

On the derivation and interpretation of doubly-headed relative clauses*

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1. Introduction

Recent work on doubly-headed relative clauses (DHRCs; Cinque 2011) raises the question of how this pattern is derived and interpreted. In this paper, I exploit the relatively well-studied case of Japanese DHRCs to clarify what appear to be universal properties of the construction.

Erlewine and Gould (2016) claim that Japanese DHRCs such as in (1a) are derived by a head extraction/copying mechanism parallel to head-external relative clauses (HERCs) such as in (1b) and head-internal relative clauses (HIRCs) such as in (1c). Standard Japanese HIRCs are marked by the obligatory particle *no*, while DHRCs require a demonstrative on their external lexical head.

(1) *Standard Japanese*

- a. Junya-wa [Ayaka-ga ringo-o mit-tu muita] sono-ringo-o zenbu
Junya-TOP Ayaka-NOM apple-ACC three-CL peeled that-apple-ACC all
tabeta.

ate

Lit. 'Junya ate all of those apples [that Ayaka peeled three apples].'

(DHRC; Erlewine and Gould 2016: (9))

- b. Junya-wa [Ayaka-ga mit-tu muita] ringo-o zenbu tabeta.
Junya-TOP Ayaka-NOM three-CL peeled apple-ACC all ate

'Junya ate all of the apples [that Ayaka peeled three of].'

(HERC; Erlewine and Gould 2016: (15))

*I would like to thank John Whitman for discussion and comments. I also thank NELS 49 participants for helpful comments. Throughout this paper, relative clauses are indicated by square brackets and heads are underlined. The new Osaka Japanese data in this paper are from Kayoko Minamida and the author. All errors are my own.

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- c. Junya-wa [Ayaka-ga ringo-o mit-tu muita **no**]-o zenbu tabeta.
 Junya-TOP Ayaka-NOM apple-ACC three-CL peeled *NO* -ACC all ate
 Lit. ‘Junya ate all of [that Ayaka peeled three apples].’
 (HIRC; Erlewine and Gould 2016: (13))

The basis for Erlewine and Gould’s (2016) argument that the structures in (1) all involve head extraction is that all three patterns have the same two interpretations in context (2); in two groups of six apples, Ayaka peeled three apples in the first group. These interpretations are in (3). Erlewine and Gould (2016) claim that the demonstrative in the DHRC in (1a), which is invisible in the HERC in (1b) and in the HIRC in (1c), gives us the ‘six apples’ reading. I show that this claim requires revision in Section 3.1.

- (2) = Erlewine and Gould’s (2016) (9)



- (3) a. Junya ate the three peeled apples (the ‘three apples’ reading).
 b. Junya ate all six apples in the first group (the ‘six apples’ reading).

Cinque (2011) found that DHRCs tend to be found in OV languages with prehead relative clauses. The reason for this is not clear, but it has been claimed that HIRC are attested in OV languages such as in Cole (1987).¹ Cinque also pointed out that in prehead DHRCs, the external head is a more general expression, if distinct from the internal head, shown in (4).²

- (4) [...A...] B, where $A \leq B$ in generality (e.g. A = apple, B = apple/fruit/one)

In this paper, I re-examine the derivation and interpretation of DHRCs. Section 2 shows that DHRCs are not derived by head extraction, contra Erlewine and Gould (2016). In Section 3, I claim that Cinque’s findings show that the external head in prehead DHRCs has anaphoric status. Section 4 discusses definiteness in HIRC and DHRCs. Section 5 shows the structure of prehead DHRCs. Section 6 concludes this paper.

2. Base-generation

2.1 Island effects

The obligatory particle *no* in HIRC is lexically ambiguous in Standard Japanese; it can be a pronoun or a complementizer. Thus, (1c) can be interpreted as a pronoun-headed DHRC

¹However, Hiraiwa, Akanlig-Pare, Atintono, Bodomo, Essizewa, and Hudu (2017) claim that HIRC can be attested in VO languages such as in Gur languages (Niger-Congo).

²Cinque (2011) does not mention that the generality condition is attested only in prehead DHRCs, but he shows very few cases where the two heads of posthead DHRCs are not identical; most of these examples are from attestations in child language.

in Standard Japanese. In Minamida (2018), I show that Osaka Japanese disambiguates true HIRC and pronoun-headed DHRCs; pronominal DHRCs are headed by the pronoun *non*, while HIRC are headed by the complementizer *n* in this variety.³

The Osaka Japanese data below tell us that the HIRC in (5a) shows island effects as in Standard Japanese (Watanabe 1992), while the pronoun-headed DHRC in (5b) shows weakened island effects, which indicates that DHRCs do not involve movement.⁴ Grosu and Hoshi (2018) also argue that DHRCs with a lexical external head in Standard Japanese do not exhibit island effects, as in (6).

(5) *Osaka Japanese*

a. *?Taro-wa [Hanako-ga [_____; sakana-o sabaita] tomodati_i-o hometeta **n**
Taro-TOP Hanako-NOM fish-ACC filleted friend-ACC praised C
]-o tabetemita.
-ACC tried.eating
Lit. ‘Taro tried eating [that Hanako praised her friend [who filleted fish]].’
(HIRC; Minamida 2018: (17))

b. ??Taro-wa [Hanako-ga [_____; sakana-o sabaita] tomodati_i-o hometeta]
Taro-TOP Hanako-NOM fish-ACC filleted friend-ACC praised
non-o tabetemita.
N-ACC tried.eating
Lit. ‘Taro tried eating the one [that Hanako praised her friend [who filleted
fish]].’
(Pronoun-headed DHRC; Minamida 2018: (19))

(6) *Standard Japanese*

Mary-wa [John-ga [_____; atarasii-kasetu-o teeansita] gakusee_i-o
Mary-TOP John-NOM new-hypothesis-ACC proposed student-ACC
hometeita] sono-atarasii-kasetu-no kekkan-o sitekisita.
praised that-new-hypothesis-GEN defect-ACC pointed.out
Lit. ‘Mary pointed out a defect in that new hypothesis [that John praised the student
[who proposed a new hypothesis]].’
(DHRC; Grosu and Hoshi 2018: (25))

2.2 General-specific relation

Japanese DHRCs are prehead. In addition, (5b) shows that when the two heads are not identical, the external head is a more general expression because it is a pronoun, which conforms to what Cinque (2011) found in (4). In fact, the external head in (1a) can be replaced by more general terms, as in (7). These examples show that DHRCs cannot be

³I argue in Minamida (2018) that the pronoun *non* is composed of the copula *no* and the pronoun *no*, where the second *no* is contracted, but I treat *non* as a single lexical item in this paper for simplification.

⁴(5) tells us that the canonical interpretation of Standard Japanese *no* is a complementizer. I assume that this is because the complementizer *no* is just *no*, while the pronoun *no* is *no* + *no*, where one of the two *no*'s is deleted in Standard Japanese (see Minamida 2018). Pronominal *no* thus requires a more complex derivation.

straightforwardly derived by a copy-and-deletion (= movement) because the two heads are distinct.

(7) *Osaka Japanese*

Junya-wa [Ayaka-ga ringo-o mit-tu muita] sono-kudamono/non-o
 Junya-TOP Ayaka-NOM apple-ACC three-CL peeled that-fruit/N-ACC
 zenbu tabeta.
 all ate

Lit. ‘Junya ate all of those fruits/the ones [that Ayaka peeled three apples].’

(DHRC; cf. (1a))

The Japanese example in (8) might look like a counterexample to the general-specific relation of the two heads because the internal head *hito* ‘person’ is more general than the external head *okyakusan* ‘guest’. I analyzed this example as an HERC with a resumptive pronoun in a left branch island in Minamida (2018), as suggested by Kuno (1973) and Cinque (2011). Notice that the demonstrative *sono* ‘that’ is on the internal head, not on the external head, in (8). The fact that examples like (8), but not DHRCs, are limited to islands supports my claim that DHRCs are insensitive to islands, and thus do not involve extraction.

(8) *Standard Japanese*

[watakusi-ga sono-hito-no namae-o wasuretesimatta] okyakusan
 I-NOM that-person-GEN name-ACC have.forgotten guest

Lit. ‘a guest [that I have forgotten that person/that guest’s name]’

(HERC with a resumptive pronoun; Kuno 1973: (20.10b))

3. Anaphoricity

3.1 Anaphoric definite

Recall that Japanese DHRCs require a demonstrative on their external head. I claim that the external head in prehead DHRCs has the characteristics of anaphoric definite, contra Erlewine and Gould’s (2016) claim that it marks unique definite (see Schwarz 2009).⁵ In (9), *John* and *the man/he* are in an anaphoric relation, but *John*, which is less general than *man* and *he*, must come first, like *apple...fruit* in (7).

- (9) a. John_i came in. The man_i/he_i was wearing a blue shirt.
 b. #The man_i/he_i came in. John_i was wearing a blue shirt.

(10) is a cross-sentential paraphrase of (1a). *Kudamono* ‘fruit’ can appear in the second sentence; note that (10) gives us both the ‘three apples’ and ‘six apples’ interpretations that we saw in (3) in context (2). Erlewine and Gould (2016) claim that (10) does not yield

⁵Cinque (2011) claims that correlatives involve an anaphoric relation, while DHRCs do not.

the ‘six apples’ reading, but one of their consultants accepted that interpretation (see their footnote 8). The crucial point here is the plurality of the pronoun *sorera* ‘those’ (cf. *sore* ‘that’) and the demonstrative *sorerano* ‘those’ (cf. *sono* ‘that’). Minamida (2018) shows that it is hard to get the ‘six apples’ reading in the DHRC in (1a) if the demonstrative on the external head is *sono* ‘that’, but that the interpretation becomes acceptable if the demonstrative is *sorerano* ‘those’.

- (10) *Standard Japanese*
 Ayaka-wa ringo_i-o mit-tu muita. Junya-wa sorera/sorerano-kudamono_i-o
 Ayaka-TOP apple-ACC three-CL peeled Junya-TOP those/those-fruit-ACC
 zenbu tabeta.
 all ate
 ‘Ayaka peeled three apples_i. Junya ate all of those/those apples_i.’
 (adapted from Erlewine and Gould 2016: (17))

Anaphoric ordering can explain why the external head in prehead DHRCs must be a more general expression than the internal head when the two heads are distinct. In prehead DHRCs, the external head comes after the internal head, which means that the external head is an anaphoric expression while the internal head is its antecedent, as in (11).

- (11) [...apple_i...] that apple_i/that fruit_i/the one_i

3.2 Change-RCs

Japanese has a structure that looks like an HIRC, which Tonosaki (1996) calls *change-(HI)RCs*. Change-(HI)RCs take the obligatory particle *no* in Standard Japanese, just like Standard Japanese HIRC. In this construction, the internal head is interpreted as undergoing some property change. In (12), for example, John put melted brown sugar on a dumpling, not a solid lump of sugar. Tonosaki analyzes the *no* in this construction as pronominal.

- (12) *Standard Japanese*
 John-wa [kurozato_o-o tokasita] **no**-o dango-ni tuketa.
 John-TOP brown.sugar-ACC melted N-ACC dumpling-on put.PAST
 ‘John put the result of (someone’s) having melted brown sugar on a dumpling.’
 Lit. ‘John put the one [that (someone) melted brown sugar].’
 (Change-RC; my translations; Tonosaki 1996: (36a))

The Osaka Japanese example in (13) supports Tonosaki’s claim that this pattern has a pronominal head because Osaka Japanese change-RCs are headed by pronominal *non*, as in (13).⁶ (13) also shows that the pronoun *non* can be replaced by the DHRC lexical head *sono kabe* ‘that wall’.

⁶The *no* in (12) is also realized as *non* in Osaka Japanese.

- (13) *Osaka Japanese*
 Watasi-wa [Taro-ga kabe-o nutta] **non/sono-kabe**-ga sukiya.
 I-TOP Taro-NOM wall-ACC painted N/that-wall-NOM like
 ‘I like the result of Taro’s having painted the wall.’
 Lit. ‘I like the one/that wall [that Taro painted a wall].’
 (Change-RC/DHRC; Minamida 2018: (23))

In (13) with a lexical external head, the two heads denote different instantiations of ‘wall’. For example, the internal head may refer to a white wall before painting, while the external head refers to a red wall after Taro’s painting. In the pronoun-headed version, the external pronominal head refers to the result of painting.

These facts show that the change-RC pattern is a subtype of DHRC. In fact, (5b) can be interpreted as a change-RC because Taro ate the result of Hanako’s friend’s having filleted fish (= sashimi). In addition, the pronominal external head in (5b) can be replaced by a lexical external head, as in (14). These examples show that change-RCs are island-insensitive just as ordinary DHRCs, as in (6).⁷

- (14) *Osaka Japanese*⁸
 Taro-wa [Hanako-ga [______i sakana-o sabaita] tomodati_i-o hometeta]
 Taro-TOP Hanako-NOM fish-ACC filleted friend-ACC praised
sono-otsukuri-o tabetemita.
 that-otsukuri-ACC tried.eating
 Lit. ‘Taro tried eating that otsukuri = sashimi [that Hanako praised her friend
 [who filleted fish]].’ (Change-RC/DHRC; Minamida 2018: (20))

(14) looks like a counterexample to Cinque’s general-specific relation because the external head *otsukuri* ‘otsukuri/sashimi’ is a more specific term than the internal head *sakana* ‘fish’. However, this sentence is different from (8) because the external head carries a demonstrative. In a simple anaphoric relation like in (9), the anaphoric expression must be more general, but there are other anaphoric relations, where the anaphoric expression can be specific, specifically the *bridging anaphora* mentioned in Schwarz (2009). The example in (15) involves a bridging anaphor, more precisely a ‘part-whole’ relation. Here, the antecedent *fridge* is more general than the anaphoric expression *crisper*.

- (15) The fridge_i was so big that the pumpkin could easily be stowed in the crisper_i.
 (‘Part-whole’ bridging anaphora; Schwarz 2009: (4.58))

We have seen that in Japanese DHRCs, the lexical external head needs a demonstrative. In (16a), where the change-RC has a lexical external head distinct from the internal

⁷The degradation that we saw in pronoun-headed DHRCs such as (5b) disappears in DHRCs with a lexical external head such as (6) and (14). I assume that this is because the pronominal head imposes the burden of resolving anaphoric pronominal reference, while the lexical head avoids this.

⁸*Otsukuri* is the word used in the Osaka region, while *sashimi* is the word used in the Tokyo region.

head, however, the lexical external head does not bear a demonstrative (see also Grosu and Hoshi's 2016 (8) for a similar example in Standard Japanese).

(16) *Osaka Japanese*

- a. Hanako-wa [Taro-ga ringo-o sibotta] zyuusuu-o nonda.
 Hanako-TOP Taro-NOM apple-ACC squeezed juice-ACC drank
 'Hanako drank the result of Taro's having squeezed apples.'
 Lit. 'Hanako drank the juice [that Taro squeezed apples].'
- b. Hanako-wa [Taro-ga ringo-o sibotta] non-o nonda.
 Hanako-TOP Taro-NOM apple-ACC squeezed N-ACC drank
 'Hanako drank the result of Taro's having squeezed apples.'
 Lit. 'Hanako drank the one [that Taro squeezed apples].'

(Change-RCs/DHRCs)

Schwarz (2009) points out that in German, the strong (non-contracted) form of the article is used to mark anaphoric definite, while the weak (contracted) form of the article is used to mark unique definite in general. However, he also observes that the weak form is preferred to mark a 'part-whole' bridging relation, as the German version of (15) in (17) shows.⁹ I assume that a similar thing occurs in some cases of change-RCs in Japanese like in (16a) because in these cases, a more general term comes first just like 'part-whole' bridging anaphora.

(17) *German*

- Der Kühlschrank_i war so groß, dass der Kürbis problemlos im /
 the fridge was so big that the pumpkin without.a.problem in.the_{weak}
 # in dem Gemüsefach_i untergebracht werden konnete.
 in the_{strong} crisper stowed be could
 'The fridge_i was so big that the pumpkin could easily be stowed in the crisper_i.'
 ('Part-whole' bridging anaphora; Schwarz 2009: (4.58))

4. Definiteness and preheadedness

4.1 HIRC's are not always definite descriptions

It has been claimed that Japanese HIRC's are always definite descriptions (Shimoyama 1999, Erlewine and Gould 2016, *a.o.*). The Osaka Japanese examples in (18) show that this is incorrect. Recall that HIRC's are headed by the complementizer *n*, while pronoun-headed DHRC's are headed by the pronoun *non* in Osaka Japanese. (18a) has the internal head *nan(i)ka* 'something' and is an indefinite expression. The pronoun-headed version in (18b) is not very bad, but is dispreferred.

⁹In contrast, a 'producer-product' (e.g. author-play) bridging relation prefers the strong form (Schwarz 2009).

(18) *Osaka Japanese*

- a. [Nan(i)ka(-o) tukutta **n**] mottekite!
 something-ACC made C bring
 ‘Bring (me) something [that (you) made]!’
 Lit. ‘Bring (me) [that (you) made something]!’ (HIRC)
- b. ?[Nan(i)ka(-o) tukutta] **non** mottekite!
 something-ACC made N bring
 Lit. ‘Bring (me) the one [that (you) made something]!’ (DHRC)

Hoshi (1995) and Shimoyama (1999) claim that Japanese HIRCs involve E-type anaphora. One of the motivations behind this is that HIRCs exhibit the maximality effect; in the Standard Japanese example in (19), for instance, Taro must have eaten all the candies in the can. However, Taro ate only one or some of the candies in the can in this situation. Kubota and Smith (2007) claim that Japanese HIRCs are not E-type pronouns and can be indefinite descriptions; the maximality condition comes from pragmatics.

(19) *Standard Japanese*

- Taro-wa [kan-no naka-ni ame-ga haitteita **no**]-o toridasite nameta.
 Taro-TOP can-GEN inside-in candy-NOM was.in *NO* -ACC pick.out ate
 ‘Taro picked out and ate one/some of the candies in the can.’
 Lit. ‘Taro picked out and ate [that candies were in the can].’
 (HIRC; my literal translation; Kubota and Smith 2007: (7))

In the Osaka Japanese version of (19), when the *no* is *n* (HIRC), we get the indefinite interpretation as in Kubota and Smith (2007), while when the *no* is *non* (DHRC), we get a definite interpretation, where the speaker is talking about a specific candy or candies.

4.2 Prehead DHRCs are always definite descriptions

Unlike HIRCs, DHRCs are always definite descriptions in Japanese because they must bear a demonstrative on their lexical external head and they can be headed by an anaphoric pronoun. A similar pattern is observed in languages with prehead DHRCs cited by Cinque (2011), given in (20) and (21).¹⁰ The translations are mine.

(20) *Ronghong Qiang (Sino-Tibetan)*

- [Mi qa nə-xe¹-m] **mi-le:** kə-ji.
 person 1SG DIR-scold-NOM person-DEF:CL go-CSM
 Lit. ‘The person [that a person scolded me] has gone.’
 (Huang 2008: (61); cited from Cinque 2011: (11c))

¹⁰Cinque (2011) does not provide literal translations of (20), (21), and (22). I assume that the internal heads of (20) and (21) and the external head of (22) are indefinite because they do not bear a definite article or a demonstrative.

- (21) *Usan (Papuan)*
 [Munon qemi bau-or] qemi-eng ye me ge-au.
 man bow take-3S.FP bow-the I not see-NOM
 Lit. ‘I did not see the bow [that the man took a bow].’
 (Reesink 1987: (30b); cited from Cinque 2011: (6b))

Although posthead DHRCs are rare, we might expect that when the internal head follows the external head, it is the internal head that may bear a demonstrative. This prediction is borne out in Cinque’s Kilivila example in (22). Again, the translation is mine.

- (22) *Kilivila (Austronesian)*
 A-meya kwinini pela tau [m-to-na e-kato’ula].
 I-bring pills for man this-man-this he-be.ill
 Lit. ‘I bring pills for a man [that this man is ill].’
 (Senft 1986: 121; cited from Cinque 2011: (19))

5. Structure of prehead DHRCs

The external head of DHRCs is externally merged because no head extraction is involved. Since the external head can be a pronoun in DHRCs, as in (5b), I analyze the relative clause as an adjoined modifier in DHRCs to avoid a Condition C violation, as in (23).

- (23) *Structure of prehead DHRCs*
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- ```

graph TD
 DP1[DP] --- CP[CP]
 DP1 --- DP2[DP]
 CP --- IH["...internal head..."]
 DP2 --- DEM["the/DEM + external head"]

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## 6. Conclusions

In this paper, we saw the derivation and interpretation of DHRCs, using (Osaka) Japanese data. The data show that DHRCs are not derived from head extraction because they do not show island effects and the two heads can be distinct. The fact that in prehead DHRCs, the external head is usually more general than the internal head when the two heads are not identical (Cinque 2011) suggests that there is an anaphoric relation between the two heads. In some cases, such as in change-RCs, the external head can be more specific than the internal head in prehead DHRCs. Even in such cases, there is an anaphoric relation between the two heads, specifically that of bridging anaphora (Schwarz 2009).

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