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Japanese internally-headed and doubly-headed relative constructions, and a comparison of two approaches

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This paper pursues two inter-related goals. One goal is to compare the (de)merits of two approaches to the syntax-semantics of Japanese internally-headed relative clauses (IHRCs), one developed by Alexander Grosu, Koji Hoshi, and Fred Landman in a number of earlier studies, and one proposed by Kitagawa (2019), with respect to the following issues: [i] the status of the relative clause (non-restrictive or predicate-denoting?); [ii] the status of island-constraints (absolute or subject to cross-idiolectal variation?); and [iii] the infelicitous status of IHRCs with referential IHs (absolute or subject to cross-idiolectal variation?). The paper argues: [a] that the relative clause of an IHRC is predicate-denoting, and [b] that the cross-linguistic variation observed in relation to island-constraints and the (in)felicity of IHRCs with referential IHs is due to the existence of an alternative parse for *prima facie* IHRCs with referential IHs, in particular, as a special variety of doubly-headed relative constructions (DHRCs). The second goal, which grows out of the need to construct the supporting argumentation for [b], is to establish which properties of DHRCs are shared by IHRCs and which are not, and to construct an explicit compositional analysis of DHRCs that captures this state of affairs. To the best of our knowledge, a compositional analysis of Japanese DHRCs has never been attempted in the earlier literature.

Keywords: Japanese internally-headed relative clauses/constructions (IHRCs); island (in)sensitivity; (concealed) doubly-headed relative clauses/constructions (DHRCs); Change IHRCs; cyclic A-bar movement; anaphora

1 Introduction

The syntax, semantics and pragmatics of the internally-headed relative constructions (IHRCs) of Japanese have been the object of extensive discussion in the literature of the last half century or so. In the course of this discussion, a number of approaches to their syntax and semantics have emerged, each dictated by a variety of empirical properties of these constructions.

The earliest formal approach known to us was developed by Hoshi (1995), Shimoyama (1999; 2001) and Kim (2007); for convenience, we will refer to it in what follows as “HSK.” A second approach was developed by Grosu (2010), Grosu & Landman (2012), Grosu & Hoshi (2016), and Landman (2016), as a reaction to the fact that the proponents of HSK had failed to take into account certain important properties of IHRCs; we will refer to it as “GHL.” A third approach was proposed by Erlewine & Gould (2016); we will not refer to it in what follows, because we consider that it was convincingly refuted by Moulton & Shimoyama (2018) and Grosu & Hoshi (2018), and thus requires no further consideration. A fourth approach was proposed by Kitagawa (2019) (henceforth: “K”). K shares important

features with HSK, but also significantly differs from it. K offers a critique of certain aspects of both HSK and GH, brings up hitherto unaddressed data, and proposes an alternative theory that includes the following theses:¹

- [i] IHRCs include a non-restrictive relative clause;
- [ii] IHRCs with referential IHs are acceptable (for some speakers);
- [iii] The island sensitivity of IHRCs is a property of a co-specification relation that holds between the IH and a CP-external and DP-internal *pro*;
- [iv] Island-sensitivity is suspended (for some speakers) when the IH is referential;
- [v] The effect in [iv] is attributable to a syntax-external relation of co-reference between the IH and *pro*.

This paper will argue against all the above theses, pursuing the following inter-related goals:

- [a] To show, with partly novel data, that [i] is untenable;
- [b] To argue that [iii] is conceptually problematic;
- [c] To study doubly-headed relative constructions (DHRCs) in more detail than has so far been done in earlier literature, to establish which properties they share with IHRCs and which properties distinguish between the two constructions, and to offer a semantic compositional analysis of DHRCs, something that, as far as we know, has not been attempted so far;
- [d] To argue that the effects [ii] and [iv] are due to the fact that *prima facie* IHRCs with referential IHs are in fact a hitherto unrecognized variety of DHRCs.

The remainder of the paper is organized as follows. In Section 2, we outline the principal features of HSK, GH and K, noting the facts/observations that led to the corresponding proposals. In Section 3, we pursue the goals [a]–[b], and in Section 4, the goals [c]–[d]. Section 5 summarizes the results of the paper.

2 The Three Approaches

2.1 The HSK approach to IHRCs

Proponents of the HSK approach were largely motivated by the observable properties of IHRCs listed in (1). For concreteness, we will use example (2) to illustrate these properties, as well as the way in which the HSK approach proposes to deal with them.

- (1) a. Unlike the externally-headed restrictive relatives (EHRCs) of Japanese or English, which typically include a gap interpretable as a variable, the subordinate CP in (2) has the superficial appearance of a **complete clause**.
- b. The complex DP that includes the relative CP is necessarily construed as **definite**.
- c. The denotation of the definite complex DP is jointly determined by [i] a DP (and sometimes more than one) that is/are properly contained within the relative CP, and is/are pre-theoretically called **internal head(s) (IH(s))**, and [ii] the property denoted by the remainder of the relative CP.

¹ For completeness, we note that K also argued for a sixth thesis, namely, that “Change IHRCs” (in the sense of Hoshi 1995 and Grosu and Hoshi 2016) do not exist. We put this matter aside in this paper, not because we consider it unimportant or uninteresting, but because we feel that it is tangential to the central thrust of this paper, which is to compare the relative (de)merits of the theories espoused by GH and K.

- (2) Taro-wa [_{DP}[_{CP} Yoko-ga asa reezooko-ni **kukkii-o hotondo**
Taro-TOP Yoko-NOM morning refrigerator-LOC cookie-ACC most
irete-oita]-no]-o paatii-ni yuugata motteit-ta.
put-AUX-no-ACC party-to evening bring-PAST
‘Yoko put **most cookies** in the refrigerator in the morning and Taro brought *them*
to the party in the evening.’

The bracketed CP in (2) is a possible *complete sentence* (property (1a)). As can be gathered from the use of a definite pronoun in the fluent English translation (in italics), the complex DP denotes a *unique* sum of cookies that is presupposed to exist in the context (property (1b)). Furthermore, this definite pronoun denotes a sum of entities that are cookies, constitute a majority out of a contextually assumed sum of cookies, and were put in the fridge by Yoko (property (1c)). The properties in (1) were neatly captured by the approach under consideration by assuming that the bracketed CP in (2) is precisely what it seems to be, i.e., a proposition-denoting complete sentence, and that an E-type anaphoric relation holds between the IH (boldfaced in (2)), which functions as antecedent, and a CP-external, DP-internal definite anaphoric expression. The specific syntactic realization of this definite anaphoric expression differs slightly from author to author; for example, Hoshi (1995) assumes the complex DP is headed by a null category which is assigned an anaphoric interpretation, and Shimoyama (1999; 2001) assumes that the head of the DP is itself complex, and consists of a property-denoting (null) NP and the overt element *no*, the latter being construed as a definite D. Kim (2007) assumes that the CP external material in the complex DP consists of *no*, which is an N sister of CP, the resulting NP being the complement of a null definite D.

The various proponents of HSK were aware that appeal to E-type anaphora does not capture all the characterizing properties of IHRCs, and noted the need to account for the additional ones listed in (3).

- (3) a. While (E-type) anaphoric discourse dependencies do not confine the antecedent to a particular syntactic position or area, IHRCs do confine the IH to a *position internal to the relative clause*.
- b. While (E-type) anaphoric discourse dependencies do not restrict the syntactic-semantic function of the antecedent, IHRCs require that the IH play a *thematic role in an eventuality* that is described by a sentence internal to the relative clause (Shimoyama 2001: Chapter 3).
- c. While discourse anaphora is not necessarily of the E-type variety, i.e., it may also be based on co-reference, the anaphoric relation in IHRCs **must** be of the E-type, *referential IHs being excluded* (Shimoyama 2001: Chapter 3).

To illustrate (3a), observe that the English translation of (2), which is a discourse consisting of two coordinated sentences, certainly allows an anaphoric dependency between the boldfaced and the italicized expressions, but does not require it. Thus, assuming that the cookies put in the fridge by Yoko were seven out of a previously existing heap of ten cookies, the italicized pronoun can, in appropriate contexts, also refer to the three cookies left over, or even to the totality of cookies, wherever they are. Comparable alternative construals are not available for the Japanese example in (2), *if construed as an IHRC*. The italicized qualification in the preceding sentence was introduced in order to draw attention to the fact, also noted by a reviewer, that such alternative “contextually salient” construals are also possible *for the string* in (2), a judgment with which the native Japanese co-author of this paper (henceforth: H) agrees entirely. We note, however, that the constituent within the more inclusive set of

brackets in (1) is homophonous with an adverbial clause, a possibility widely noted in earlier literature (see, e.g., Kuroda 1999 and references therein), and prominently addressed in Grosu & Hoshi (2016: Section 2) and Grosu & Hoshi (2018: Section 2). Under an adverbial construal, the matrix of (2) is analyzed as including an independent argumental *pro*, and its meaning is essentially that of the English sentence *Yoko having put most cookies in the refrigerator in the morning, Taro brought them to the party in the evening*. In this sentence, *them* can in principle refer, in the context indicated above, to the seven cookies in the fridge, to the three left out, or to all ten cookies. For detailed discussion of such *prima facie* ‘contextually salient’ readings, see Grosu & Hoshi (2018) and Moulton & Shimoyama (2018).

To illustrate Shimoyama’s point in (3b), consider the infelicitous (4), in which the IH purports to function as a “possessor,” not as a thematic participant in an eventuality.

- (4) # [Taro-ga *zibun-no musume-no hito-ri-no* sushi-o kyaku-ni
 Taro-NOM *his daughter-GEN one-CL-GEN* sushi-ACC guest-DAT
dasi-ta-no]-o kyaku-ga suguni home-ta.
 serve-PAST-no-ACC guest-NOM immediately praise-PAST
 ‘Taro served to the guest the sushi of **one of his daughters** and the guest immediately praised **her**.’

To illustrate (3c), consider the contrast between (5)–(6), where the IH is referential, and (7), where it is not.²

- (5) ?*Ken-wa [[[Naomi-ga ofisu-ni **Lucky-o** tureteki-ta]-no]-no ke]-o
 Ken-TOP Naomi-NOM office-DAT Lucky-ACC bring-PAST-no-GEN hair-ACC
 kat-ta.
 cut-PAST
 ‘Naomi brought **Lucky** to the office and Ken cut **her** hair.’
- (6) ?*Ken-wa [[[Naomi-ga ofisu-ni **sono haiiro-no neko-o** tureteki-ta]-no]-no
 Ken-TOP Naomi-NOM office-DAT that grey-GEN cat-ACC bring-PAST-no-GEN
 ke]-o kat-ta.
 hair-ACC cut-PAST
 ‘Naomi brought **that gray cat** to the office and Ken cut **her** hair.’
- (7) Ken-wa [[[Naomi-ga ofisu-ni **haiiro-no neko-o** tureteki-ta]-no]-no
 Ken-TOP Naomi-NOM office-DAT gray-GEN cat-ACC bring-PAST-no-GEN
 ke]-o kat-ta.
 hair-ACC cut-PAST
 ‘Naomi brought **a gray cat** to the office and Ken cut her hair.’

As we saw above, HSK rests in part on the assumption that the relative clause is analytically distinct from the relative clauses of restrictive EHRCs in denoting a proposition, rather than a predicate. Shimoyama (1999; 2001) observes that this analysis makes IHRCs partly similar to non-restrictive/appositive EHRCs, whose relative clause is also arguably analyzable

² For completeness, we note that Shimoyama (2001) contrasted only (5) with (7), and proposed that the exclusion of referential IHs is restricted to proper names, on the grounds that such expressions do not include a property-denoting nominal (as noted above in the text, she assumes that the anaphoric expression in the head of the complex DP includes a null property-denoting NP, and she attributes the deviance of IHRCs with proper names as IH to the fact that proper names do not include an explicit nominal that can provide an interpretation for the null NP in the external portion of the complex DP). Grosu & Hoshi (2016) brought up the example in (6), in support of the claim that referential IHs are excluded in general, even when they include an explicit property-denoting nominal.

as denoting a proposition. Furthermore, much as in the analysis of IHRCs sketched above, there is an anaphoric relation that involves the matrix and the relative, with the difference that in appositive EHRCs, the antecedent is in the matrix and the anaphor in the relative, so that the two anaphoric relations differ in “directionality.” Despite this assumed analytic similarity, Shimoyama does not propose to bring IHRCs and appositive EHRCs under a common analytical umbrella because of another property that IHRCs share with restrictive EHRCs, but not with appositive EHRCs (an issue discussed in detail in Shimoyama 2001: Section 3.3).

The property just alluded to can be neutrally described as “integration” (into the matrix), i.e., as forming a single illocutionary unit with the matrix. Clauses that are not integrated into the matrix, in particular, appositives, (i) can be suppressed without affecting the truth conditions of the matrix, (ii) disallow operators internal to them to take scope over the matrix, and (iii) are impervious to the scope of matrix operators; integrated clauses behave in the opposite way in all three respects.

Property (i) is exceedingly well-known with respect to all languages that have restrictive/non-restrictive modifiers. We confine ourselves here to noting that if the relative clause is suppressed in (2), the matrix is not interpreted as in (2), but as *Taro brought them to the party in the evening*, where *them* can denote any contextually salient entity or entities. Property (ii) is illustrated in (8), and property (iii), in (9). We note that Shimoyama (2001) discusses facts analogous to those in (8), relying on an earlier observation by Nishigauchi (1990). As can be seen in (8)–(9), IHRCs pattern with restrictives, not with appositives.

- (8) a. Junya-wa [[*dare-ga* mui-ta] ringo]-o ← restrictive EHRC
 Junya-TOP who-NOM peel-PAST apple-ACC
 tabe-ta no.
 eat-PAST Q
 ‘Who is such that Junya ate the apple(s) that (s)he peeled?’
- b. *Junya-wa [[*dare-ga* mui-ta] ano ringo]-o ← appositive EHRC
 Junya-TOP who-NOM peel-PAST that apple-ACC
 tabe-ta no.
 eat-PAST Q
 ‘*Who is such that Junya ate that apple/those apples, which (s)he peeled?’
- c. Junya-wa [[*dare-ga* ringo-o mui-ta] no]-o ← IHRC
 Junya-TOP who-NOM apple-ACC peel-PAST no-ACC
 tabe-ta no.
 eat-PAST Q
 ‘Who is such that (s)he peeled an apple/apples and Junya ate them?’
- (9) a. Junya-wa [[**Ayaka-ga** mui-ta] ringo]-o ← restrictive EHRC
 Junya-TOP Ayaka-NOM peel-PAST apple-ACC
 tabe-ta wake-de-wa na-i.
 eat-PAST reason-COP-TOP NEG-PRES
 ‘It is not true that Junya ate the apple(s) that **Ayaka** peeled.’
 (possible continuation: he ate the apple(s) that **Yoko** peeled).
- b. Junya-wa [[**Ayaka-ga** mui-ta] ano ringo]-o ← appositive EHRC
 Junya-TOP Ayaka-NOM peel-PAST that apple-ACC
 tabe-ta wake-de-wa na-i.
 eat-PAST reason-COP-TOP NEG-PRES
 ‘It is not true that Junya ate the apple(s), which **Ayaka** peeled.’
 (negation targets the matrix only)

- c. Junya-wa [[**Ayaka-ga** ringo-o mui-ta] ← IHRC
 Junya-TOP Ayaka-NOM apple-ACC peel-PAST
 no]-o tabe-ta wake-de-wa na-i.
 no-ACC eat-PAST reason-COP-TOP NEG-PRES
 ‘It is not true that **Ayaka** peeled an apple/apples and Junya ate it/them.’
 (possible continuation: rather, the eaten apple(s) were peeled by **Yoko**)

This concludes our characterization of HSK.

2.2 The GH approach to IHRCs

The GH approach was adopted as an alternative to the HSK approach for a number of reasons, chief among which was the fact, prominently pointed out by all the proponents of GH, that, although HSK correctly captured the truth conditions of IHRCs, it nonetheless failed to confront and effectively deal with an empirical property of IHRCs that was signaled in the literature at least as early as Watanabe (1992): [i] The IH need not occur in the highest clause of the relative CP, so that the “distance” between the IH and the “top” of the construction is in principle unbounded, and [ii] the IH may not lie within an island that is internal to the relative clause.

Property [i] is consistent with an analysis by means of E-type anaphora, although at least one of the earlier analyses subsumed under HSK (Kim 2007) is not. Thus, Grosu (2010: Section 4) points out that the way in which Kim (2007) deals with the problem in (3a) limits the occurrence of an IH to the highest (or only) clause of the relative CP. This particular analysis thus cannot deal with data like (10a; b) (= (39a) and (41b) in Watanabe 2003 respectively).

- (10) a. Mary-ga [John-ga [zibun-no gakusei-ga **juuyoona kasetu-o**
 Mary-NOM John-NOM self-GEN student-NOM important hypothesis-ACC
 teian-shi-ta to] jimanshite-ita-no]-no kekkan-o shiteki-shi-ta.
 propose-do-PAST COMP boasted-had-no-GEN defect-ACC point.out-do-PAST
 ‘[John had boasted [that his student proposed **an important hypothesis**]]
 and Mary pointed out a defect in it.’
- b. [[Mary-ga itsu **ronbun-o** shiageru-ka] John-ga Tom-ni
 Mary-NOM when paper-ACC finish-Q John-NOM Tom-DAT
 tazunete-ita]-no-no shuppan-ga okureta.
 asked-had-no-GEN publication-NOM was delayed
 ‘[[John had asked Tom [when Mary would finish **a (certain) paper**]] and the
 publication of that paper was delayed.’

In contrast to property [i], property [ii] is incompatible with an approach that relies on discourse anaphora, which, to the best of our knowledge, is notoriously island-insensitive in all the languages in which this issue has been checked. (11a) and (11b) (= (28b) and (29) in Grosu & Hoshi 2016) illustrate the sensitivity of IHRCs to the CNPC (complex NP constraint) and the AIC (adjunct island constraint) respectively.

- (11) a. *Mary-ga [[[John-ga [[**atarasii kasetu-o** teiansi-ta] gakusei]-o
 Mary-NOM John-NOM **new hypothesis-ACC** propose-PAST student-ACC
 homete-ita]-no]-no kekkan]-o siteki-si-ta.
 praise-had-no-GEN defect-ACC point.out-do-PAST
 ‘John praised the student [who proposed **a new hypothesis**] and Mary
 pointed out a defect in it.’

- b. ?*Mary-wa [[[John_i-ga [kare_i-no gakusei-ga **atarasii kasetu-o**
 Mary-TOP John_i-NOM his_i student-NOM **new hypothesis-ACC**
 teiansi-ta]-node kanki-no koe-o age-ta]-no]-no
 propose-PAST because joy-GEN voice-ACC raise-PAST-NO-GEN
 akirakana kekkan]-o suguni siteki-si-ta.
 obvious defect-ACC promptly point.out-do-PAST
 ‘John shouted with joy [because his student proposed a **new hypothesis**], and
 Mary promptly pointed out an obvious defect in it.’

In addition to the empirical problem just noted, the proponents of GHL also objected to HSK on conceptual grounds. Grosu (2010) noted that Japanese IHRCs belong to a larger class of relative constructions that possess the property (1b) (called “maximalizing” in Grosu & Landman 1998), and that the other members of this class are typically analyzed as denoting predicates. He then urged the conclusion that analyzing the IHRCs in a radically different way is conceptually unsatisfactory, and that it would be preferable to bring them under the general umbrella of constructions with predicate-denoting relative clauses, a class that includes, in addition to maximalizing relatives, restrictive relatives as well.

Grosu (2010) proposed a syntactic-semantic analysis of Japanese IHRCs that attempted to deal with the empirical and conceptual problems just noted, and his analysis was refined (eliminating a number of minor technical problems) in Grosu and Landman (2012); the analysis was further refined in Landman (2016), primarily by incorporating Kuroda’s (1975–76; 1992) Relevancy Condition into the semantic machinery. We now outline the gist of the analysis in Grosu and Landman (2012), skipping a couple of details, which the interested reader can find in the article itself. The reason we choose this analysis for presentation here, rather than the more sophisticated one in Landman (2016), is that the former can be straightforwardly adapted for analyzing DHRCs, while latter cannot (see Section 4).

In view of the fact that IHs are not morphologically marked, a contextually and grammatically suitable IH needs to be selected. The mechanism that accomplishes this goal and makes it possible to capture the characteristic properties of IHRCs is a functional head called “Choose Role” (ChR), which is assigned the translation in (12a).

- (12) a. [[ChR]] = $\lambda E \lambda x \lambda e. E(e) \wedge C_E(e) = x$
 b. [[ChR’]] = $\lambda x \lambda e. \alpha(e) \wedge C_E(e) = x$

ChR takes as complement a VP endowed with a complete set of thematic roles (in more recent parlance, a vP), which may be situated at any depth within the relative clause, thereby accounting for *the acceptability of unbounded dependencies*, as in (10). When applying to the set of eventualities denoted by its sister vP, ChR makes use of C_E , a function from contexts and sets of eventualities to thematic Roles, which are themselves functions from eventualities to entities. Thus, when the role chosen by C_E applies to an eventuality, it yields the sum-entity that plays the chosen Role in that eventuality. This sum entity is equated with a variable (x), which is in effect, a “co-argument” of the IH, and gets abstracted over.

Crucially, the search conducted by C_E must be confined to the Roles associated with the eventuality it applies to. This specification *excludes possessor IHs*, and also *prevents the search from circumventing island-constraints*. The category ChR also possesses a Spec, which initially contains a base-generated Null Operator. This operator undergoes cyclic A-bar raising to the Spec of the relative CP in the syntax, leaving a trace/copy in [Spec, ChR], which translates as an individual variable, call it y. The cyclic raising of the Null Operator *captures island-sensitivity*. The output of the application of ChR to vP (whose translation is denoted by the symbol “ α ”), is shown in (12b). ChR’ applies to the variable

in [Spec, ChR], substituting y for x in (12). Translation of the Null Operator in [Spec, CP] as a lambda abstractor results in abstraction over the co-argument of the IH, that is to say, over y , and maps the relative CP to a predicate with the desired interpretation.

To illustrate, if the IHRC has the superficial appearance of, e.g., *Ayaka peeled **apples*** and the word in boldface is the IH, the predicate denoted by CP has the essential meaning of “the set of entities that play the Theme role in the eventuality described by the sentence *Ayaka peeled apples*.” Following Grosu & Landman (1998), this predicate is mapped by a “maximalization” operation to the singleton that contains the abstract’s maximal member, if there is one, and is undefined otherwise. CP is sister to *-no*, which is analyzed as a nominalizer that maps the singleton denoted by CP to a nominal predicate with the same semantic content. The complex NP formed by CP + *no* is sister to a null D, which, given the singleton status of the complex NP, is necessarily definite, and the application of D to NP picks out the singleton’s unique member as the denotation of the complex DP.

This concludes our brief presentation of the essentials of GHl’s analytical approach.

2.3 K’s approach to IHRCs

K’s approach retains certain features of HSK, in particular, the appeal to discourse-type anaphora, but also differs significantly from it. Its avowed objective is two-fold: [i] to introduce significant modifications into the HSK model, and [ii] to challenge a number of proposals made by proponents of GHl, and first and foremost, GHl’s appeal to the cyclic A-bar raising of a Null Operator.

The schematic syntactic representation assumed by K for IHRCs is reproduced in (13) (= K’s (1)):

$$(13) \quad [_{DP} [_{CP} \dots IH_i \dots V] \text{ no } [_{DP} [_{NP} \text{ pro}_i] D]]$$

This differs somewhat from Shimoyama’s (1999; 2001) structural analysis, in that *no* is analyzed as a linker between modifier and modifiee, the definite D is null, and the null NP is assumed to be *pro*.

A more significant difference concerns the nature of the assumed anaphoric relation between the IH and the CP-external definite DP. While Shimoyama limits this relation to the E-type (property (3c)), K assumes a more general relation of “co-specification,” which subsumes both E-type and co-reference anaphora, and thus allows definite referential IHs.³

A still more significant difference between K and his predecessors, which distinguishes K’s analysis not only from HSK’s, but also from GHl’s, is that K argues for the thesis that IHRCs include a *non-restrictive* relative clause, much like incontrovertible appositive constructions.

³ For completeness, we wish to make a couple of remarks about the way in which K attempts to capture co-specification by means of syntactic co-indexation. In his (1) and (4a), he co-indexes *pro* with an NP. In his (4a), the co-indexed antecedent is a theta-participant, a rather strange claim, since theta-participants are typically DPs. His (4b) is even stranger, in that only the noun in the antecedent bears an index. Putting aside these details, which may be due to negligence, we note that in his (5), *pro* does not have a D sister and is co-indexed with a proper name. Since K writes that “the external head is occupied by anaphoric definite *pro*,” we infer that he views *pro* as a DP in this case. In sum, he seems to tacitly assume that in Japanese, *pro* can serve as counterpart either to English *he/she/it/they* or to English *one*, a claim that has been made in earlier literature (see, e.g., Tomioka 2003). We further infer that K must assume that the schema in (12) is appropriate for quantified antecedents and an E-type anaphoric relation with the EH, and that an alternative schema, with the form in (i), is appropriate for referential antecedents and a co-referential anaphoric relation with the EH. In fact, however, (12) is not appropriate for E-type anaphoric relations, because in such a relation, a predicate/property-denoting NP in the anaphor denotes not the NP in the antecedent, but the result of the intersection of that NP with the remainder of the containing sentence (see (1c)).

(i) $[_{DP} [_{CP} \dots IH_i \dots V] \text{ no } [_{DP} \text{ pro}_i]]$

Putting these details of execution aside, what matters for what follows is that K assumes a co-specification relation that subsumes both E-type and co-referential anaphora.

K (Section 3) admits the correctness of the observation made by numerous predecessors to the effect that in appositive constructions, but not in IHRCs, the relative clause may be suppressed without affecting the truth conditions of the matrix. He maintains, however, that the distinguishing properties of the two constructions can be fully traced to the different directionality of the anaphoric relation. Basically, he proposes to take advantage of the fact that an antecedent typically restricts the denotation of an anaphor, while the converse is not true (see his (8)–(9) and the surrounding text).

Unlike HSK, K **does** confront the fact that the anaphoric relation he assumes exhibits island-sensitivity, although he states this in a way we find curious: In the paragraph preceding his example (4), he states that the IH must be placed in the highest clause of the relative clause, but in his footnote 9, he admits the existence of acceptable data like (10) above. We take his view to be tantamount to an admission that IHRCs allow an unbounded distance between the IH and the head of the complex DP, so long as island constraints are respected.

K differs from GHJ in that he attributes island-sensitivity not to Null-Operator cyclic A-bar raising, but rather to the *co-specificational relation that holds between the co-indexed elements* in (13). His justification for this view is essentially the following: If island-sensitivity is induced by a syntactic operation, in particular, by A-bar movement, it should brook no exceptions. But exceptions do exist, in his view. K reports that a set of data that were not addressed in the earlier literature were submitted to the evaluation of eighteen sophisticated consultants, and were seen to exhibit cross-idiolectal variation, some consultants accepting them without reservation (K included), some rejecting them, and some finding them of intermediate acceptability. K proposes to deal with the fact that island-violating data were accepted by some of his consultants in the following way: He notes all the examples of this type exhibit *referential IHs*, and he proposes that a *non-syntactic relation of coreference* obtains between the IH and the CP-external anaphor, and that this relation can “repair” constructions in which co-specification based on syntactic co-indexation is blocked.

Returning now to his rejection of property (3c), K notes that examples which violate this generalization (without violating islands) were also submitted to his eighteen consultants, and turned out to exhibit a roughly comparable cross-idiolectal variation, a state of affairs for which he admits he has no satisfactory explanation.

Summarizing, K rejects two proposals made by proponents of GHJ: [i] IHRCs disallow referential IHs, and [ii] IHRCs require an analysis that involves Null-Operator A-bar raising. As noted in footnote 1, K also argues in detail against a third proposal made by Grosu & Hoshi (2016: Section 5), namely, that so-called “Change IHRCs” co-exist with what Grosu & Hoshi (*ibid.*) call “light-headed EHRCs,” in which the semantic connection between the EH and the relative clause is established by means of pragmatic bridging. This issue has no significant implications for the principal goals of this paper, in particular, for choosing in a principled way between the GHJ and the K approaches, and we will thus put it aside in what follows.

This concludes our presentation of those aspects of K’s proposals that we view as relevant to the ensuing discussion.

3 Comparing GHJ’s and K’s Proposals

In this section, we critically evaluate K’s proposals outlined in Section 2.3, and consider how GHJ can deal with the facts brought up by K. Where appropriate, we will indicate H’s acceptability judgments.

3.1 The view that IHRCs include a non-restrictive relative

As noted in Section 2.3, K argues for the view that incontrovertible appositives and IHRCs belong to a broader “non-restrictive” category by proposing that the distinctions between these two constructions can be traced to the different directionality of the anaphoric relation.

This view is, however, inadequate. As shown by the contrast between the (b) and (c) subcases of (8)–(9), IHRCs and incontrovertible appositives also differ in that the relative clause is *integrated* into the matrix in the former case and *non-integrated* in the latter. This distinction is **not** attributable to the directionality of anaphora in any way we can see. In support of the claim just made, consider the following pair of English sentences.

- (14) a. Because he loves *his wife*, John doesn't beat *her*.
 b. Because he loves *her*, John doesn't beat *his wife*.

The two subcases in (14) differ only in the directionality of anaphora. Note that suppression of the adverbial clause affects the truth conditions of the matrix in (14a), but not in (14b). Note furthermore that the adverbial clause is non-integrated in both cases, because the scope of negation is confined to the matrix in both of them, i.e., all that is denied is that John beats his wife (cf. *John doesn't beat his wife because he loves her, and not because he is afraid of what the neighbors might say*, where matrix negation associates with the adverbial; the adverbial is therefore integrated in this case).

We conclude that K has failed to make a convincing case for viewing the relative clause of an IHRC as non-restrictive. In contrast, analyses that fall under GH1 straightforwardly account for the integrated status of the relative clause in IHRCs by analyzing it as denoting a predicate.

3.2 The treatment of island-sensitivity

K does not deny that data like (11a) are unacceptable. In fact, he admitted this fact in an earlier paper (Kitagawa 2005), where he attributed its deviance to a failure to satisfy Kuroda's Relevancy Condition, a claim which, we believe, was adequately refuted in Grosu & Hoshi (2016: Section 3).⁴ In the article under consideration here, he attributes its deviance to a failure to satisfy the co-specification relation indicated by co-indexation in (1), a relation which, as noted in Section 2.3, he proposes to view as island-sensitive.

At the same time, K asserts that there are counterexamples to island-sensitivity, bringing up a number of data which, while not accepted by all his consultants, were accepted by some of them, with variations in the degree of acceptability. We reproduce below one out of three examples of this kind that he provides (= his (34)), with an English translation that we have adapted to the pattern we adopted for IHRCs.

- (15) Boku-wa [_{DP} [_{Complex NP} [sono toppina kaiketuhoo_i-o teiansi-ta
 I-TOP that preposterous solution-ACC propose-PAST
 [seibisi]-ga imadewa moo Amerika no kaisya-de erakunattei-ru] no
 engineer-NOM now already U.S. no company-in big.shot.be-PRES no
 [pro_i]] no habahiroi zituyoosei-ni imasaranagara kantansi-ta.
 no wide.range applicability-at again marvel.at-PAST
 'The engineer who proposed that preposterous solution is now a big shot in an
 American company, and I marveled again at its wide-range applicability.'

(15) differs from the unacceptable example (11a) in that the IH is *referential*. As noted in Section 2.3, K (Section 6) argues, *contra* Shimoyama (2001) and Grosu & Hoshi (2016: Section 5), that IHRCs with referential IHs are possible independently of islands, subject

⁴ Kitagawa (2005) does not explain why he thinks that this example does not live up to Kuroda's (1975–76; 1992) Relevancy Condition. Grosu & Hoshi argue that this condition may be viewed as satisfied for essentially the same reasons it is satisfied in the acceptable (10a). For details, see the three paragraphs that follow their example (33).

to some cross-idiolectal variation comparable to the one found in relation to data like (15). Specifically, while he apparently admits that data like (6a–b) above are degraded, he reports that (16) (= his (47)), as well as two additional examples we do not reproduce here, are acceptable to some of his consultants.

- (16) Otoko-wa [[[Yuuzi_i-ga nige-yoo-to su-ru] no [*pro*_i]] no kata]-o,
 man-TOP Yuuji-NOM escape.try.attempt-PRES no no shoulder-ACC
 tukan-de hikimodosi-ta.
 grab-and pull.back-PAST
 ‘Yuuji was trying to run away, and the man grabbed his shoulders and pulled him back.’

As already noted in Section 2.3, K (Section 5.3, bottom paragraph of p. 19) proposes that data like (15) are acceptable (to some of his consultants) because they are licensed by a co-reference relation between the IH and the CP-external definite expression, which – crucially – “is not encoded in syntax.” That is to say, he proposes that a non-syntactic co-reference relation can circumvent the fact that a syntactically-based co-specification relation cannot be established.

We have the following comments about K’s proposals. First, the assumption that island-sensitivity is a property of co-specification in IHRCs is completely *ad hoc*, because co-specification, like discourse anaphora in general, is notoriously island-insensitive everywhere else. The *ad hoc* status of this proposal emerges with particular salience when we compare IHRCs with incontrovertible appositives, which, as is well known, are island-insensitive in Japanese. Recall that, according to K, both constructions involve co-specification, with only a difference in directionality. K thus needs to assume that co-specification is island-sensitive when the antecedent is in the subordinate clause and the anaphor is in the matrix, but not in the converse case. This seems completely unmotivated. In contrast, no conceptual problem arises for GH, since the attribution of island-sensitivity to cyclic A-bar movement is a conservative view.

Second, we have two remarks about the “repair mechanism” that K proposes for licensing data like (15). The first remark is that the co-indexing mechanism in (1) is no less “syntactic” than A-bar movement, and by the logic of K’s argumentation against an analysis that relies on A-bar movement, violations of co-specification by co-indexation should invariably lead to unacceptability, contrary to what K reports as being the case.

The second remark is that we cannot make sense of the claim that co-reference is not represented in the syntax. In (16), and in a number of additional examples brought up by K, the IH co-indexed with *pro* is referential. This means that the co-specification relation K assumes to hold in (16) is of the referential variety. Therefore, co-reference is represented in the syntax by means of co-indexation. As far as we can see, K seems to assume that co-reference can be both syntactic and non-syntactic, while E-type anaphora can only be syntactic. In the absence of explicit motivation for such a view, we submit that K’s proposed repair mechanism relies on *ad hoc* and arguably incoherent assumptions.

For the reasons enumerated above, we submit that K’s characterization of island-(in)sensitivity in IHRCs is on the wrong track.

How can an approach compatible with GH handle the fact that some speakers accept data like (15) and reject data like (11a)? We offer the following hypothesis, which we will argue for in detail in the next section: The constructions that K identifies as IHRCs in these examples are not IHRCs at all, but DHRCs of a special (hitherto unrecognized) kind, which, like DHRCs in general, are not island-sensitive (Grosu & Hoshi 2018: Section 3.1). If our subsequent argumentation is successful, it will imply that IHRCs are potentially

homophonous not only with the three constructions signaled in Grosu & Hoshi (2016), but also with a fourth.

4 Doubly Headed Relative Constructions (DHRCs)

4.1 Properties and analysis

As noted in Section 1, the DHRCs of Japanese have so far benefitted from considerably less attention than either EHRCs or IHRCs. Attempts to establish some of their properties were made by Erlewine & Gould (2016), Grosu & Hoshi (2018: Section 3), and K (Section 7) (see also Inada 2009; Tomioka 2012 for earlier brief mentions of this construction in Japanese), but we are aware of no attempt to undertake a thorough investigation of their syntax and semantics, taking into account a broad range of varieties of DHRCs. In this section, we propose to offer a theory of DHRCs. More specifically, we propose to pursue in this section the following goals: [i] To establish, by partly building on past results, a number of important properties of DHRCs, in particular, those that they share with IHRCs and those that distinguish the two constructions; [ii] to propose a theory that captures the facts in [i]; and [iii], to show how an analysis along the lines of [ii] can lead to the construction of a plausible account of the relative acceptability (for at least some speakers, including H) of data like (15), as compared with data like (10a).

We begin by considering (17), a relatively “simple” variety of DHRC (the reasons for providing two conceivable English translations will become apparent below):

- (17) Junya-wa [[Ayaka-ga *ringo-o* mui-ta] *sono ringo*]-o tabe-ta.
 Junya-TOP Ayaka-NOM apple-ACC peel-PAST that apple-ACC eat-PAST
 [i] ‘Junya ate the apple(s) that Ayaka peeled.’
 [ii] ‘Ayaka peeled an apple/(some) apples and Junya ate them (= the peeled apples).’

This example illustrates one of the properties of DHRCs that is shared with IHRCs. To the best of our knowledge, in all the constructions that are unambiguously DHRCs (i.e., which exhibit some overt material outside the relative CP), the EH must include the item *sono* (when a noun is also present) or *sore* (when there is no noun). In other contexts, *sono/sore* are demonstratives suitable for deictic reference to objects at a medial distance from the speaker. The language also possesses the items *kono/kore* and *ano/are*, which are appropriate for deictic reference to objects close to and distal from the speaker respectively. Importantly, only *sono/sore* may externally-head DHRCs, and in this case, it is not interpretable deictically; rather, its semantics is best representable by the Sharvy-Link sigma, which picks out of a set its unique maximal member, if there is one, and is undefined otherwise. This particular use of *sono/sore* is comparable to the use of the distal demonstrative *that/those* in English constructions like (18), which have the same truth conditions as those in (19). – For convenience, let us call demonstratives with mere sigma import “pseudo-demonstratives.”⁵

- (18) a. Those/*these (people) who do not learn from history are doomed to repeat it.
 b. That/*this which is spoken by a wise man deserves to be taken seriously.

⁵ One minor difference between English and Japanese is that the former uses the same (pseudo)demonstrative items both “adjectivally” and “pronominally,” while the latter uses distinct, albeit morphologically related items, e.g., *so-no* vs. *so-re* respectively. For completeness, we provide below the counterpart of (17) with a pronominal pseudo-demonstrative EH.

[i] Junya-wa [[Ayaka-ga *ringo-o* mui-ta] *sore*]-o tabe-ta.
 Junya-TOP Ayaka-NOM apple-ACC peel-PAST that-ACC eat-PAST
 ‘Ayaka peeled an apple and Junya ate that (thing).’

- (19) a. The people who do not learn from history are doomed to repeat it.
 b. The things that are spoken by a wise man deserve to be taken seriously.

What has just been said implies that a first property shared by IHRCs and DHRCs is *necessary definiteness*, modulo the fact that the sigma operator is phonetically null in IHRCs and overt in DHRCs.

A second property of DHRCs which is shared with IHRCs is that both of them are **integrated** (into the matrix), as can be seen by comparing (8c)–(9c) with (20a)–(20b). Thus, in both constructions, the relative and the matrix do not have the status of independent sentences in discourse.

- (20) a. Junya-wa [[*dare-ga* ringo-o mui-ta] sono ringo]-o tabe-ta no.
 Junya-TOP who-NOM apple-ACC peel-Past the apple-ACC eat-Past Q
 ‘Who is such that (s)he peeled an apple/apples and Junya ate it/them?’⁶
 b. Junya-wa [[**Ayaka-ga** ringo-o mui-ta] sono ringo]-o tabe-ta
 Junya-TOP Ayaka-NOM apple-ACC peel-PAST the apple-ACC eat-PAST
 wake-de-wa na-i.
 reason-COP-TOP NEG-PRES
 ‘It is not true that **Ayaka** peeled an apple/apples and Junya ate it/them
 (rather, it was **Yoko** who peeled that/those apple/apples).’

The most natural way of capturing this property, at least from the conceptual perspective of GHL, is to ensure that the relative clause ends up as denoting a predicate, not a proposition. For reasons that will become clear in what follows, the implementation of this goal minimally requires *an adaptation* of ChR.

A third respect in which DHRCs strongly resemble IHRCs can be gathered by considering the data in (21). Note that in (17), the IH and the EH exhibit identical material (except for *sono*, which appears only in the EH), and the same is true of (21a). As can be seen in (17), two English translations are in principle conceivable for that example, one based on the pattern normally used to translate restrictive EHRCs, and the other one, on the pattern that has been widely used to translate IHRCs. The data in (21) show that the latter pattern is preferable. In (17) and (21a), the EH material in the scope of *sono* constitutes redundant information. This constitutes, as far as we can tell, a requirement for the felicity of DHRCs. This requirement is satisfied if the material at issue is less informative than the IH, as in (21b), but not if that material is more informative than the IH, as in (21c), which is infelicitous when uttered out of the blue. However, (21c) is substantially improved if it is uttered in a context where all the apples in the universe of discourse are assumed to be red, a state of affairs which ensures that the IH is as informative as the EH. Note that these effects are exactly replicated with respect to the English translation of (21c), but they cannot be captured by a translation along the lines of (17i), which can only be “Junya ate the red apples that Ayaka peeled” for all the subcases of (21). We conclude that the translation pattern used for IHRCs is also the optimal one for DHRCs.

⁶ A reviewer reports that he/she finds (20a) and (31a) unacceptable. H feels that these examples, although a bit marginal, as DHRCs in general often are, are not impossible, and are in any event distinctly better than data like (8b), which are completely out. We surmise that the reviewer might have some difficulty to interpret *sono* as a pseudo-demonstrative in this somewhat complex case. If *sono* is construed as a real demonstrative, the outcome becomes analogous to unacceptable data like (8b).

- (21) a. Junya-wa [[Ayaka-ga *akai ringo-o* mui-ta] sono *akai ringo*]-o
 Junya-TOP Ayaka-NOM red apple-ACC peel-PAST that red apple-ACC
 tabe-ta.
 eat-PAST
 ‘Ayaka peeled a red apple/some red apples and Junya ate the red apple(s).’
- b. Junya-wa [[Ayaka-ga *akai ringo-o* mui-ta] sono *ringo*]-o tabe-ta.
 Junya-TOP Ayaka-NOM red apple-ACC peel-PAST that apple-ACC eat-PAST
 ‘Ayaka peeled a red apple/some red apples and Junya ate the apple(s).’
- c. ??Junya-wa [[Ayaka-ga *ringo-o* mui-ta] sono *akai ringo*]-o tabe-ta.
 Junya-TOP Ayaka-NOM apple-ACC peel-PAST that red apple-ACC eat-PAST
 ‘??Ayaka peeled an apple/some apples and Junya ate the red apple(s).’

As for the similarity between IHRCs and DHRCs alluded to above, it resides in the fact that, given the redundant status of the EH material in the scope of *sono*, the sigma operator in effect ends up binding the predicate denoted by CP in both cases.

Importantly, the redundancy requirement does not concern the morphological and syntactic properties of the IH and EH, but only their semantic and pragmatically acquired content. This can be seen in (22)⁷ and (23).

- (22) a. Junya-wa [[Masao-ga *Ayaka-o* kirattei-ru] sono *kanozyo*]-o aisitei-ru.
 Junya-TOP Masao-NOM Ayaka-ACC hate-PRES that she-ACC love-PRES
 ‘Masao hates *Ayaka* and Junya loves *her*.’
- b. ??Junya-wa [[Masao-ga *kanozyo-o* kirattei-ru] sono *Ayaka*]-o aisitei-ru.
 Junya-TOP Masao-NOM she-ACC hate-PRES that *Ayaka*-ACC love-PRES
 ‘??Masao hates *her* and Junya loves *Ayaka*.’
- (23) a. Junya-wa [[Masao-ga [*Ayaka to Yoko*]-o kirattei-ru] sono *huta-ri-no*
 Junya-TOP Masao-NOM Ayaka and Yoko-ACC hate-PRES that two-CL-GEN
zyosei]-o aisitei-ru
 woman-ACC love-PRES
 ‘Masao hates *Ayaka* and *Yoko*, and Junya loves those two women.’
- b. Junya-wa [[*Ayaka-ga Yoko-o* aisitei-ru] sono *hutari-no zyosei*]-o
 Junya-TOP Ayaka-NOM Yoko-ACC love-PRES that two-CL-GEN woman-ACC
 kirattei-ru
 hate-PRES
 ‘*Ayaka* loves *Yoko*, and Junya hates those two women.’

In (22a), the anaphor in the EH is less informative than the proper name in the relative, and in (22b), this pattern is reversed. Much as (21c), (22b) is infelicitous if uttered out of the blue, but improves significantly in a context where *Ayaka* was the topic of the conversation, so that the anaphor in the relative may be interpreted as denoting *Ayaka*. In (23), the principle of semantic redundancy is respected, but note that here, too, felicity is ensured only under the contextual assumption that *Ayaka* and *Yoko* are grown women, not baby girls. Note that (23b) has two distinct IHs and a single EH which describes their sum, an option also available with IHRCs (see Grosu and Landman 2012: Section 6, for an analysis).

⁷ This example anticipates a point that will be made below, i.e., that DHRCs, in contrast to IHRCs, tolerate referential IHs.

We conclude the discussion of the redundancy requirement with the consideration of the more complex example in (24), which might seem to exhibit a *prima facie* violation of the redundancy principle.

- (24) Junya-wa [[Ayaka-ga *hotondo-no ringo-o* mui-ta] sono Junya-TOP Ayaka-NOM most-of-GEN apple-ACC peel-PAST that *hotondo-no-ringo*]-o tabe-ta.
 most-apple-ACC eat-PAST
 [i] ‘Ayaka peeled most of the apples (in a contextually assumed heap) and Junya ate that majority of apples from the heap.’
 [ii] ‘Ayaka peeled most of the apples (in a contextually assumed heap) and Junya ate most of the totality of peeled apples.’

This example allows two interpretations. Assuming that the heap contained ten apples and Ayaka peeled nine of them, the interpretation [i] says that Junya ate the nine peeled apples. This construal is straightforwardly well-behaved with respect to the redundancy requirement. The construal in [ii] says that Junya ate at most eight of the nine peeled apples, and appears to violate redundancy. This violation is, we submit, only apparent.

We propose that the two readings of (24) are traceable to two different configurational structures for the first line of this example, which are shown in (24i)’ and (24ii)’ respectively. Under this analysis, the string *hotondo-no-ringo* in (24ii)’ is outside the scope of *sono*, and the issue of redundancy does not even arise.

- (24)’ i. Junya-wa [[Ayaka-ga *hotondo-no ringo-o* mui-ta][sono *hotondo-no-ringo*]]-o
 ii. Junya-wa [[[Ayaka-ga *hotondo-no ringo-o* mui-ta] sono] *hotondo-no-ringo*]-o

This concludes our discussion of the properties shared by IHRCs and DHRCs. We now turn to four properties that set DHRCs apart from IHRCs and that they share with discourses.

A first such property, pointed out by Grosu & Hoshi (2018: Section 3.1), is that DHRCs are insensitive to the CNPC and AIC. This insensitivity is illustrated in (25)–(26) (= Grosu & Hoshi’s (18) and (20) respectively), which are minimally distinct counterparts of the unacceptable data in (11a–b).

- (25) Mary-wa [[[John-ga [[[e]_i **atarasii kasetu**-o teiansi-ta] gakusei_i]-o Mary-TOP John-NOM **new hypothesis**-ACC propose-PAST student-ACC homete-ita] **sono atarasii kasetu**]-no kekkan]-o siteki-si-ta.
 praise-had that hypothesis-GEN defect-ACC point.out-do-PAST
 ‘John praised the student who proposed a new hypothesis and Mary pointed out a defect in it.’
- (26) Mary-wa [[[John_i-ga [kare_i-no gakusei-ga **atarasii kasetu**-o Mary-TOP John_i-NOM he_i-GEN student-NOM **new hypothesis**-ACC teiansi-ta]-node kanki-no koe-o age-ta] **sono atarasii kasetu**]-no propose-PAST-because joy-GEN voice-ACC raise-PAST that new hypothesis-GEN akirakana kekkan]-o suguni siteki-si-ta.
 obvious defect-ACC promptly point.out-do-PAST
 ‘John shouted with joy because his student had proposed a new hypothesis and Mary pointed out an obvious defect in it.’

A second property that distinguishes between the two constructions, and which was also pointed out by Grosu & Hoshi (2018: Section 3.2) is that DHRCs are, unlike IHRCs,

insensitive to Kuroda's Relevancy Condition. Grosu & Hoshi illustrate this contrast with their examples (21) and (23), reproduced as (27)–(28) below.

- (27) ?*[[daidokoro-no mado-kara **siroi neko-ga** kinoo deteit-ta]-no]-ga
 kitchen-GEN window-from white cat-NOM yesterday go-out-PAST-no-NOM
 sakana-o tabete-i-ru. ← **if construed as IHRC**⁸
 fish-ACC eat-PROG-PRES
 'A white cat went out of the kitchen window yesterday, and it is (now) eating a fish.'
- (28) [[daidokoro-no mado-kara **siroi neko-ga** kinoo deteit-ta]
 kitchen-GEN window-from white cat-NOM yesterday go-out-PAST
sono siroi neko]-ga sakana-o tabete-i-ru. ← **DHRC**
 that white cat-NOM fish-ACC eat-PROG-PRES
 'A white cat went out of the kitchen window yesterday, and the white cat is (now) eating a fish.'

Kuroda's Relevancy Condition, which has been formulated in a number of slightly different ways in the literature, basically says that the events described by the relative and matrix clauses should be *easily* and *naturally* construable as forming a coherent super-event, possibly with the help of "a reasonable amount" of pragmatic bridging. As has often been noted, this condition cannot be given a fully rigorous definition, and thus, not unexpectedly, speakers differ in the degree of felicity they assign to various constructions. Nonetheless, many speakers, including H, find (27) distinctly less felicitous than, e.g., (2). Note that in (2), all the bridging that is needed to satisfy the condition is to assume that the cookies put in the fridge in the morning stayed there until the evening, a fairly conservative assumption. In (27), we need distinctly more outlandish assumptions, e.g., that the cat stole a fish from the kitchen "yesterday," refrained from eating it for a whole day, and is eating it "today."

A third property that distinguishes DHRCs from IHRCs is the following: while IHRCs with referential IHs, such as (5), (6) and (16), are felt by many speakers (H included) to be less acceptable than comparable data with quantified IHs, DHRCs with referential IHs, such as (29)–(30), have the essential acceptability of DHRCs in general (H's evaluation).

- (29) Junya-wa [[Masao-ga Ayaka-o kirattei-ru] sono Ayaka]-o aisitei-ru⁹
 Junya-TOP Masao-NOM Ayaka-ACC hate-PRES that Ayaka-ACC love-PRES
 'Masao hates Ayaka and Junya loves her.'
- (30) Otoko-wa [_{DP}[Yuuzi-ga nige-yoo-to su-ru]]_{DP} sono Yuuzi]-no kata-o
 man-TOP Yuuzi-NOM escape.try.attempt-PRES that Yuuzi-GEN shoulder-ACC
 wasizukami-ni si-te, hikimodosi-ta.
 eagle.hold-by do-ing pull.back-PAST
 'Yuuzi tried to get away, and the man clasped Yuuzi's shoulders with both hands and pulled him back.'

⁸ The justification for the "if" qualification will become clear further down in this section, where we suggest that such examples allow an alternative parse (in particular, as a special kind of DHRC).

⁹ In such constructions, the heads can also be pronominal, as in (i).

- (i) Junya-wa [[Ayaka-ga kanozyo-o kirattei-ru] sono kanozyo]-o aisitei-ru.
 Junya-TOP Ayaka-NOM she-ACC hate-PRES that she-ACC love-PRES
 'Ayaka hates her and Junya loves her.'

Such DHRCs are integrated and island-insensitive, just like those with non-referential IHs, as illustrated in (31)–(32), and should thus be analyzed in the same way.

- (31) a. Junya-wa [[*dare-ga* Ayaka-o kirattei-ru] sono Ayaka]-o aisitei-ru no.
 Junya-TOP who-NOM Ayaka-ACC hate-PRES that Ayaka-ACC love-PRES Q
 ‘Who is such that (s)he hates Ayaka and Junya loves her?’
- b. Junya-wa [[**Masao-ga** Ayaka-o kirattei-ru] sono Ayaka]-o aisitei-ru
 Junya-TOP Masao-NOM Ayaka-ACC hate-PRES that Ayaka-ACC love-PRES
 wake-de-wa na-i.
 reason-COP-TOP NEG-PRES
 ‘It is not true that **Masao** hates Ayaka and Junya loves her (rather, **Taroo** hates her).’
- (32) Boku-wa [_{DP} [_{Complex NP} [**sono/kono/ano** **toppina kaiketuhoo_i-o**
 I-TOP that(medial)/this/that(distal) preposterous solution-ACC
 teiansi-ta [seibisi]-ga imadewa moo Amerika no kaisya-de
 propose-PAST engineer-NOM now already U.S. no company-in
 erakunattei-ru] [*sono sono/ kono/ano toppina kaiketuhoo_i]*]-no
 big.shot.be-PRES that that(medial)/this/that (distal) preposterous solution-GEN
 habahiroi zituyoosei-ni imasaranagara kantansi-ta.
 wide.range applicability-at again marvel.at-PAST
 ‘The engineer who proposed **that/this preposterous solution** is now a big shot in
 an American company and I marveled again at its wide-range applicability (it =
that/this preposterous solution).’

Note that in (29)–(30), the pseudo-demonstrative *sono* co-occurs within the EH with a proper name, and in (32), with any of the three “genuine demonstratives.” In the latter example, we have used, for perspicuousness, italics and boldface for pseudo- and genuine demonstratives respectively. The juxtaposition of pseudo-demonstrative *sono* D with genuine demonstratives may be a bit disturbing, especially when the genuine demonstrative is also *sono*, but this slight discomfort may be overcome if appropriate prosodic care is exercised. As a reviewer points out, “the pseudo-demonstrative *sono* undergoes rapid rising accent immediately after *so*, while the genuine demonstrative *sono* is pronounced with low accent throughout the word.”

A fourth fact that distinguishes IHRCs from DHRCs is that DHRCs, unlike IHRCs, need not satisfy property (3b), as shown by the contrast between (4) and (33).

- (33) [[Taro-ga ***zibun-no musume-no hito-ri-no*** sushi-o kyaku-ni dasi-ta]
 Taro-NOM *his daughter-GEN one-CL-GEN* sushi-ACC guest-DAT serve-PAST
sono musume]-o kyaku-ga suguni home-ta.
 that daughter-ACC guest-NOM immediately praise-PAST
 ‘Taro served to the guest the sushi of **one of his daughters** and the guest immediately praised **the daughter (in question)**.’

We now have the basic ingredients needed for constructing a compositional semantic derivation of DHRCs. We propose to implement this goal by adapting ChR to the special needs of DHRCs.

The adapted mechanism, call it ChR*, needs to differ from ChR in the following ways: First, the search for a contextually and grammatically suitable IH must be free of the locality condition imposed on ChR, thereby *allowing violations of island constraints*. Correlatively, ChR*

need not be attached deep within the relative CP. Rather, it may take as complement the relative CP itself. Assuming that this CP denotes a proposition, ChR^* needs to be a function from contexts and propositions. What will it be a function to? We propose that ChR^* should search (non-locally) both for a set of eventualities and for a Role in the members of this particular set. Moreover, the set of relevant eventualities needs to be extended to include what we may call “elliptical eventualities,” i.e., those expressed by constructions like *Shakespeare’s plays*, which describe roughly what is more explicitly described by sentences like *Shakespeare wrote those plays*. Call the extended class E^* , its members, e^* , and the roles associated with some e^* , R^* ; to illustrate, in *Shakespeare’s plays*, *Shakespeare* plays the Agent* Role. With these preliminaries, if we assume that the context picks for the proposition p denoted by the relative CP an E^*_p and an $R^*_{E^*_p}$ associated with it, ChR^* may be formulated as in (34).

$$(34) \quad [[\text{ChR}^*]] = \lambda p \lambda x. p(w) \wedge \exists e^* \text{ in } E^*_p: R^*_{E^*_p}(e^*) = x$$

ChR^* takes a proposition and maps it onto the set of individuals x such that the proposition is true in the world of evaluation w and x fills a contextual role R^* in some event e^* in a contextual set of events E^* .

The rest of the derivation proceeds as follows: The predicate obtained by means of ChR^* undergoes Maximalization, and is mapped to the singleton that contains its maximal member, if there is one, and is undefined otherwise. This step goes a long way in accounting for the redundancy requirement of EH material in the scope of the pseudo-demonstrative *sono* in the EH of DHRCs.

To see this, note first that in order to combine with CP by intersection, the material in question needs to consist of predicates. This is automatic for nouns and adjectives, and may be achieved for proper names and other referential expressions by resorting to the noun phrase type-shifting mechanism *Ident* proposed in Partee (1987), which has the effect illustrated in (35a), and for quantified expressions, by resorting to Partee’s noun phrase type-shifting mechanism *BE*, whose effect is shown in (35b).

- (35) a. *Ident* (Yoko/this book) $\rightarrow \lambda x.x = \text{Yoko/this book}$
 b. *BE* (all/most books) $\rightarrow \text{ALL/MOST BOOKS}$

Now, the intersection of a singleton A with some set B yields A if B includes the unique member of A , and the null set otherwise. If we assume that only the former yields a felicitous outcome, the redundancy effect is accounted for. Thus, in (29), intersection of CP with $\lambda x.x = \text{Ayaka}$ will yield the singleton whose member is *Ayaka* just in case the two tokens of *Ayaka* denote the same person, and the null set otherwise. And in (21c), intersection of CP with *akai* “red” will yield a feeling of discomfort if it is unclear whether the unique member of CP consists entirely of red apples, an effect which disappears if such a state of affairs is contextually assumed.

The outcome of the vacuous intersection of CP with various items in the EH yields the singleton denoted by CP, and the pseudo-demonstrative *sono* straightforwardly picks out its unique member as the denotation of the complex DP. This is the desired result.

Concerning the insensitivity of DHRCs to Kuroda’s Relevancy Condition, this can be captured by simply refraining from imposing this condition on DHRCs.

4.2 Cross-idiolectal variation

Having established the characterizing properties of DHRCs and having formulated an analysis of them, we are now in a position to suggest an explanation for the cross-idiolectal variation reported by Kitagawa. Thus, observe that the redundancy property of the

EH material in the scope of *sono* in no way requires that all the explicit information provided by the IH be redundantly expressed in the EH, as illustrated by the acceptability of (21b) (reproduced below for convenience).

- (21) b. Junya-wa [[Ayaka-ga *akai ringo-o* mui-ta] *sono ringo*]-o tabe-ta.
 Junya-TOP Ayaka-NOM red apple-ACC peel-PAST that apple-ACC eat-PAST
 ‘Ayaka peeled some red apple(s) and Junya ate that/those apple(s).’

In view of this, note that the semantics of a DHRC will be unaffected if the redundant information in the EH is suppressed altogether, and if *sono* is replaced with a null definite D, which is independently needed for IHRCs. We suggest that such maximally “reduced” DHRCs exist, and that their nominal status is signaled by the nominalizer *no*. Specifically, we suggest that data like (15)–(16) allow two parses, one as an IHRC and one as a reduced DHRC. Now, it is well-known that in contrast to EHRCs, which are straightforwardly accepted by all speakers of Japanese, IHRCs are marginal or impossible for some speakers, and (incontrovertible) DHRCs are even more so. If so, observed cross-idiolectal variation is plausibly attributable to the degree of readiness of speakers to adopt a reduced DHRC parse in such cases.¹⁰

4.3 A remaining issue

Before concluding, we wish to note a possible connection between (in)sensitivity to Kuroda’s Relevancy Condition on the one hand and (in)felicity of referential and possessor IHs on the other.

Grosu & Hoshi (2016: Section 5) proposed that the deviance of IHRCs with referential IHs is due to the fact that the property denoted by the remainder of the relative makes no necessary contribution to the denotation of the complex DP, which can be established on the basis of the IH alone. But the vacuousness of this property does not seem to be problematic for DHRCs with referential IHs, so there must be some other property of IHRCs that results in infelicity when combined with the kind of vacuousness at issue. We suggest that this other property is Kuroda’s Relevancy Condition. Arguably, the *dispensable* status of the property at issue, and with it, of the eventuality described by the relative clause, conflicts with the thrust of Kuroda’s Relevancy Condition, which is to *fuse* the eventualities in the relative and the matrix as tightly as possible into a single saliently cohesive super-event(uality). Hence, the degraded status of referential IHs in IHRCs, but not in DHRCs.

Furthermore, a presumably desirable situation for successful satisfaction of Kuroda’s Relevancy Condition is that the sub-eventualities to be fused into a super-eventuality, and correlatively the participants in them, should be as *salient* as possible. In view of the fact that IHs are not morphologically marked, DPs within the relative are in principle in competition with each other for the status of IH, and correspondingly, distinct eventualities (that may contain the IH) are also in competition with each other. If we assume that a standardly expressed eventuality is in principle more salient than an elliptically expressed one, it seems reasonable to expect that possessors, which belong *only* to an elliptically expressed eventuality, should be less salient than, e.g., the corresponding possessed entity, if the latter belongs to a standardly expressed eventuality. We suggest that this state of affairs may be viewed as the reason for the dis-preferred status of possessor IHs in IHRCs. Note that once the choice of IH has been made, the matrix participant is thereby fully

¹⁰ It would be of interest to check whether the degree of acceptability assigned by individual speakers to full DHRCs with referential IHs roughly correlates with the degree of acceptability assigned by the same speakers to “reduced” DHRCs with referential IHs. We expect this to be the case, but the matter needs to be checked in future field and/or experimental work.

determined. For this reason, the complex DP is not problematic in the role of possessor, since it does not compete with any other element for the status of “matrix participant.”

We wish to conclude this section by typing up a loose end. The reason we have taken the analysis of IHRCs in Grosu and Landman (2012), rather than the more sophisticated one in Landman (2016), as the model for constructing an analysis of DHRCs, is that the latter incorporates Kuroda’s Relevancy Condition into the semantic machinery, a move unsuitable for DHRCs. At the same time, Landman’s (2016) analysis has arguable beneficial consequences with respect to IHRCs, which were not noticed when that paper was written: If the suggestions made in the two preceding paragraphs are on the right track, then the degraded status of IHRCs with referential or possessor IHs need not be stipulated, since it follows from the incorporation of Kuroda’s Relevancy Condition into the semantics of IHRCs.

5 Summary of results

This paper has compared the ways in which two analytical approaches to Japanese IHRCs, one proposed by Kitagawa (2019) and the other proposed in a number of studies by Grosu, Hoshi and/or Landman, characterize IHRCs and are able to deal with various properties of these constructions.

Kitagawa’s approach was critiqued on the following grounds:

[A] The proposal that IHRCs, together with incontrovertible appositives, belong to a larger class of non-restrictive relative constructions, the distinction between them being fully captured by the directionality of co-specification, cannot account for the fact that the relative clause is integrated in IHRCs and non-integrated in appositive constructions.

[B] Assigning island-sensitivity to a co-specification relation that is claimed to hold between an IH and a CP-external *pro* is an objectionable step, because discourse anaphora, of which co-specification is a special case, is island-insensitive in all other known environments. Most strikingly, it is island-insensitive in Japanese appositive relatives, which, as already noted, are claimed by K to differ from IHRCs only in the directionality/orientation of co-specification. Tying island (in)sensitivity to the directionality/orientation of anaphora seems devoid of any plausible justification.

[C] The “repair” mechanism proposed for allowing certain *prima facie* violations of island constraints is not coherently characterized. On the one hand, co-reference is claimed to be an extra syntactic relation, and on the other, it is viewed as a sub-instance of co-specification based on a syntactic relation of co-indexation.

In contrast, the alternative approach we have proposed deals with the above issues in the following way:

[A’] The integrated status of the relative clause in DHRCs is captured by analyzing the clause as denoting a predicate, rather than a proposition, a move that brings DHRCs under a common umbrella with restrictive relatives, which are incontrovertibly integrated.

[B’] Island-sensitivity in IHRCs is straightforwardly accounted for by assuming that the syntactic basis for predicate formation is created by cyclic A-bar raising, a mechanism that is widely viewed as island-sensitive.

[C’] The *prima facie* allowable violation of island constraints in the apparent IHRCs is accounted for by the thesis that they are in fact not IHRCs, but homophonous “reduced” DHRCs.

In addition to providing alternatives to K's proposals mentioned in [A]–[C] above, this paper has also hopefully shed more light on the comparatively neglected DHRCs, noting the properties they share and those that they do not share with IHRCs, as listed in (37)–(38) for convenience.

(37) **Shared properties**

- a. Necessary definiteness.
- b. Integration into the matrix, regardless of the nature of the IH.
- c. In view of the redundancy of the EH-internal material in the scope of *sono* in DHRCs, *sono* as a sigma-operator in effect binds the predicate denoted by CP, just as the null D that heads IHRCs as a sigma-operator binds the predicate denoted by CP.

(38) **Distinguishing properties of DHRCs**

- a. Insensitivity to islands.
- b. Insensitivity to Kuroda's Relevancy Condition.
- c. Tolerance of referential IHs.
- d. Tolerance of IHs that play the possessor's/author's role in a possession relation.

No less importantly, it has offered an explicit theory of DHRCs, the first to be ever proposed, as far as we are aware.

Abbreviations

ACC = accusative case, AUX = auxiliary element, CAUS = causative element, CL = classifier, COMP = complementizer, CONT = contrastive focus element, COP = copula, DAT = dative case, GEN = genitive case, LOC = locative, NEG = negative element, NOM = nominative case, PAST = past tense, PRES = present tense, PROG = progressive element, Q = question particle, TOP = topic marker

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Competing Interests

The authors have no competing interests to declare.

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