Overt Degree Arguments as Internal Heads of Relative Clauses of Degree

1. Issue: three types of analyses of clausal yori-comparatives

Yori(than)-comparatives in Japanese have attracted wide attention. One of the central issues is how to analyze clausal yori-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 yori 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 yori 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 yori. Thus what appears to be a clause is a relative clause that modifies a hidden degree nominal. This means that the complement of yori 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 yori-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 Mary read d, many books]]

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

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

(6) John-ga [Mary-ga yonda sas-suut]-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 yori-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
‘This shelf is taller than that the width of the door.’

(2) is analyzed as in (8) with a hidden degree nominal *sas-su*, which is intuitively coindexed with the overt degree argument *san-satu*. Notice that this is a familiar configuration of internally headed relative clause (IHRC henceforth).

    John-nom [Mary-nom three-CL read CL-number]-than many book-acc read  
    Lit. ‘John read more books than the number of volumes Mary read three.’

I assume this is a case of IHRC of degrees, which is defined as follows.

(9) [DP [TP ......[overt degree argument]i......] [degree nominal]i]-yori

4. Prediction by the hybrid analysis

Certain predictions are made based on our analysis. Notice that overt degree arguments put extra restriction on clausal *yori*-comparatives. In order to make sensible comparisons, the following three elements in a *yori*-comparative need to match semantically: ① an overt degree argument, ② a hidden degree nominal, and ③ a gradable predicate in the matrix clause. This is schematized as follows.

(10) [DP[CP ......[Deg overt degree argument]i ......] [NP degree nominal]i]-yori .... [A gradable adjective ]

As for ① and ②, for example, a *san-satu*(three-CL/ three volumes) and *sas-su*(number-CL/number of volumes) make a good combination, but *san-satu*(three-CL/ volumes) and *nagasa*(length) don’t, as they cannot possibly be coindexed. Similarly, as for ② and ③, *sas-su*(number-CL/number of volumes) and *takusann*(many) make a sensible comparison (‘more than the number of volumes’), whereas *sas-su*(number-CL/number of volumes) and *nagai*(long) do not (*‘longer than the number of volumes’).

(11) with *omoshiro*i(interesting) in the matrix clause is predicted not to host *san-satu*(three-CL) in its *yori*-clause, because all possible underling sentences are semantically ill-formed.

    John-nom [Mary-nom read]-than interesting book-acc read  
    lit. ‘John read more interesting book(s) than Mary did.’

Possible underlying sentences are given below. When the hidden nominal is *omoshiro*s(interestingness) as in (12), there is a mismatch between the overt degree and the degree nominal. (*san-satu*(three-CL) and *omoshiro*s(interestingness) cannot be coindexed.) When the hidden degree nominal is *sas-su*_(CL-number)_ as in (13), there is a mismatch between the degree nominal and *omoshiro*s(interestingness). (*‘more interesting than the number of volumes’)

    lit. ‘John read more interesting book(s) than the interestingness Mary read three.’

    lit. ‘John read more interesting book(s) than the number of volumes Mary read three.’

The prediction is borne out as the following ungrammatical sentence shows.
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.

‘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]-kaita to-yuu
Taroo-gen paper-gen number-top [John-nom[Mary-nom paper-acc three-CL wrote Comp
rumor]-acc kiita hon-suru]-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-su]-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 yori-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.’

References