The Derivation of Japanese Relative Clauses with Scrambling and Quantifier Float

Hisashi Morita
Aichi Prefectural University

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1. Introduction
This paper will make two new claims with regard to relative clauses in Japanese. One is that long-distance scrambling is employed to move NP (or DP) to CP, spec. The other claim is that the same mechanism as quantifier floating is applied to expose NP out of DP, so that the same NP will be able to merge with a new D (sideward movement) and serves as the head noun of a relative clause.

Let us start with an analysis of English relative clauses. According to Aoun and Li (2003), two different types of derivations are necessary for two types of relatives, wh-relatives as in (1) and that-relatives as in (2):

(1) John saw the person who hit Mary.
   (wh-relative)
(2) John saw the person that hit Mary.
   (that-relative)

Since both types are subject to the subjacency condition as in (3), some kind of A’ movement is necessary in both relatives.

(3) *John saw the person {who/that} Mary left [after she hit t].

Nevertheless, Aoun and Li claim that the derivations of the two types are distinct from each other. More specifically, in the case of wh-relatives, a wh-element, such as who in (1), is an operator which goes through overt A’-movement (so called matching analysis), whereas, in the case of that-relatives, a head noun, i.e. person in (2), is raised out of the relative clause (so called head-raising analysis).

I will introduce one piece of evidence from Aoun and Li (2003) for the distinction in this paper. Due to reconstruction of the head noun, that-relatives exhibit scope interaction while wh-relatives do not as follows:

(4) I phoned the two patients {that/who} every doctor will examine tomorrow.

Aoun and Li (2003: 98, 113)

In the case of that, the head noun, two patients, can take either wide or narrow scope with respect to every doctor, but only the wide scope for two patients is possible in the wh-relative of (4). This difference indicates that the head noun itself goes through movement in that-relatives, while it does not in wh-relatives.

Next let us turn to Japanese relatives. At a first glance, it is not clear whether any kind of operator movement is involved. Moreover, there are data which seem to support a non-movement analysis as follows:

(5) [DP [DP [CP e, e] kiteiru] wearing.is [yoohfuku]-ga yogoreteiru[sinsi],]
   suit-Nom dirty.is gentleman ‘(Lit.) a gentleman who the suit that (he) is wearing is dirty’

Kuno (1973: 239, adapted)

Suppose that sinsi ‘gentleman’ is generated inside the most embedded CP. Then, if it tries to move across the inner head noun, yoofuku ‘suit’, violation of the subjacency condition is expected contrary to the fact. Thus, one may consider that there is no movement in Japanese relatives.
However, there are several pieces of evidence for the existence of movement, only two of which will be presented in this paper due to limited space.\(^2\) First, Japanese relatives show scope interaction between the head noun and an object inside the relative clause as in (6):

\[(6) \quad \text{kinoo minna-ga t\(i\) zibun-no ie-de yesterday everyone-Nom self-Gen home-at mita] eiga-no namae-o (zenbu) osi}
\[\text{e saw movie-Gen name-Acc all tell.me}
\[\text{‘Tell me all the names of movies that everyone watched in his house’}
\]

‘every’ >> ‘names of movies’; ‘names of movies’ >> ‘every’ Morita (2006:122)

As in English that-relatives (e.g. (4)), ‘names of movies’ can take wide or narrow scope with respect to ‘everyone’ in (6). If the head noun were base-generated in the matrix clause, its narrow scope interpretation would be impossible contrary to the fact. Thus, it is plausible to consider that the head noun is actually base-generated in the object position in the embedded clause first, and then is raised to the matrix clause.

Second, Japanese relatives show anaphoric reconstruction as follows:

\[(7) \quad \text{Mary-wa [John-ga e\(j\) taipusita]}
\[\text{-Top -Nom typed}
\[\text{[karezisin-no ronbun],]-o mottekita kimson-Gen paper-Acc brought}
\[\text{‘Mary brought himself,’s paper that John typed.’}
\]

Ishii (1991: 29)

The anaphor, \textit{karezisin ‘himself’}, can refer to the subject of the relative clause, \textit{John}, which indicates that \textit{karezisin} was first generated inside the relative clause and raised to the matrix clause. Accordingly, Japanese \textit{relatives} are similar to English \textit{that}-relatives; that is, head nouns are raised, which automatically accounts for why \textit{wh}-elements are not employed in Japanese relatives.\(^3\)

2. Two kinds of movement in Japanese relatives

This section will show that there are at least two types of movement involved in Japanese relatives: scrambling as \(A’\)-movement to CP, spec and the quantifier floating operation which induces sideward movement of NP out of DP. Let us discuss scrambling first.

2.1. Scrambling and relative clauses

Long-distance scrambling and relative clause constructions in Japanese have a few common characteristics. For example, both exhibit scope interaction and anaphoric reconstruction, the data of which are omitted here. However, these facts are not surprising because both types of constructions require \(A’\)-movement and \(A’\)-movement generally allows reconstruction. Nonetheless, there is a piece of evidence that the two types of movement are of the same kind. Examine the following sentences:

\[(8) \quad \text{a. *[\textit{riyuu-mo-naku}], Mary-ga [John-ga reason-even-without -Nom -Nom t\(i\) sono setu-o sinziteiru to] omotteiru.}
\[\text{that theory-Acc believe C think}
\[\text{‘Without a reason, Mary thinks [that John believes that theory \(t\_i\)].’}
\]

(Saito 1985: 175)

b. *[Mary-ga [John-ga t\(i\) sono setu-o -Nom -Nom that theory-Acc sinziteiru to] omotteiru] [dp riyuu],
\[\text{believe C think reason}
\[\text{‘The reason, [that Mary thinks [that John believes that theory \(t\_i\)]].’}
\]

As already noted in Saito (1985) and Murasugi (1991), reason adverbs cannot go through long-distance scrambling as in (8)a or
long-distance relativization as in (8)b.

Interestingly, according to Morita (2012), long-distance relations in both constructions become possible when numerals, such as *ikutuka ‘several’, are attached to the moved elements as follows:

(9) a. [ikutuka no riyuu de], Mary-ga several-Gen reason-at -Nom
    [John-ga ti sono setu-o sinjiteiru to] -Nom that theory-Acc believe C omotteiru.

think

‘For several reasons, Mary thinks [that John believes that theory ti].’

b. [Mary-ga [John-ga ti sono setu-o -Nom -Nom that theory-Acc
       sinjiteiru to] omotteiru]

believe C think

[DP *ikutuka no riyuu],
several-Gen reason

‘Several reasons, [that Mary thinks [that John believes that theory ti]].’

The contrast between (8) and (9) shows that only entity-level expressions, not propositional-level, can go through long-distance scrambling and relativization. Although the reason for the contrast is not clear at the moment, the data independently supports the movement analysis of Japanese relatives.

Moreover, if the discussion above is correct, Japanese relative clauses resort to the same mechanism as long-distance scrambling in order to move NP (or DP) to CP, spec. In other words, A’-movement of the head noun to CP, spec is achieved with scrambling in Japanese relatives (while *wh-movement is employed in English relatives).

2.2. Quantifier Floating

Theoretically speaking, the head-raising analysis in English and Japanese relative clauses is problematic. The θ-criterion is one because the same noun phrase has to receive more than one θ-role (due to its own A’ movement and subsequent sideward movement). To prevent a DP from receiving more than one θ-role, one can adapt Hicks’ (2009) smuggling analysis to relative clause constructions. In other words, an NP inside a covert D is released for reuse after A’-movement to CP, spec, and merges with a new D. If the θ-criterion applies to DP, not NP, then two Ds for one NP can satisfy the criterion.

The present paper supports Hicks (2009). In other words, as will be shown below, quantifier floating raises NP to spec of its own DP in the case of Japanese relatives. As a result, the NP can be reused as the head noun by merging with a new D later in the derivation. Furthermore, it implies that DP, spec must be empty in order for the derivation to build a relative clause. There is one piece of evidence for this claim, but before presenting such evidence, let us discuss one anaphor, *zibun.

Although anaphoric reconstruction (cf. (7)) was presented to support the movement analysis of Japanese relatives in the previous section, one particular type of anaphor, *zibun ‘self’, is different from other types of anaphoric elements in that it may not allow reconstruction as follows:

(10) *[D*John-ga e, taipusita] [zibun-no -Nom typed self-Gen
       ronbun],
       paper

‘(Lit.) self’s paper (that) John typed’

Hasegawa (1988: 59)

However, there are cases in which *zibun can be reconstructed as follows:

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The contrast between (10) on one hand and (11) and (12) on the other indicates that reconstruction is possible when zibun is complement or adjunct to the head noun. More specifically, I argue that reconstruction of the whole DP is disallowed when zibun is at DP, spec as in (10).

There are more data which support the claim that relativization is inhibited when DP, spec is filled. Compare the following examples:

(13) a. *[CP daremo-ga ti tatta] [DP zibun-no Everyone-Nom took self-Gen nanmaika-no some-Gen pictures]

b. [CP daremo-ga ti tatta] [DP nanmaika everyone-Nom took some

- no zibun-no shasin]

- Gen self-Gen pictures

‘Some of their pictures that everyone took’

If zibun precedes a numeral such as nanmaika-no ‘some-Gen’ as in (13)a, the example becomes ungrammatical. According to Watanabe (2008: 517), the structure of Japanese DP can be the following:

(14) [DP [QP [NP [CaseP [NP ]]]]]

Numerals such as nanmaika-no are generated under the head of #P and raised to the head of QP. Thus, it is plausible that zibun, which precedes, and hence, is higher than nanmaika-no, occupies DP, spec. In this configuration, the derivation of a relative clause is disallowed as in (13)a.

In contrast, if zibun follows nanmaika-no as in (13)b, the example becomes acceptable because zibun is not at DP, spec. To summarize so far, the discussion above has indicated that DP, spec must be vacated in order for a relative clause to be derived.

Moreover, according to Watanabe (2008), NP (CaseP in his paper) can be raised over #P to spec of DP, which separates NP and #P, the result of which is called quantifier floating. Therefore, it is plausible to consider that NP is raised to its own DP, spec to initiate sideward movement, and merge with a new D in the matrix clause later.

There is one piece of evidence for the DP-internal movement. First, consider the following sentence:

(15) daremo-ga [DP zibun-no Everyone-Nom self-Gen nanmaika-no shasin-o] tatta.

picture-Acc took

‘Everyone took some pictures which they now possess.’

If zibun is at DP, spec as in (15), the sentence can mean ‘Everyone took some pictures which they now possess,’ but not ‘Everyone took some pictures of themselves.’

Next compare the following examples:
(16) a daremo-ga [DP nanmaika-no zibun] totta.
   everyone-Nom some-Gen self
   -no shasin-o] totta.
   -Gen pictures-Acc took
b. daremo-ga [DP [NP zibun-no shasin-o],
   everyone-Nom self-Gen pictures-Acc
   nanmaika t_s] totta.
   some took
In (16)a, the order between zibun and nanmaika-no in (15) is reversed. Since zibun is now understood as complement of shasin ‘picture’, the interpretation that everyone took some pictures of themselves is available unlike (15). In addition, (16)b is a case of quantifier floating, where the numeral seems to be “floated” out of DP. According to Watanabe (2008), however, NP is moved within its own DP to a position higher than #P, that is, to DP, spec.

Interestingly, (16)b has the same interpretation as (16)a. The contrast of interpretation between (15) on one hand and (16)a and b on the other suggests that the quantifier floated example, (16)b, is derived from (16)a, not from (15). If DP, spec is occupied by zibun as in (15), quantifier floating is blocked because NP has nowhere to move to, which is why (15) cannot have the interpretation of (16)b.

Moreover, as shown already, if DP, spec is filled, relativization is also prevented. These two facts receive a simple and logical explanation if subextraction of NP through DP, spec is essential for the derivation of relative clauses. Accordingly, the present paper supports Hicks’ (2009) smuggling analysis in the case of Japanese: scrambling and quantifier floating. Scrambling moves DP to CP, spec, where sideward movement takes NP out of DP and merges it with a new D. However, as it is, the derivation cannot see the NP inside DP, so some kind of movement of the NP to its own DP, spec must be applied to expose the NP to the derivation. The present paper has shown that it is the same mechanism as quantifier floating that moves NP to its own DP, spec in Japanese.

However, one might wonder what happens in the case of English that-relatives. According to Aoun and Li (2003), they also induce head-raising. If so, English needs to have a mechanism that lets NP move to its DP, spec for sideward movement. However, no quantifier floating is available in English. Let me conclude the paper by suggesting one solution.

Focus adverbs such as also can appear before or after the noun as follows:
(17) a. John also went there.
   b. Also John went there.
It is possible that (17)a is derived from (17)b as follows:
(18) FocusP
   NP, Focus'
   \(\triangle\) Focus  DP
   John also D  \(t_s\)
Due to the focus movement of NP to the edge of DP, the derivation can now see the NP. Suppose the Focus head is covert in the case of that-relatives. Then head-raising is possible even in English relatives.

FOOTNOTES
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1 Following Sakai (1994), Hoshi (2004) claims that sinsi is actually base-generated in the outer relative clause as a major subject. If so, the example does not count as a counterexample to the movement analysis.


3 See also fn. 4 for an argument that Japanese relatives do not have something comparable to wh-relatives in English, where lexical items other than noun heads go through A’-movement.

4 Note that (10) is grammatical when zibun refers to the matrix subject as follows:

\[(\text{i}) \text{Mary}^{2}\text{wa [John}-^{3}\text{ga taipusita [zibun}-^{4}\text{-no} \text{-Top} \text{-Nom typed selg-Gen ronbun-o] nakusitesimatta.}\]

‘Mary lost her paper that John typed.’

There are at least two ways to explain the derivation of (i). One is to assume that a covert operator goes through A’-movement and matches with the head noun as in wh-relatives in English. However, this approach is not tenable according to the present paper, which claims that A’-movement in Japanese relatives is scrambling, because scrambling cannot apply to covert elements.

The other way is simply that only ronbun ‘paper’ goes through A’-movement and later merges with zibun. If so, it suggests that Japanese relative clauses employ only one type, that is, head raising, unlike English, which has head raising and matching methods according to Aoun and Li (2003).

5 One may wonder why many speakers feel (7) better than (10). It may be simply contextual. The following example shows that karezisin before a numeral blocks relativization:

\[(\text{i}) \text{Peter}^{2}\text{-wa John}-^{3}\text{ga taipusita [karezisin,}\]

\[-\text{Top} \text{-Nom typed himself -no sambon -no ronbun-o] mottekita -Gen three -Gen paper-Acc brought}

\[\text{‘(Lit.) Peter brought himself, ’s paper that John, typed.’}\]

\[(\text{i}) \text{is ungrammatical because karezisin sits at DP, spec, which shows that there is no difference between zibun and other anaphoric elements as far as reconstruction is concerned.}\]

6 All and both may be presented as evidence for quantifier floating in English, but unlike Japanese, the phenomenon is limited to only a few items such as all and both. Moreover, they cannot be applied to (non-pronominal) objects unlike Japanese. According to Doetjes (1992), they are simply adverbials.

REFERENCES


