ronbun-o motteiru.
 long paper-ACC have
 'Taro has a longer paper than Hanako has.'
- (30) a. Taroo-wa Hanako-ga shoosetsu-o kaita yori
 Taro-TOP Hanako-NOM novel-ACC write-PAST than
 omoshiroi ronbun-o kaita.
 interesting paper-ACC write-PAST
 'Taro wrote a more interesting paper than Hanako wrote.'
- b. * Taroo-wa Hanako-ga shoosetsu-o yonda yori
 Taro-TOP Hanako-NOM novel-ACC write-PAST than
 omoshiroi ronbun-o yonda.
 interesting paper-ACC write-PAST
 'Taro read a more interesting paper than Hanako read.'
- c. * Taroo-wa Hanako-ga shoosetsu-o motteiru yori
 Taro-TOP Hanako-NOM novel-ACC have than
 omoshiroi ronbun-o motteiru.
 interesting paper-ACC have
 'Taro has a more interesting paper than Hanako has.'
- (31) a. ? Taroo-wa Hanako-ga kukkii-o yaita yori
 Taro-TOP Hanako-NOM cookie-ACC bake-PAST than
 oishii keeki-o yaita.
 delicious cake-ACC bake-PAST
 'Taro baked delicious cookies than Hanako baked cake.'
- b. * Taroo-wa Hanako-ga kukkii-o tabeta yori
 Taro-TOP Hanako-NOM cookie-ACC eat-PAST than
 oishii keeki-o tabeta.
 delicious cake-ACC eat-PAST
 'Taro ate delicious cookies than Hanako ate cake.'
- c. * Taroo-wa Hanako-ga kukkii-o katta yori
 Taro-TOP Hanako-NOM cookie-ACC buy-PAST than
 oishii keeki-o katta.
 delicious cake-ACC buy-PAST
 'Taro bought delicious cookies than Hanako bought cake.'

Examples (29a)–(29c) all include the adjective *nagai* ('long'), but the verbs are different in the sentences; e.g., (29a) uses the verb *kaku* ('write'), whereas (29b) includes *yomu* ('read'). (29a) and (29b) indicate that SC with *nagai* is acceptable when it is combined with the verb *kaku*, but it is unacceptable when combined with *yomu*. In the same way, SC that includes *omoshiroi* ('interesting') is acceptable when the verb is *kaku* but not when it is *yomu*.

It is not only verbs that influence the acceptability of SC. (32a) and (32b) include the same verb *kau* ('buy'), but the adjectives are different. The unacceptability of (32b) is due to *kireina*, an adjectival noun whose meaning is 'beautiful.'

- (32) a. Taroo-wa Hanako-ga ie-o katta yori
 Taro-TOP Hanako-NOM house-ACC buy-PAST than
 takai manshon-o katta.
 expensive apartment-ACC buy-PAST
 'Taro bought a more expensive apartment than Hanako bought a house.'
- b. * Taroo-wa Hanako-ga ie-o katta yori
 Taro-TOP Hanako-NOM house-ACC buy-PAST than
 kireina manshon-o katta.
 beautiful apartment-ACC buy-PAST
 'Taro bought a more beautiful apartment than Hanako bought a house.'

Given these facts, it is clear that what kind of verb is combined with what kind of adjective has some relation to the acceptability of SC. That is, the (un)acceptability of SC depends on the combination of adjectives and verbs, i.e., the combination of degrees encoded by the adjectives and events denoted by verbs.

Although the acceptability condition of SC is too complicated to be examined in detail here, but the acceptability of the construction seems to depend on whether the measure function can return a degree through mapping onto events⁴. If their acceptability is related with the degrees denoted in comparative clauses, it is reasonable to suppose that comparative clauses in Japanese comparatives derive degrees, as in English comparatives.

4 CONCLUDING REMARKS

I overviewed previous analyses of the semantics of *yor*i-clauses (comparative clauses).

⁴ For more discussion, see Yoshimoto (2012), in which I analyze the acceptability condition of SC classifying the construction into three types.

In the literature, it is often claimed that *yor*i-clauses are relative clauses without antecedents and that they denote individuals not degrees. Their claim is based on some data that show differences between Japanese *yor*i-clauses and English *than*-clauses. I have argued against the previous analyses, showing that the apparent differences do not serve as evidence of their claim, and I have proposed the semantics of *yor*i-clauses in terms of measure function analysis. Moreover, I suggest that we can account for the acceptability of SC if we adopt the current approach, although further research will be needed.

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