

Overt Degree Arguments as Internal Heads of Relative Clauses of Degree

1. Issue: three types of analyses of clausal *yor*-comparatives

Yori(than)-comparatives in Japanese have attracted wide attention. One of the central issues is how to analyze clausal *yor*-comparatives such as (1).

- (1) John-ga [Mary-ga yonda]-yori takusannno hon-o yonda.
John-nom [Mary-nom read]-than many book-acc read
'John read more books than Mary did.'

Three types of analyses have been proposed. **Clausal analyses** assume that the complement of *yor* is a clause that denotes a set of degrees, just like its English equivalent (Kikuchi 1989, Shimoyama 2012, and others). On the other hand, **phrasal analyses** assume that what appears to be a clause in the complement of *yor* is a DP or equivalent, thus they consider (1) as a phrasal comparative (Beck et al. 2004, Kennedy 2009).

Recently, a third analysis has been proposed by Sudo (2009, to appear), which I call '**hybrid analysis**.' Sudo assumes that there is a hidden degree nominal in the complement of *yor*. Thus what appears to be a clause is a relative clause that modifies a hidden degree nominal. This means that the complement of *yor* is syntactically a DP but its semantic type is <d,t>.

The goal of this paper is to present data that is correctly predicted only by Sudo's hybrid analysis.

2. Data: Overt degree arguments in *yor*-clauses

Interestingly, **degree arguments** can be overtly added to (1) as shown in (2). This is not possible in English, because the degree position must be a gap left by a degree operator movement as shown in (3)-(5).

- (2) John-ga [Mary-ga **san-satu** yonda]-yori takusannno hon-o yonda.
John-nom [Mary-nom **three-CL** read]-than many book-acc read
Lit. 'John read more books than Mary read **three**.'
(Mary read three books, and John read more than three books.)

- (3) *John read more books than Mary did **three**.
(4) John read more books than Mary did.
(5) LF of the *than*-clause of (4): [than [Op_i Mary read **d_i** ~~many books~~]]

3. Hidden degree nominals (Sudo 2009, to appear)

The overt degree argument in *yor*-clause is explained by Sudo (2009, to appear). Let us briefly review his analysis. Based on some syntactic and morphological evidence, he proposes that *yor*-clauses can have **syntactically elided degree nominal heads**. In (1), a degree nominal such as *ryoo*(amount) or *sas-suu*(CL-number) is syntactically elided as shown in (6).

- (6) John-ga [Mary-ga yonda **sas-suu**]-yori takusannno hon-o yonda.
John-nom [Mary-nom read **CL-number**]-than many book-acc read
Lit. 'John read more books than **the number of volumes** Mary read.'

His analysis explains one of the puzzles of *yor*-comparatives, namely why subcomparatives of degree are ungrammatical. (7) is ungrammatical, because its underlying sentence with the degree nominal *hirosa*(width) is ill-formed.

- (7) *Kono tana-wa [ano doa-ga hiroi **hirosa**]-yori takai.
this shelf-top [that door-nom wide **width**]-than tall

(14)*John-ga [Mary-ga **san-satu** yonda]-yori **omosiroi** hon-o yonda.
 John-nom [Mary-nom **three-CL** read]-than **interesting** book-acc read
 lit. 'John read more interesting book(s) than Mary read **three**.'

5. Predictions by clausal and phrasal analyses

Clausal and **phrasal analyses** cannot deal with (14) well. To begin with, **clausal analyses** do not predict any overt degree argument in *yori*-clauses. For clausal analyses, *yori*-clauses are accounted for in the same way as *than*-clauses in English are. Thus the degree position must be a gap. They would predict (14) to be ungrammatical, but they would wrongly predict (2) to be ungrammatical as well. Therefore, they cannot give principled explanation.

Phrasal analyses come across problems, too. It is not entirely clear how they would account for *yori*-clauses with overt degree arguments, but such *yori*-clauses would be analyzed as a set of individuals, for instance, 'the three books Mary read.' If so (14) would be predicted to be well-formed as (15) is. For phrasal analyses, there should be no reason why 'more than the three books' is well-formed but 'more interesting than the three books' is not. However, the fact does not match such prediction.

(15) John-ga [_{DP} [Mary-ga yonda] **san-satu-no** hon]-yori **omosiroi** hon-o yonda.
 John-nom [[Mary-nom read] **three-CL-gen** book]-than **interesting** book-acc read
 'John read more interesting books than the **three** books Mary read.'

6. Conclusion and remaining issues for further research

I have adopted Sudo's (2009, to appear) hybrid analysis and argued that overt degree arguments that appear in *yori*-clauses are analyzed as internal heads of IHRC of degrees. It was shown that data with overt degree arguments in *yori*-clauses are correctly predicted only by the hybrid analysis, and clausal or phrasal analyses fail to explain relevant data.

I would like to mention three related issues for further research. The first one is possible degree operator movement in *yori*-clauses with overt degree arguments. It is well known that Japanese relative clauses do not show the Subjacency effect with island structures. Therefore, a common assumption is that no operator movement is involved in relative clauses in Japanese. However, Watanabe (1992) claims that operator movement is involved at least in IHRCs. (16) is his evidence. Nothing guarantees parallelism between IHRCs of individuals and those of degrees, but it is worth checking if parallel construction of clausal *yori*-comparative exhibits the Subjacency effect. (17) is indeed degraded, which suggests degree operator movement in the *yori*-clause.

(16) ?*[[John-ga [[Mary-ga **subarasii ronbun-o** kaita to-yuu] uwasa]-o kiita]-**no**]-ga
 John-nom Mary-nom **excellent paper-acc** wrote Comp rumor-acc heard-NM-nom
 shuppan-sareta.
 publish-pass

'An excellent paper which John heard a rumor that Mary had written was published.'

(Watanabe 1992)

(17)??Taroo-no ronbun-no kazu-wa [John-ga [Mary-ga ronbun-o **san-bon_i** kaita to-yuu
 Taroo-gen paper-gen number-top [John-nom[Mary-nom paper-acc **three-CL** wrote Comp
 rumor]-acc kiita **hon-suu_i]-yori** ooi.
 uwasa]-o heard **CL-number]-than** many
 Lit. 'The number of Taroo's papers is larger than **the number** John heard the rumor that Mary wrote **three** papers.'

It is too early to draw any conclusion, but closer look at relevant data will shed light on a long-standing issue of whether or not degree movement is involved in *yori*-clauses (Kikuchi 1987, Beck et al. 2004, Shimoyama 2012, Sudo to appear, a.o.), especially in the case of IHRCs of degrees.

The second issue is about *izyoo(ni)*(than)-comparatives, another type of comparative construction in Japanese. Hayashishita (2007) argues that *izyoo(ni)*-comparatives such as (18) are an instance of comparison of deviation, in which a comparison is made between two differential degrees. His claim is based on the fact that *izyoo(ni)*-comparatives comes with implications that both the matrix and the standard degrees are larger than a contextually given standard. Recently, Kubota (2012) challenges Hayashishita (2012) and argues that *izyoo(ni)*-comparatives are standard comparatives, and they just come with standard-oriented presupposition.

- (18) Ano ronbun-wa [kono ronbun-ga nagai]-izyooni nagai.
 that paper-top [this paper-nom long]-than long
 ‘That paper is longer than this paper is.’
 (Implication: Both that paper and this paper are longer than a standard.)

Our analysis supports Hayashishita’s (2007) claim. Since an overt degree is coindexed with its hidden head degree nominal, the overt degree is a visible embodiment of a standard degree of comparison. *Izyoo(ni)*-clauses can host overt degree arguments as in (19), and *ni-peeji*(two-page) is a differential degree between the length of ‘this paper’ and a contextually given degree. This of course requires an assumption that *izyoo(ni)*-clauses have hidden degree nominals, which needs to be independently shown.

- (19) Ano ronbun-wa [kono ronbun-ga **ni-peeji** nagai **mai-suu**]-izyooni nagai.
 that paper-top [this paper-nom **two-page** long **CL-number**]-than long
 lit. ‘That paper is longer than the length that the number of pages this paper is 2 pages longer.’
 (Implication: This paper is 2 pages longer than the standard, and that paper is longer than the standard by more than 2 pages.)

Thirdly, our analysis predicts that presumptive pronouns of degree can appear in *yor*i-clauses. One example is shown below. However, relevant examples are hard to construct, and detailed analysis is left for further research.

- (20) John-wa [Mary-ga **sore-gurai**, darou to kitaishita **kasikosa**]-yori kasikoi.
 John-top [Mary-nom **that-degree** would that expected **smartness**]-than smart
 ‘John is smarter than the degree of smartness that Mary thought he would be smart to that degree.’

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