

# INVISIBLE DEGREE NOMINALS IN JAPANESE CLAUSAL COMPARATIVES<sup>\*</sup>

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## 1. Introduction

English comparative sentences fall into two kinds: phrasal and clausal comparatives. Phrasal comparatives involve a single DP in the accusative case as the complement of *than*, while clausal comparatives involve a structure as big as a full clause.

- (1) a. John is smarter than her. *Phrasal comparative*  
b. John is smarter than she is (smart). *Clausal comparative*

In the literature, two competing views are advocated on the syntax of these two types of comparative sentences. Some researchers argue that they are underlyingly differentiated, whereas others disagree and contend that phrasal comparatives are always derived from corresponding clausal ones, e.g. (1a) is derived from (1b) (Bhatt and Takahashi to appear, Hankamer 1973, Heim 1985, Lechner 2001, 2004, Merchant 2006, Seuren 1973 among many others). According to the latter view, then, underlyingly phrasal comparatives do not exist in English. This paper has nothing to add to this debate about English comparatives, but has a lot to say about Japanese comparatives.

Japanese, similarly, has the same two kinds of comparative sentences, at least superficially and also there is disagreement among scholars as to whether one is derived from the other. For the reasons we will see in Section 3.1, it is not possible to construct a minimal pair parallel to the English examples in (1).

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- (2) a. John-wa [Bill] -yori kasikoi. *Phrasal comparative*  
 John-TOP [Bill] -than smart  
 ‘John is smarter than Bill.’
- b. John-wa [Bill-ga omotta] -yori kasikoi. *Clausal comparative*  
 John-TOP [Bill-NOM thought] -than smart  
 ‘John is smarter than Bill thought.’

English *than* corresponds to *yori*, and unlike in English, there is no overt comparative morpheme.<sup>1</sup> Also, DPs in phrasal comparatives do not bear case morphology.

In contrast to the case of English, researchers agree that underlyingly phrasal comparatives are possible in Japanese, although this is not a trivial claim either (cf. Bhatt and Takahashi 2008). Rather, the disagreement is on whether underlyingly clausal comparatives are also available, which are considered possible in English. The situation is not even, and the majority of researchers maintain that underlying clausal comparatives exist just as in English (Bhatt and Takahashi 2007, 2008, Hayashishita 2007, Hoji 1998, Ishii 1991, Kikuchi 1987, Shimoyama 2008, Snyder et al. 1994), while a few others disagree, claiming that all Japanese comparatives are underlyingly phrasal (Beck et al. 2004, Kennedy to appear).<sup>2</sup>

This paper countenances the relatively unpopular view that there is no underlyingly clausal comparative in Japanese, and seemingly clausal comparatives such as (2b) are in fact derived from phrasal ones. In particular, it is proposed that the clauses in clausal comparatives are relative clauses rather than complement clauses, and furthermore that such relative clauses modify hidden nominals that denote degrees.

The organization of the paper is as follows: In Section 2, three pieces of evidence suggesting that the clauses in clausal comparatives are relative clauses are presented. Section 3 shows that postulating a hidden degree nominal in clausal comparatives accounts for the judgment patterns straightforwardly. Section 4 discusses typological consequences of the claim, and Section 5 concludes and addresses further empirical issues.

## 2. Evidence for the Relative Clause Analysis

This section presents three kinds of data showing that the clauses in clausal comparatives are relative clauses, rather than complement clauses. The data are syntactic, morphological and semantic in nature respectively. The second evidence is the strongest in that it excludes the possibility of complement clauses in *yori*-phrases, while the rest of the data shows that relative clauses are at least possible in Japanese clausal comparatives.

### 2.1 Nominative/Genitive conversion (syntactic evidence)

In Japanese, the subjects of relative clauses with the nominative marker *-ga* can optionally appear with the genitive marker *-no* instead, a syntactic phenomenon often referred to as ‘*ga/no*-

<sup>1</sup> According to Ultan (1972) cited in Kennedy (to appear), languages without a comparative morpheme are not typologically uncommon. This morphological gap does not play a role in the discussions of the present paper.

<sup>2</sup> Ueyama’s (2004) analysis is basically along the lines of the latter view, but as she notes in note 5, she does not deny the possibility of true clausal comparatives.

conversion'. Crucially, this is generally impossible in non-relative clauses (Harada 1971, Watanabe 1996; see Hiraiwa 2002 for a complication).

- (3) a. John-{\*no/ga} kasikoi.  
 John-{\*GEN/NOM} smart  
 'John is smart.'
- b. Bill-wa [John-{\*no/ga} kasikoi to] omotteiru.  
 Bill-TOP [John-{\*GEN/NOM} smart C] think  
 'Bill thinks that John is smart.'
- c. Bill-wa [kinoo John-{no/ga} itta] mise-ni itta.  
 Bill-TOP [yesterday John-{GEN/NOM} went] shop-to went  
 'Bill went to the shop that John went to yesterday.'

As Beck et al. (2004:322) observe, the nominative subjects of clausal comparatives can undergo *ga/no*-conversion (also Hiraiwa 2002, Watanabe 1996).<sup>3</sup>

- (4) Hanako-wa [anata-{?no/ga} omotta] -yori nagai hon-o kaita.  
 Hanako-TOP [you-{GEN/NOM} thought]-than long book-ACC wrote.  
 'Hanako wrote a longer book than you thought.'

This is straightforwardly accounted for if the clauses in clausal comparatives are relative clauses. Note that the morphological category of *yori* 'than' is unlikely to be a noun, and most probably is a postposition.<sup>4</sup>

## 2.2 Adnominal inflection (morphological evidence)

In Modern Japanese, most predicates do not have morphologically distinct adnominal/relative forms and sentence final forms, unlike in Classical Japanese or Korean. Exceptions to this include a few adjectives (e.g. *ooki* 'big', *tiisa* 'small') and the copula *-da* in the present tense. The adnominal inflection is optional for such adjectives and obligatory for the copula. We only present data with the copula here.

- (5) a. sore-wa keesoku kanoo-**{da/\*na}**.  
 that-TOP measurement possible-**{COP.FIN/\*COP.ADNM}**  
 'That is measurable.'
- b. [sore-ga keesoku kanoo-**{\*da/na}**] zizitu-wa yuumeida.  
 [that-NOM measurement possible-**{\*COP.FIN/COP.ADNM}**] fact-TOP famous  
 'The fact that that is measurable is well-known.'

In clausal comparatives, the copula has to be in the adnominal form *-na*, which is expected if the clauses in clausal comparatives are relative clauses.

- (6) kono ryuusi-wa [kono kikai-de keesoku kanoo-**{\*da/na}**]  
 this particle-TOP [this machine-INST measurement possible-**{\*COP.FIN/COP.ADNM}**]  
 -yori tiisai.  
 -than small  
 'This particle is smaller than this machine can measure.'

<sup>3</sup> Some native speakers I consulted found the genitive subjects in clausal comparatives significantly degraded. This speaker variation is left unexplained here.

<sup>4</sup> In fact, it can function as a postposition meaning 'from', albeit this use is a little stilted. This is also in accord with the cross-linguistic tendency that a pre/post-position meaning 'from' or 'of' is used as the word for *than* (cf. Bhatt and Takahashi 2008, Kennedy to appear, Pancheva 2007, 2008, Stassen 1985).

### 2.3 Stative present tense (semantic evidence)

Japanese has only a few stative verbs, and verbs such as *omou* ‘think’, *kangaeru* ‘think/consider’ and *sinziru* ‘believe’ are generally interpreted as change-of-state predicates, not as genuine stative predicates (cf. Ogawa 2004:fn.2).<sup>5</sup> In relative clauses, however they can optionally receive the stative interpretations.

- (7) a. John-wa soo omo-u.  
 John-TOP so think-PRES  
 ‘John {will think/\*thinks} so.’
- b. Bill-wa [John-ga soo omo-u to] sinziteiru.  
 Bill-TOP [John-NOM so think-PRES C] believe  
 ‘Bill believes that John {will think/\*thinks} so.’
- c. Bill-wa [soo omo-u] otoko-o sitteiru.  
 Bill-TOP [so think-PRES] man-ACC know  
 ‘Bill knows a man who {will think/thinks} so.’

The clauses in clausal comparatives are similar to relative clauses in this respect too, and the stative readings of these predicates are available as in the following example.

- (8) John-wa [Bill-ga omo-u] -yori kasikoi.  
 John-TOP [Bill-NOM think-PRES] -than smart  
 ‘John is smarter than Bill {will think/thinks}.’

## 3. Hidden Degree Nominals

From the data in the previous section, we conclude that the clauses in clausal comparatives are relative clauses rather than complement clauses. Being relative clauses, then, they need a nominal to modify, and the present section shows that positing invisible nominals denoting degrees in clausal comparatives straightforwardly accounts for the judgment patterns, which are different from those of English clausal comparatives and also somewhat unstable. Specifically, we will look at three cases: (i) simple clausal comparatives, (ii) subcomparatives and (iii) the contrast originally due to Ishii (1991).

Also, we assume that the hidden nominals in Japanese clausal comparatives denote the ‘same kinds of degree’ as the matrix scalar predicates that the whole *than*-phrases modify. This assumption plays a key role in the account of subcomparatives and Ishii’s contrast. In addition, this is presumably also needed to ensure the correct semantics, although no explicit semantic analysis of Japanese comparative constructions will be offered here.

Incidentally, it is well known that the relation between the head noun and the relative clause in a Japanese relative construction is ‘weaker’ than in English, and it suffices for them to stand in an ‘aboutness relation’ (Kuno 1973, Murasugi 1991), but crucially, it is not completely free as we will see shortly.

<sup>5</sup> In declarative clauses, first person subjects license the stative readings, and in interrogative clauses, second person subjects do. We ignore this complication here and use third person subjects throughout.

### 3.1 Simple clausal comparatives

Most notably, simple clausal comparatives where the same scalar predicate is used in the matrix and embedded clauses are ungrammatical in Japanese. In English, the embedded occurrence of the predicate must undergo ellipsis unless it receives a contrastive stress, but in Japanese, neither ellipsis nor emphasis saves the sentence.

- (9) a. John is smarter than Bill is (smart).  
 b. ?\*John-wa [Bill-ga (kasikoi)] -yori kasikoi.  
     John-TOP [Bill-NOM smart] -than smart

Under our analysis, the ungrammaticality of (9b) follows from the ungrammaticality of the following sentence.

- (10) ?\*John-wa [Bill-ga kasikoi **kasikosa**] -yori kasikoi.  
     John-TOP [Bill-NOM smart smartness] -than smart  
     ‘(lit.) John is smarter than the smartness that Bill is smart.’

That is, a clause with a simple adjective cannot be used as a relative clause modifying a degree nominal, which is *kasikosa* ‘smartness’ here. We cannot offer a detailed explanation of this restriction, but for our present purposes, it suffices to show the parallelism between (9b) and (10).

### 3.2 Subcomparatives

In Japanese, predicative subcomparatives as well as attributive subcomparatives are utterly ungrammatical, unlike in English in which only the latter kind is ungrammatical (Bhatt and Takahashi 2008, Beck et al. 2004, Snyder et al. 1994).

- (11) a. John is taller than [the bed is long].  
 b. \* John-wa [beddo-ga nagai] -yori segatakai.  
     John-TOP [bed-NOM long] -than tall
- (12) a. \* John wrote a more interesting novel than [Mary wrote a comic].  
 b. \* John-wa [Mary-ga manga-o kaita] -yori omosiroi shoosetu-o kaita.  
     John-TOP [Mary-NOM comic-ACC wrote] -than interesting novel-ACC wrote

Under our analysis, these judgments follow without further ado from the judgments of the following examples.

- (13) a. \* John-wa [beddo-ga nagai **senotakasa**] -yori segatakai.  
     John-TOP [bed-NOM long tallness] -than tall  
     ‘(lit.) John is taller than the tallness that the bed is long.’
- b. \* John-wa [Mary-ga manga-o kaita **omosirosa**] -yori omosiroi  
     John-TOP [Mary-NOM comic-ACC wrote interestingness] -than interesting  
     shoosetu-o kaita.  
     novel-ACC wrote  
     ‘(lit.) John wrote more a more interesting novel than the interestingness that Mary wrote a comic.’

(13a) is bad for two reasons. One is the same reason as in the case of simple clausal comparatives and predicative adjectival clauses cannot function as relative clauses modifying a degree nominal. Also, its semantics is incorrect since what is at stake is not the tallness of the bed, but its length.

The ungrammaticality of (13b) is due to that a degree nominal resists modification by a relative clause containing an overt direct object. In fact, if it were not for the embedded direct object *manga-o* ‘comic’, (13b) would be much more acceptable, and importantly, so would (12b). Again, an explanation for this restriction in theoretical terms cannot be offered here, but it suffices to show for the present purposes that the judgments of (12b) and (13b) pattern the same.

In contrast to predicative and attributive subcomparatives, amount subcomparatives are relatively acceptable in Japanese (Bhatt and Takahashi 2007, 2008, Beck et al. 2004, Ueyama 2004).<sup>6</sup>

- (14) a. John read more books than [Bill read magazines].  
 b. ??John-wa [Bill-ga zassi-o yonda] -yori ookuno hon-o yonda.  
 John-TOP [Bill-NOM magazine-ACC read] -than many book-ACC read  
 ‘John read more books than Bill read magazines.’

Our account correctly predicts this state of affairs, as amount relatives are not impossible in Japanese, even in the presence of overt direct objects in relative clauses. Thus, (14b) above is derived from the following amount relative. Crucially, the judgments of (14b) and (15) are comparable.

- (15) ??John-wa [Bill-ga zassi-o yonda **ryoo**] -yori ookuno hon-o yonda.  
 John-TOP [Bill-NOM magazine-ACC read amount] -than many book-ACC read  
 ‘(lit.) John read more books than the amount that Bill read magazines.’

### 3.3 Ishii’s contrast

Beck et al. (2004) observe that the judgment of the sentence in (16b) varies from ? to \*? across speakers. The contrast is originally due to Ishii (1991), whose judgment for the same sentence is \*?.

- (16) a. Taroo-wa [Hanako-ga katta] -yori takusanno kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought] -than many umbrella-ACC bought  
 ‘Taroo bought more umbrellas than Hanako did.’  
 b. ??Taroo-wa [Hanako-ga katta] -yori nagai kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought] -than long umbrella-ACC bought  
 ‘Taroo bought a longer umbrella than Hanako did.’

Beck et al. took this as evidence for the context sensitivity encoded in the lexical semantics of *yori* (also Hayashishita 2007), but we instead claim that this contrast follows from the difference in the well-formedness of the relative clauses in the following examples.

- (17) a. Taroo-wa [Hanako-ga katta **ryoo**] -yori takusanno kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought amount] -than many umbrella-ACC bought  
 ‘Taroo bought more umbrellas than the amount that Hanako bought.’  
 b. ??Taroo-wa [Hanako-ga katta **nagasa**] -yori nagai kasa-o katta.  
 Taroo-TOP [Hanako-NOM bought length] -than long umbrella-ACC bought

<sup>6</sup> Judgements of Japanese amount subcomparatives vary considerably. While Bhatt and Takahashi (2008) and Beck et al. (2004:312) treat analogous sentences to (14b) completely grammatical, Snyder et al. (1994:586) report that their informants basically rejected such sentences with some variability. Of the twelve native speakers I consulted, four accepted (14b) and the rest showed varying judgments ranging from ?? to \*?. Again, what is important for our present purposes is the parallelism of (14b) and (15), and we do not try to account for this inter-speaker variation itself.

‘Taroo bought a longer umbrella than Hanako did.’

#### 4. Typological Consequences and Speculations

Before closing the paper, we would like to make remarks on the typological consequences of the analysis laid out above. It is argued in particular that Japanese only has phrasal comparatives and prohibits underlyingly clausal comparatives, unlike English or German, in which underlying clausal comparatives are considered possible. This claim is not as outlandish as it might sound, given the existence of languages such as Korean and Hindi-Urdu (Bhatt and Takahashi, to appear, 2007, 2008), which clearly lack clausal comparatives altogether, even superficial ones. I provide only Korean data here and refer the reader to Bhatt and Takahashi’s work for Hindi-Urdu.

- (18) a. John-eun [Bill] -pota kikaeta.  
 John-TOP [Bill] -than tall  
 ‘John is taller than Bill.’
- b. \* John-eun [Bill-i kikakeuta] -pota kikakeuta.  
 John-TOP [Bill-NOM tall] -than tall  
 ‘John is taller than Bill is.’
- c. \* John-eun [Bill-i saengkakhaessta] -pota kikakeuta.  
 John-TOP [Bill-NOM thought] -than tall  
 ‘(intended) John is taller than Bill thought.’
- d. John-eun [Bill-i saengkakhaess-teon ki] -pota kikakeuta.  
 John-TOP [Bill-NOM thought-ADJ height] -pota tall  
 ‘(lit.) John is taller than the height that Bill thought.’ (Hyesun Cho, p.c.)

As demonstrated here, Korean systematically dislikes clausal comparatives. Notice that the Japanese counterpart of (18c) is grammatical (cf. (2b)).

Thus, there are at least two types of language: those that allow underlyingly clausal comparatives such as English and German, (also Greek and Russian),<sup>7</sup> and those that do not allow them such as Hindi-Urdu and Korean (and possibly Mandarin Chinese and Thai). To repeat, the main claim of the present paper is that Japanese belongs to the latter group in this typology, despite the availability of superficial clausal comparatives.

Having said this, we can further speculate that the availability of underlyingly clausal comparatives is correlated with *wh-in/ex-situ*. As a matter of fact, in certain languages, clausal comparatives are marked by a *wh*-related morpheme (e.g. Russian, Greek, Polish, Serbo-Croatian, Bulgarian and certain dialects of English), and it is often suggested on both syntactic and semantic grounds that clausal comparatives involve an operator movement similar to *wh*-movement (cf. Chomsky 1977, Heim 2000, von Stechow 1984). Furthermore, the languages without underlying clausal comparatives mentioned above seem to be all *wh-in-situ* languages.

If this story is on the right track, there will be no need for postulating a variation in the lexical semantics of the comparative morpheme or that of *than* (contra Beck et al. 2004, Hayashishita 2007, Kenedy to appear), and the cross-linguistic difference can be attributed solely

<sup>7</sup> If English and German only allow underlyingly clausal comparatives and prohibit phrasal comparatives as claimed in Bhatt and Takahashi (2007) and Lechner (2001, 2004), this group might be further divided into two sub-types: those that allow both phrasal and clausal comparatives and those allow only clausal comparatives. Languages such as Greek and Russian morphologically mark this distinction, and are thus candidates for the first kind of language, but see Merchant (2006) for a view that Greek also only has clausal comparatives.

to syntax, namely the availability of (overt) operator movement. However, further investigation with more cross-linguistic data is obviously needed before settling this issue.

## 5. Conclusion and Further Issues

The present paper proposed that the embedded clauses in Japanese clausal comparatives are in fact relative clauses, and postulating a hidden degree nominals as the heads of such relative clauses gives a straightforward explanation of the judgment patterns of Japanese clausal comparatives without any speculation in lexical semantics unlike in Beck et al. (2004), Hayashishita (2007) and Kennedy (to appear). Also, the data presented in Sections 2 and 3 not only support this analysis, but also pose questions to alternative theories of Japanese clausal comparatives, although we did not look at them in detail in this paper.

However, our account is of course not free of empirical problems, and for the rest of the paper, two major issues are addressed. They remain as open issues for future research.

### 5.1 Asymmetry between predicative and attributive comparatives

We analyzed the ungrammaticality of illicit clausal comparatives in Japanese as stemming from illicit relative clauses in them, and this analysis says nothing about the distinction of predicative and attributive comparatives. However, the following pair of sentences containing the same embedded clause suggests that Japanese clausal comparatives are somehow sensitive to this distinction.

- (19) a. \* John-wa [Mary-ga mituketa] -yori kasikoi.  
           John-TOP [Mary-NOM found] -than smart  
           ‘(lit.) John is smarter than Mary found.’  
       b. John-wa [Mary-ga mituketa] -yori kasikoi hito-o yatotta.  
           John-TOP [Mary-NOM found] -than smart person-ACC hired  
           ‘John hired a smarter person than Mary found.’

Our analysis predicts both sentences to be ungrammatical to the same extent, since in both cases, the relative clause *Mary-ga mituketa* ‘that Mary found’ cannot modify the degree nominal *kasikosa* ‘smartness’.

- (20) a. \* John-wa [Mary-ga mituketa **kasikosa**] -yori kasikoi.  
           John-TOP [Mary-NOM found smartness] -than smart  
           ‘(lit.) John is smarter than the smartness that Mary found.’  
       b. \* John-wa [Mary-ga mituketa **kasikosa**] -yori kasikoi hito-o yatotta.  
           John-TOP [Mary-NOM found smartness] -than smart person-ACC hired  
           ‘John hired a smarter person than the smartness that Mary found.’

Notice that although it semantically makes sense, *hito* ‘person’ must not be allowed as the head of the relative clause in (19b), since the results we obtained in Section 3 rely on that the implicit head of the relative clause is always a degree nominal.

However, we need not be particularly pessimistic about the present account, since this is a problem for any theory that treats in the same fashion the embedded clauses in predicative and attributive clausal comparatives, which seems to be the case for most or perhaps all analyses found in the literature. I leave this issue for future research.

## 5.2 Multiple phrasal remnants and remnants with case

Bhatt and Takahashi (2007, 2008) contend, contrary to what we have claimed in this paper, that Japanese allows genuine clausal comparatives, and their evidence includes the following type of sentence where multiple phrases appear in *yor*i-phrases.<sup>8</sup>

- (21) ? [Bill-ga Sue-ni] -yori John-ga Mary-ni hinpanni atta.  
 [Bill-NOM Sue-DAT] -than John-NOM Mary-DAT frequently met  
 ‘John met Mary more frequently than Bill (met) Sue.’

Hoji (1991) discusses a similar case in which a DP with a case marker appears in the *yor*i-phrase, unlike in genuine phrasal comparatives where DPs appear bare.

- (22) John-wa [Sue-ni] -yori Mary-ni hinpanni atta.  
 John-TOP [Sue-DAT] -than Mary-DAT frequently met  
 ‘John met Mary more frequently than (he met) Sue.’

It is natural to assume that some ellipsis operation is at stake here and moreover, that it operates on complement clauses rather than on complex noun phrases. This in fact is what Bhatt and Takahashi and Hoji proposed, and also what led Ueyama (2004) not to preclude the possibility of genuine clausal comparatives.

Although these data at first seem to cast a doubt on the account of this paper, the tacit assumption among those researchers is that such an ellipsis operation is not possible in the DP domain. However, this obviously is not a logical necessity. One possible analysis compatible with our analysis is to assume that remaining phrases in those comparatives underwent focus movement within the DPs with degree nominals, and the rest of the structure is elided by NP-ellipsis. In fact, DP-internal focus movement has been proposed for other languages (Aboh 2004, Giusti 1996 etc.). However, this analysis obviously needs to be verified against more data, and I refrain from drawing a conclusion here.

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<sup>8</sup> Such sentences are not ungrammatical, but degraded to some extent for most speakers.

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