

## RESEARCH

# On the unified analysis of three types of relative clause construction in Japanese, and on the “salient reading” of the internally headed type. A reply to Erlewine & Gould (2016)

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In this reply, we argue against two proposals made by Erlewine & Gould (2016), and in favor of the following two theses:

- [i] Japanese internally headed relative constructions disallow an interpretation that is crucially based on contextual salience, and allow only an interpretation that reflects the content of their (explicit or implicit) internal head(s).
  - [ii] None of Erlewine & Gould’s attempts to provide independent support for their unified analysis of internally headed, externally headed and doubly headed relative constructions of Japanese is tenable. Therefore, these writers failed to provide convincing justification for abandoning the approach developed by Grosu & Landman (2012) and Landman (2016) with respect to the analysis of the internally headed relatives of Japanese, an approach which moreover yielded explicit accounts of two types of data for which Erlewine & Gould have no obvious analysis.
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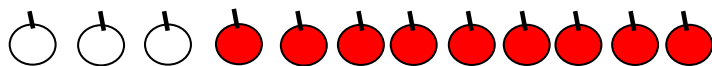
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## 1 Introductory remarks

Erlewine & Gould (2016; henceforth: E&G) make a substantial number of proposals aimed at significantly improving on existing analyses of the various types of relative clause constructions in Japanese. Their major proposed novelties are

[A] In contrast to earlier approaches, both those that rely on E-type anaphora (e.g., Hoshi 1995; Shimoyama 1999; 2001; Kim 2007) and those that rely on null operator movement *cum* lambda abstraction over the operator’s “trace” (Watanabe 1992; Grosu 2010; Grosu & Landman 2012; Landman 2016), E&G propose that internally-headed relative constructions (henceforth: IHRCs), can have, in addition to the kind of denotation attributed to them in all the above studies, an additional one, which is crucially based on contextual salience, and which those earlier studies do not capture. These readings may be illustrated in relation to the following context, which E&G graphically illustrate as in (1) (= E&G’s (3)): there are twelve apples on a tray, and Ayaka peels three of them. In this context, the “standard” reading of (2) is conveyed by the translation in [i], and the novel reading proposed by E&G is conveyed by the translation in [ii]. For convenience, and for lack of a better name, let us call these tworeadings the “sub-set” and the “full-set” readings.

- (1) Context with three peeled apples and nine unpeeled apples:



- (2) Junya-wa [Ayaka-ga ringo-o mit-tsu mui-ta-no]-o (zenbu) tabe-ta.  
 JUNYA.TOP AYAKA.NOM APPLE.ACC three.CL peel.PAST.NO.ACC (all) eat.PAST  
 [i] ‘Ayaka peeled three apples and Junya ate (all) the three peeled apples.’  
 [ii] ‘Ayaka peeled three apples and Junya ate (all) the contextually pertinent apples.’

[B] In contrast to the studies cited under [A], which held without exception (and on motivated grounds) that the analyses of EHRCs and IHRCs need to be kept distinct, E&G proposed a unified syntactic and semantic analysis of EHRCs, IHRCs, and a third construction (discussed in Inada 2009; Tomioka 2012), which they dubbed “DHRC” (=“doubly headed relative construction”). Their principal expressed reasons for adopting such a unified analysis are summarized in [a]–[c] below.

[a] (3)–(4), which include EHRCs and DHRCs minimally different from the IHRC in (2), exhibit in a context like (1) the kind of sub-set/full-set ambiguity found in (2).

- (3) Junya-wa [Ayaka-ga mit-tsu mui-ta ringo]-o (zenbu) tabe-ta.  
 Junya.TOP Ayaka.NOM three.CL peel.PAST apple.ACC (all) eat.PAST  
 [i] ‘Junya ate (all) the three apples that Ayaka peeled.’  
 [ii] ‘Junya ate (all) the apples that Ayaka peeled three of.’
- (4) Junya-wa [Ayaka-ga ringo-o mit-tsu mui-ta sono ringo]-o (zenbu)  
 Junya.TOP Ayaka.NOM apple.ACC three.CL peel.PAST that apple.ACC (all)  
 tabe-ta.  
 eat.PAST  
 [i] ‘Junya ate (all) those three apples that Ayaka peeled.’  
 [ii] ‘Junya ate (all) those apples that Ayaka peeled three of.’

[b] All three types of relative constructions are sensitive to islands (E&G: 18).

[c] IHRCs and DHRCs are both sensitive to Kuroda’s Relevancy Condition (henceforth, KRC),<sup>1</sup> a semantico-pragmatic restriction on Japanese IHRCs initially proposed by Kuroda (1975–76) and subsequently reformulated by various researchers, and which we take to have essentially the following import (adapted from Landman 2016, with inconsequential modifications):

- (5) The Kuroda Relevancy Condition (slightly reformulated)  
 The two event(uality)s described by the relative and the matrix clauses must, in context, be naturally construable as parts (or stages) of a *single* natural super-event(uality).

[C] In contrast to the studies mentioned in [A] above, which did not claim to have an *explanation* for the fact that Japanese IHRCs are definite descriptions, E&G claim that their unified analysis of the three constructions can *explain* the fact that the constructions in data like (2)–(4) are all definite (concerning EHRCs, see section 2).

E&G’s claims summarized in [A]–[C] will be addressed and evaluated in sections 2–4. In occasionally comparing E&G’s approach with the competing approach in Grosu & Landman (2012), we will keep in mind, and will take into account a number of addenda

<sup>1</sup> E&G admit that KRC does not extend to EHRCs, and offer a conjectural explanation on which we briefly comment in section 3.2.

and refinements put forward in Grosu & Hoshi (2016) and Landman (2016) (two studies to which E&G did not have access, we assume).

## 2 The sub-set/full-set ambiguity

E&G indicate that they tested sentences like (2)–(4) in their *full versions* (i.e., with the word *zenbu* ‘all’ in the matrix; on this decision, see below), as well as comparable variants in which the relative-internal numeral *mit-tsu* ‘three-CL’ was replaced by *hanbun* ‘half (of)’. The context of use was characterized, for the benefit of their consultants, both by pictures like (1) and by pictures like (6) (=their (9)), the latter exhibiting two distinct groups of apples, only one of which is relevant to the peeling activity.

(6) Context with two groups of apples:



They indicated that much of the testing was carried out by asking over a dozen native speakers of Japanese, some of them by means of written questionnaires, which apples they believe were eaten when the full versions of the kind of sentences described in the preceding paragraph are uttered in the contexts (1) and (6). The participants in the written survey were instructed to circle the apples they believe were eaten, and to indicate whether multiple readings are possible. E&G note that they used only the full versions of the data in order to ensure a maximally uniform interpretation of all three constructions, since EHRCs can in principle be either definite or indefinite, in contrast to IHRCs and DHRCs, which are necessarily definite descriptions. Insofar as data with internal *mit-tsu* in the context in (1) are concerned, E&G report that for all three constructions, a substantial majority of their consultants allowed both the sub-set and the full-set readings, and only three speakers allowed just the sub-set reading (there were also two additional speakers whose responses were not consistent across examples).

Given this variation in judgments, we proceeded to counter-check (a subset of) the kind of data just referred to with four native speakers, all sophisticated linguists with a solid command of syntax and semantics, and one of them a co-author of this paper. The remaining three consultants were contacted by email, were sent data accompanied by context characterizations by means of both pictures and verbal descriptions, and were asked whether the eaten apples consisted of the full set, of the sub-set, or of both. We limited our investigation to IHRCs and EHRCs with internal *mit-tsu* in the context illustrated in (1), but did not use the full versions of the data, because we and our consultants found E&G’s qualm about the reduced version unjustified. Thus, while EHRCs without determiners can certainly be either definite or indefinite (in appropriate contexts), determiner-less EHRCs with a “stranded” internal quantificational expression, such as *mit-tsu*, are necessarily definite, according to all our consultants. We thus decided to focus on data without *zenbu*, in view of the fact that the use of this item is not always semantically innocuous, a point to which we prominently return further down in this section. Finally, we note that we made no use of the kind of context in (6), because we find it uncontroversial that a set irrelevant to the event described by the relative will (normally) be ignored by consultants.

With respect to data with IHRCs, three of our consultants allowed only the sub-set reading, while the fourth also allowed the full-set reading. With respect to data with EHRCs, our consultants expressed preference for the sub-set reading, but were also willing to allow the full set reading. Thus, there was some variation in judgments both within E&G’s set of consultants and within ours. However, the judgments expressed by the majority of

speakers in each group were markedly different. We suggest possible reasons for this discrepancy in the conclusion to this section.

As E&G (section 4.3) note, the sub-set reading of IHRCs does not constitute a problem for the approach in Grosu & Landman (2012), but the full-set reading does. The problem is even more stringent for the approach in Landman (2016), which tightens up the approach in Grosu & Landman (2012) by providing novel and convincing support for the view – initially put forward by Shimoyama (2001) – that the explicit or “understood” internal head (henceforth: IH) of an IHRC must be a **thematic** participant in an eventuality described by the relative clause, not merely a pragmatically construable participant of some sort, a requirement which is satisfied in (2) by the IH *ringo-o mit-tsu*, as Theme of the eating event (see Landman 2016: section 2.4, on the need to assume **thematic** status for the participant at issue). The gist of the syntactic-semantic analysis of IHRCs developed in the two papers just referred to is essentially the following: the relative CP includes a null category (a functional head in Grosu & Landman 2012, and a PP adjunct in Landman 2016) which forms a constituent with some XP internal to the relative clause (XP = an extended projection of V hierarchically higher than VP, but lower than CP), and which: [i] selects an IH from among the (thematic) participants in the eventuality described by this XP, and [ii] also includes a variable that constitutes a *co-argument* of the selected participant.<sup>2</sup> Abstraction over this variable at the relative CP level yields a set ultimately restricted by the selected thematic argument and by the remainder of XP, and a null external definite operator maps this set to a unique maximal entity. This derivation **necessarily** results in a sub-set reading of the IHRC (see also our discussion on this point below).

Concerning EHRCs, the approach in Grosu & Landman (2012) and Landman (2016) can deal with both types of reading. The expression *ringo-o mit-tsu* is construable either as ‘three apples’, or partitively, as ‘three of the apples.’<sup>3</sup> In the former case, the “gap” is a variable over entities, which gets restricted to triples by the numeral, and the reduced version of (2) has the import of (7a). In the latter case, the gap is the (definite) complement of the partitive expression headed by *mit-tsu*, and the reduced version of (2) has the import of (7b).

- (7) a. Junya ate the three apples that Ayaka peeled.  
 b. Junya ate the apples that Ayaka peeled three of.

The full-set reading of IHRCs proposed by E&G is a striking novelty, and deserves serious consideration. The remainder of this section is devoted to marshalling arguments against it.

We begin by noting that Grosu & Hoshi (2016) demonstrate in detail that Japanese IHRCs can, under certain circumstances, be superficially homophonous with three other constructions, in particular, adverbials, eventuality-denoting complements, and a construction which was called “headless relatives” in the earlier literature, and which they dub “light-headed EHRCs”, a term we will adopt here, in view of the fact that they are in fact externally headed by *no*, construed as a pronominal element (rather than as a nominalizer, complementizer, or part of an adverbial marker, as it does in the other three constructions). These authors also provide a battery of tests for excluding homophony for each of the four constructions.

<sup>2</sup> This characterization is appropriate for what may be called “the basic type” of IHRCs. IHRCs with multiple IHs or with an IH that is only implicit (and constitutes the outcome of a process of change) require certain analytical extensions (for details, see Grosu & Landman 2012: section 6; and Landman 2016: section 4, respectively).

<sup>3</sup> The two readings can sometimes be distinguished intonationally when neither item is contrastively focused. Under such circumstances, an intonational break between *ringo-o* and *mit-tsu* favours a partitive reading, and a single intonational contour over the two words favours a non-partitive reading.

One situation in which IHRCs may be homophonous with light-headed EHRCs was pointed out by Moulton & Shimoyama (2017) (henceforth: M&S). Except when functioning as “pseudo relatives” (Inoue 1976; Matsumoto 1989), light-headed EHRCs exhibit, as EHRCs of all kinds typically do, a gap within the relative. In data like (2), M&S propose that the gap is a genitive expression immediately preceding, and forming a constituent with, *ringo-o*, which is interpreted as the complement of a partitive expression (possibly with locative import). The gap is arguably somewhat “masked” by the fact that *ringo-o mit-tsu* is a potentially complete nominal expression, but, as M&S note, it may confidently be posited, in view of the fact that an overt genitive expression, e.g., *sono yama-no* ‘that pile-gen’, may appear in the assumed gap position in a non-relative full sentence counterpart, and also by the fact that *no* in (2) may be replaced by a full nominal, e.g., *yama* ‘pile’, which may be assumed to bind a gap. Under this analysis, (2) has the essential import of (8).

(8) Junya ate that/the thing which Ayaka peeled three apples of/in.

That such an alternative analysis is available for data like (2) can be incontrovertibly demonstrated by using a test brought up by Grosu & Hoshi (2016: section 2) for excluding alternative analyses: adjectival modification of *no*, which is appropriate for pronominals, but not for adverbial markers, nominalizers or complementizers. This is done in (9), where the first sentence serves the purpose of introducing an antecedent for *no* in the second sentence, something that facilitates the intended pronominal reading of *no*, and thus, a light-headed EHRC construal.

(9) Junya<sub>i</sub>-wa [Ayaka-ga <gap> orenzi-o mit-tsu mui-ta tiisana  
 Junya.TOP Ayaka.NOM orange.ACC three.CL peel.PAST small  
 yama]-ni-wa odoroka-nakat-ta ga, pro<sub>i</sub> [Ayaka-ga <gap> ringo-o  
 pile.DAT.CONT get-surprised.NEG.PAST but Ayaka.NOM apple.ACC  
 mit-tsu mui-ta ookina no]-ni-wa totemo odoroi-ta.  
 three.CL peel.PAST large NO.DAT.CONT extremely get-surprise.PAST  
 ‘While Junya was not surprised at the small pile that Ayaka peeled 3 oranges  
 from, he got extremely surprised at the large one that she peeled 3 apples from.’

E&G propose that in a context like (1), the sub-set and the full-set readings of data like (2) are made possible by the fact that either set may become “salient” in appropriate contexts. M&S propose that the full-set reading of the complex DP in (2) is expressible by a light-headed EHRC, and there is thus no evidence that such readings are available on an IHRC parse. M&S also bring up data which suggest that an IHRC parse may in fact not even be available in such cases. The remainder of this section is devoted to argumentation that the thesis expressed in the preceding sentence is in fact correct.

As a first step towards this goal, consider the data in (10). A well-known property of pronominal *no* (see Kuroda 1975–76; 1992; Grosu & Hoshi 2016) is that a complex DP headed by it may not felicitously denote respectable humans. For this reason, a light-headed EHRC parse is excluded in (10a–b).

(10) a. sono paatii-ni-wa gesuto-ga nizyuugo-nin i-ta. Junya<sub>i</sub>-wa  
 that party-at.TOP guest.NOM twenty five.CL exist.PAST Junya.TOP  
 [Ayaka-ga kare<sub>i</sub>-ni gesuto-o san-nin syookaisitekure-ta no]-o  
 Ayaka.NOM he.DAT guest.ACC three.CL introduce.PAST NO.ACC  
 kookyuuna resutoran-ni (zenbu/zen-in) syootaisi-ta.  
 fancy restaurant-to all/all.CL invite.PAST  
 ‘There were twenty five guests at the party. Ayaka introduced three (of the)  
 guests to Junya and he invited (all of) them to a fancy restaurant.’

- b. sono paatii-ni-wa gesuto-ga nizyuugo-nin i-ta. Junya<sub>i</sub>-wa  
 that party-at.TOP guest.NOM twenty five.CL exist.PAST Junya.TOP  
 [[Ayaka-ga kare<sub>i</sub>-ni gesuto-o san-nin syookaisitekure-ta no]-no  
 Ayaka.NOM he.DAT guest.ACC three.CL introduce.PAST NO.GEN  
 hinnoyoi hurumai]-ni kantansi-ta.  
 elegant behavior.DAT marvel.PAST  
 ‘There were twenty five guests at the party. Ayaka introduced three (of the)  
 guests to Junya, and he marveled at their elegant behavior.’

However, for reasons noted in Grosu & Hoshi (2016) and pertinent references therein, an adverbial parse of the bracketed constituent is in principle possible in (10a), as well as in (2), since the sequence *no-o* can function as an adverbial marker; on this parse, it needs to be assumed that the matrix includes a null *pro* element (which can also be replaced by an overt definite pronoun or full DP, as discussed and demonstrated by Kuroda 1999). On an adverbial parse, (2) means essentially ‘Ayaka having peeled three [of the] apples, Junya ate (all of) them’, and the second sentence in (10a) means essentially ‘Ayaka having introduced three [of the] guests to Junya, he invited (all of) them to a fancy restaurant.’ In the English translations just provided, the pronoun *them* **can** be construed as denoting the contextually present sums of twelve apples/twenty-five guests, **especially if the universal quantifier *zenbu/zen-in* ‘all/all-CL’ is included.**<sup>4</sup> This kind of reading may be less immediately salient than one on which *them* denotes the three apples/guests that were peeled/invited, but may be made fully coherent, and thus salient, by appealing to a bit of pragmatic bridging. For example, in relation to the English counterpart of (2), we may imagine that Ayaka peeled the three apples not because she thought Junya prefers to eat peeled apples, but because, e.g., she intended her little girl to eat them, and Junya in turn may have been hungry enough to eat all of them. In relation to the English counterpart of (10a), it may be assumed that the three invited guests were the leaders of a group of twenty-five, and that introducing them to Junya was thus a sufficient step for Junya to invite the entire group. What has just been said applies to the Japanese data in (2) and (10a) on an adverbial parse, especially if *zenbu/zen-in* is present, i.e., it is in principle possible for the null *pro* element in the matrix to denote twelve apples/twenty-five guests. That such a construal is in principle available is also brought out by the fact that the interpretation at issue can be made explicit and unambiguous by using an overt expression instead of *pro*, as in the variant of (2) shown in (2’).

- (2’) Junya-wa [Ayaka-ga ringo-o mit-tsu mui-ta no]-o ringo zyuuni-ko  
 Junya.TOP Ayaka.NOM apple.ACC three.CL peel.PAST NO.ACC apple twelve.CL  
 zenbu tabe-ta.  
 all eat.PAST  
 ‘Ayaka having peeled three apples, Junya ate all twelve apples.’

In contrast to (2), (2’) and (10a), an adverbial parse is excluded in (10b), because the sequence *no-no* is not a possible adverbial marker (see Grosu & Hoshi 2016, section 2, and references therein), so that the bracketed constituent is an unambiguous IHRC. Importantly, no amount of pragmatic bridging can yield a twenty-five-guest denotation for this IHRC, thereby showing that the full-set construal of IHRCs proposed by E&G does not exist. This state of affairs points to the following important conclusion: the felic-

<sup>4</sup> For a suggestion concerning the fact that the explicit universal quantifier arguably facilitates the reading at issue, see the second paragraph after example (21).

ity of IHRCs is determined not only by the Kuroda Relevancy Condition, which allows some appeal to **pragmatic** bridging (with some cross-idiolectal variation concerning the amount of tolerated bridging), but also by an additional **semantic** condition. We submit that this condition is **the need for the relative and the matrix to share a thematic participant**, a restriction proposed by Shimoyama (2001) and defended by Landman (2016), and to which we return towards the end of this section.

A reviewer of an earlier version of this paper (henceforth: Reviewer 1) suggests an additional technique for investigating the (un)availability of the full-set reading of IHRCs and EHRCs like those in (2)–(3). (S)he begins by pointing out that predicates with definite objects playing the Theme role may differ as to whether they allow the Theme’s participation in the event to be non-exhaustive. For example, *eat* may also be construed as ‘eat of’, as illustrated in (11a–b), while *marry* disallows a comparable construal, as illustrated in (11c).

- (11) a. John ate the cake, but not all of it.
- b. ?John ate the apples, but not all of them.
- c. \*John married the women, but not all of them.

A possible way of thinking of this contrast is that *eat* allows its direct object to be construed as a **group** of apples, so that eating that group does not necessarily imply eating all its parts, while *marry* only allows its object to be construed as a **sum** (of women), thereby affecting each atom in the sum (presumably consecutively, in societies that disallow polygamy).

The technique proposed by Reviewer 1 relies on exploiting this property of *eat* in **negated** test sentences. The reviewer reports the following judgments provided by a native consultant, with which the Japanese co-author of this paper agrees entirely. The test sentences are (12) and (13), which are negated versions of (3) and (2) respectively, and thus include an EHRC and an IHRC respectively. The examples were tested in the situations described in (14) and (15). For each sentence and each situation, the consultant was asked whether the sentence is true in that situation.

- (12) Junya-wa [Ayaka-ga mit-tsu mui-ta ringo]-o tabe-nakat-ta.  
      Junya.TOP Ayaka.NOM three.CL peel.PAST apple.ACC eat.NEG.PAST  
      [i] ‘Junya did not eat [of] the three apples that Ayaka peeled.’  
      [ii] ‘Junya did not eat [of] the apples that Ayaka peeled three of.’
- (13) Junya-wa [Ayaka-ga ringo-o mit-tsu mui-ta no]-o tabe-nakat-ta.  
      Junya.TOP Ayaka.NOM apple.ACC three.CL peel.PAST NO.ACC eat.NEG.PAST  
      ‘Ayaka peeled three (of the) apples and Junya did not eat [of] them.’
- (14) Ayaka peeled three out of six apples; Junya ate one of the peeled apples.
- (15) Ayaka peeled three out of six apples; Junya ate one of the unpeeled apples.

The judgments reported by the reviewer’s consultant are:

- [A] (12) in situation (14): False on both readings.
- [B] (12) in situation (15): True on reading [i], false on reading [ii].
- [C] (13) in situation (14): False.
- [D] (13) in situation (15): True.

The contrast between [B] and [D] points to the conclusion that the EHRC in (12) allows either a three-apple or a six-apple denotation, while the IHRC in (13) may have only a three-apple denotation.<sup>5</sup>

At this point, we may return to the implications of the presence/absence of *zenbu* in (2)–(3), a matter that came up earlier in this section. Reviewer 1 notes that introducing negation into these sentences, as in (16)–(17), sheds light on this issue, and also provides additional confirmation of the conclusion reached on the basis of (12)–(13). (16) and (17) were tested in the contexts in (18) and (19).

- (16) Junya-wa [Ayaka-ga mit-tsu mui-ta ringo]-o (zenbu-wa) tabe-nakat-ta.  
Junya.TOP Ayaka.NOM three.CL peel.PAST apple.ACC (all.CONT) eat.NEG.PAST  
[i] ‘Junya did not eat [of] (all) the three apples that Ayaka peeled.’  
[ii] ‘Junya did not eat [of] (all) the apples that Ayaka peeled three of.’
- (17) Junya-wa [Ayaka-ga ringo-o mit-tsu mui-ta no]-o (zenbu-wa)  
Junya.TOP Ayaka.NOM apple.ACC three.CL peel.PAST NO.ACC (all.CONT)  
tabe-nakat-ta.  
eat.NEG.PAST  
‘Ayaka peeled three (of the) apples and Junya did not eat (all) [of] them.’
- (18) Ayaka peeled three out of six apples; Junya ate three of the peeled apples and two of the unpeeled ones.
- (19) Ayaka peeled three out of three apples; Junya ate two of the apples.

The judgments of the reviewer’s consultant were:

- [A’] (16) in situation (18): False without *zenbu*, true with *zenbu*.  
[B’] (16) in situation (19): False without *zenbu*, true with *zenbu*.  
[C’] (17) in situation (18): False with or without *zenbu*.  
[D’] (17) in situation (19): False without *zenbu*, true with *zenbu*.

[A’], [B’] and [D’] show that the presence vs. absence of *zenbu* affects truth conditions, and the contrast between [A’] and [C’] shows that a six-apple denotation is available for the EHRC, but not for the IHRC.

<sup>5</sup> The consultant’s judgment about (13) expressed in [D] indicates that (s)he was able to exclude irrelevant parses, in particular, a light-headed EHRC or an adverbial parse. Plausible reasons for this are: [i] the consultant had the context characterized in terms of verbal descriptions, not pictures (on the possible significance of this state of affairs, see the penultimate and ante-penultimate paragraphs of this section), and [ii] an adverbial construal with the import of ‘#Ayaka having peeled three apples, Junya did not eat [of] them’ is not very coherent. An adverbial construal that achieves greater coherence might be one that is unambiguously adversative one, e.g., ‘although Ayaka peeled three apples, Junya did not eat [of] them’, but such a construal is sufficiently different from the IHRC construal of (13) for it not to be confused with the latter.

In any event, the point made in connection with (13) can be counter-checked with an unambiguous IHRC by adapting our (10b) as in (i), and by checking its truth value in the situations (iia-b). The judgments are clear-cut: (i) is false in situation (iia) and true in situation (iib).

[i] sono paatii-ni-wa gesuto-ga nizyuugo-nin i-ta. [Junya<sub>i</sub>-wa [[Ayaka-ga kare<sub>i</sub>-ni  
that party-at.TOP guest.NOM twenty five.CL exist.PAST Junya.TOP Ayaka.NOM he.DAT  
gesuto-o san-nin syookaisitekure-ta no]-no huta-ri-no hinnoyoi hurumai]-ni taisite  
guest.ACC three.CL introduce.PAST NO.GEN two.CL.GEN elegant behavior.DAT toward  
kantan-no i-o hyoosi-ta] wake-de-wa nakat-ta.  
admiration.GEN thought.ACC express.PAST reason.COP.CONT NEG.PAST  
‘There were twenty-five guests at the party. It is not the case that Ayaka introduced three (of the) guests to Junya and he expressed his admiration for the elegant behavior of two of them.’

[ii] a. Junya expressed admiration for two of the three introduced guests.  
b. Junya expressed admiration for two of the twenty-two non-introduced guests.



The judgments of Reviewer 1’s consultant thus strengthen the conclusion reached by M&S, namely, that at least insofar as the kind of data considered by E&G are concerned, an IHRC parse does not allow a full-set construal.

It seems appropriate at this point to point out that a full-set reading (and more generally, a reading based on mere contextual salience) for Japanese IHRCs, which E&G presented as an important novelty, is not really a novelty at all. A comparable reading was in fact considered **and rejected** (with arguments) by Shimoyama (2001: Chapter 3) and Grosu (2010: section 2) in relation to analogous data of a slightly different sort, so that, in fact, the only “novelty” in E&G’s proposal is that they argued for a view that earlier literature had shown to be untenable. To illustrate, consider the pair of sentences (6a–b) from Grosu (2010), which we reproduce as (20) below, in a context where 150 students were expected to attend the party.

- (20) a. choodo san-nin-no insei-ga doyoobi-no paatii-ni ki-ta.  
exactly three.CL.GEN grad-student.NOM Saturday.GEN party-to come.PAST  
karera-wa jitsuwa uchi-de taamu peepaa-o kaite-i-ta.  
they.TOP in-fact home-at term paper.ACC write.PROG.PAST  
‘Exactly three graduate students came to the party on Saturday.  
In fact, they (= the other students) were writing term papers at home.’
- b. #[[choodo san-nin-no insei-ga doyoobi-no paatii-ni ki-ta]  
exactly three.CL.GEN grad-student.NOM Saturday.GEN party-to come.PAST  
no]-ga jitsuwa uchi-de taamu peepaa-o kaite-i-ta.  
NO.NOM in-fact home-at term paper.ACC write.PROG.PAST  
‘#Exactly three graduate students came to the party on Saturday, and  
they (= these very students) were in fact writing term papers at home.’

Given the indicated expectation, the complement set of the set of three students present at the party (i.e., the set of missing one hundred and forty seven students), are contextually salient. In the discourse in (20a), they can be felicitously referred to with the anaphor *karera* ‘they.’ In contrast, the IHRC<sup>6</sup> in (20b) admits only the absurd interpretation that the students who made it to the party were simultaneously at home, writing term papers. Note that while (20a) is not **exactly** like E&G’s example shown in (2) in that the contextually salient set is not a properly inclusive set, but a complement set, it nonetheless shares with the former situation the property of assuming **a contextually salient set that is different from the set defined by an overt DP**. Since E&G claimed that a salient set can be the denotation of an IHRC and did **not** limit this situation to properly inclusive sets, we submit that their approach predicts that (20b) should allow a reading comparable to that of (20a), contrary to fact.

We submit that the facts brought up so far in this section convincingly point to the conclusion that a Japanese IHRC **needs to share a thematic participant with its matrix**, as already noted earlier in connection with (10b). The full-set reading is unavailable on IHRC parses of data like (2) and (10) because the full set is not a thematic participant in any eventuality described by the relative clause. In contrast, no comparable requirement exists for adverbial clauses, which need not share any kind of participant with their matrix, as illustrated, e.g., by the following example (21), cited from Kuroda (1999) in Grosu & Hoshi (2016).

<sup>6</sup> Although the sequence *no-ga* allows in principle an adverbial construal, such a construal is not plausible in this case.

- (21) Taro-wa [gozen-tyuu-wa hi-ga tette-i-ta]-no-o  
 Taro.TOP morning-during.TOP the sun.NOM shine.prog.PAST.NO.ACC  
 gogo-ni-natte ame-ga huri-dasite-kara deteit-ta.  
 in-the-afternoon rain.NOM start-falling-after leave.PAST  
 ‘{While, whereas} the sun was shining in the morning, Taro left after it started raining in the afternoon.’

At the same time, the matrix of an adverbial parse of, e.g., (2), may certainly be viewed as including a null *pro* element, whose antecedent may be either a DP within the adverbial clause itself (see Grosu & Hoshi 2016: examples (21)–(23) for further illustration of this possibility), or some contextually salient entity, thereby yielding readings that E&G incorrectly viewed as, respectively, sub-set and full-set readings of IHRCs.

The argumentation so far provided decidedly points to the conclusion that the reason why some of E&G’s and some of our consultants reported getting full-set readings of IHRCs was that they inadvertently construed some of the data either as light-headed EHRCs or as adverbials. The fact that a larger proportion of E&G’s consultants, compared to ours, reported such judgment may, we surmise, be due to the fact that the former, but not the latter, had to judge data with *zenbu* ‘all’ in the matrix. Since this item is focusable, and thus easily construable as contrasted with some meaningful part of the subordinate clause, it arguably encourages an adverbial reading of data like (2) on which the cardinality of the universally quantified apples in the matrix is contrasted with, and thus presumably distinct from, the cardinality of the apples mentioned in the subordinate clause.

As for the possibility that some of the consultants may have interpreted some of the data as light-headed EHRCs, in contrast to Reviewer’s 1 consultant (see footnote 4), if this in fact happened, we conjecture it may have been due to the fact that the contexts of utterance of the presented data were characterized by means of pictures in the former case and by means of verbal descriptions in the latter.

Thus, note that in the picture in (1), the twelve apples form a continuous row, something that might encourage thinking of them as a(n atomic) **group** (comparable to M&S’s data with “pile”), rather than as a mere **sum/set**, and this may conceivably increase the likelihood of a light-headed EHRC parse.

Furthermore, the pictures present a single kind of situation with three peeled apples, namely, one in which the peeled apples are always the three peeled apples at the left end of the row. This may give rise to an unintended “referential” view of the context, i.e., one in which not only the number of peeled apples, but also the precise identity of the peeled and un-peeled apples is known, something that may distract the consultants’ attention from considering the truth value of the test sentences, which in *no way* depends on knowing specifically which specific apples got peeled. To eliminate any possible doubt, we note that there exist data for which no picture can be drawn, in particular, when not even the number of peeled apples is known, as in the following variant of (2).

- (2”) Junya-wa [Ayaka-ga ringo-o huta-tu kara yot-tu mui-ta-no]-o  
 Junya.TOP Ayaka.NOM apple.ACC two.CL from four.CL peel.PAST.NO.ACC  
 tabe-ta.  
 eat.PAST  
 ‘Ayaka peeled between 2 and 4 apples, and Junya ate them.’

We wish to conclude this section by emphatically stressing that whether the conjectures just offered are on the right track or not, the significance of this section lies in the degree of success of our battery of arguments that full-set readings of IHRCs, and more generally, readings based on no more than contextual salience, do not exist.

### 3 E&G’s analytical unification of IHRCs, DHRCs, and EHRCs

In the preceding section, we dealt with points [A] and [Ba] of section 1. In this section, we address points [Bb] and [Bc], i.e., E&G’s claim that their unified analysis captures two empirical generalizations, namely: EHRCs, IHRCs and DHRCs are island-sensitive, and the last two are sensitive to the KRC.

#### 3.1 Island-(in)sensitivity

E&G provide no supporting data for [Bb], and content themselves with a hint at some earlier literature (p. 18). The proposed mechanism for capturing this alleged fact is the formation, in all three constructions, of a chain of copies of a phrasal “internal head” by internal Merge, an operation assumed to be island-sensitive. The chain subsequently undergoes manipulation for interpretability, in particular, Trace Conversion and Inverse Trace Conversion (Chomsky 1993; Fox 1999; Erlewine 2014).

Grosu and Hoshi (2016) illustrate the island-sensitivity of IHRCs with their examples (28)–(29), reproduced as (22)–(23) below (see also their section 3 for refutation of a challenge to the view that Japanese IHRCs are island-sensitive). (22a) shows that long-distance dependencies are in principle possible, and (22b)–(23) demonstrate sensitivity to the C(omplex)NPC(onstraint) and the A(djunct)I(sland)C(onstraint) respectively.

- (22) a. Mary-wa [[[John-ga [[zibun-no gakusei-ga zyuuyoo-na kasetu-o  
Mary.TOP John.NOM self.GEN student.NOM important hypothesis.ACC  
teian-si-ta] to] zimansite-ita] no]-no kekkan]-o siteki-si-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-wa [[[John-ga [[atarasii kasetu-o teiansi-ta] gakusei]-o  
Mary.TOP 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.’
- (23) ?\*Mary-wa [[[John<sub>i</sub>-ga [kare<sub>i</sub>-no gakusei-ga atarasii kasetu-o  
Mary.TOP John<sub>i</sub>.NOM he<sub>i</sub>.NOM 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.’

To test whether EHRCs and DHRCs are also sensitive to these island constraints, we construct the data in (24)–(25), which are EHRC and DHRC minimally distinct counterparts of (22b), as well as the data in (26)–(27), which are minimally distinct counterparts of (23).

- (24) Mary-wa [[[John-ga [[ [e]<sub>i</sub> [e]<sub>j</sub> teiansi-ta] gakusei]-o homete-ita] atarasii  
Mary.TOP John.NOM propose.PAST student.ACC praise-had new  
kasetu]<sub>j</sub>-no kekkan]-o siteki-si-ta.  
hypothesis.GEN defect.ACC point.out-do.PAST  
‘Mary pointed out the defect of a new hypothesis such that John praised the  
student who proposed (it).’

- (25) Mary-wa [[[John-ga [[ [e]<sub>i</sub> atarasii kasetu-o teiansi-ta] gakusei]<sub>i</sub>-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  
 literally: ‘Mary pointed out a defect in that new hypothesis [that John praised  
 the student who proposed a new hypothesis].’
- (26) Mary-wa [[[John<sub>i</sub>-ga [kare<sub>i</sub>-no gakusei-ga [e]<sub>j</sub> teiansi-ta]-node  
 Mary.TOP John<sub>i</sub>.NOM he<sub>i</sub>.NOM student.NOM propose.PAST because  
 kanki-no koe-o age-ta] atarasii kasetu]<sub>j</sub>-no akirakana kekkan]-o  
 joy.GEN voice.ACC raise.PAST new hypothesis.GEN obvious defect.ACC  
 suguni siteki-si-ta.  
 promptly point.out-do.PAST  
 ‘Mary pointed out an obvious defect in a new hypothesis that John (had)  
 shouted with joy because his student (had) proposed (it).’
- (27) Mary-wa [[[John<sub>i</sub>-ga [kare<sub>i</sub>-no gakusei-ga atarasii kasetu-o  
 Mary.TOP John<sub>i</sub>.NOM he<sub>i</sub>-no student.NOM new hypothesis.ACC  
 teiansi-ta]-node kanki-no koe-o age-ta] sono atarasii  
 propose.PAST because joy.GEN voice.ACC raise.PAST that new  
 kasetu]-no akirakana kekkan]-o suguni siteki-si-ta.  
 hypothesis.GEN obvious defect.ACC promptly point.out-do.PAST  
 literally: ‘Mary promptly pointed out an obvious defect in that new hypothesis  
 [that John (had) shouted with joy [because his student (had) proposed a new  
 hypothesis].’

All the data in (24)–(27) are fine (*modulo* the fact that, for all our consultants, DHRCs in general have marginal acceptability), showing that island-sensitivity is a property of IHRCs alone, not shared by EHRCs and DHRCs. Thus, under the assumption that island-sensitivity is a property of copy-chain formation under Merge (i.e., movement, in earlier frameworks), E&G’s analysis makes incorrect predictions for EHRCs and DHRCs.

A reviewer (henceforth: Reviewer 2) suggests that E&G could deal with the facts in (22)–(27) by giving up the assumption that island-sensitivity is a property of movement, and by assuming instead that island-(in)sensitivity depends on the ways in which a chain is resolved (e.g., by partial or complete deletion, substitution of a null anaphor, etc.). Under the more conservative view that island-sensitivity is a property of movement, IHRCs may be analyzed as in Grosu & Landman (2012) or Landman (2016), i.e., by assuming cyclic A-bar movement of a null operator, DHRCs may be analyzed by base-generating matching internal and external phrasal heads, and EHRCs may be analyzed by viewing the gap as a base-generated zero pronoun. Thus, both approaches can in principle deal with the facts at issue. However, what matters for present purposes is that the facts in (22)–(27) fail to deliver independent support for a unified analysis of the three constructions.

Furthermore, there are two facts that Grosu & Landman (2012) and Landman (2016), but not E&G, dealt with, and whose analysis within E&G’s framework is not obvious. These are IHRCs with multiple internal heads (Kuroda 1975–76; 1992), and the so-called Change IHRCs, which were originally discovered by Hoshi (1995) and analyzed in detail in Landman (2016: section 4), and whose existence was defended in Grosu & Hoshi (2016: section 6) against challenges.

### 3.2 (In)sensitivity to the Kuroda Relevancy Condition (KRC)

We now turn to E&G’s claim that IHRCs and DHRCs both contrast with EHRCs in exhibiting sensitivity to the Kuroda Relevancy Condition (KRC), an alleged state of affairs that they propose to “blame” on the fact that both overtly exhibit the nominal part of their internal head. They provide no explanation for why a PF property of overtness of the internal head should have such a semantic-pragmatic effect, and they furthermore provide no empirical data in support of the view that DHRCs behave like IHRCs, simply relying on a statement by an anonymous reviewer. The Japanese co-author of this paper and the informants he consulted have different judgments, indicated below.

Thus, consider (28)–(30), which include an IHRC, an EHRC and a DHRC respectively, and which are all in violation of the condition, it being hard to view the events described by the relative and by the matrix as forming a coherent super-event (except perhaps by making outlandish bridging 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).

(28) ?\*[[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.  
fish.ACC eat.PROG.PRES  
‘A white cat went out of the kitchen window yesterday, and it is (now) eating a fish.’

(29) [[daidokoro-no mado-kara [e]<sub>i</sub> kinoo deteit-ta] siroi neko]<sub>i</sub>-ga  
kitchen.GEN window-from yesterday go-out.PAST white cat.NOM  
sakana-o tabete-i-ru.  
fish.ACC eat.PROG.PRES  
‘A/the white cat that went out of the kitchen window yesterday is (now) eating a fish.’

(30) [[daidokoro-no mado-kara siroi neko-ga kinoo deteit-ta] sono siroi  
kitchen.GEN window-from white cat.NOM yesterday go-out.PAST that white  
neko]-ga sakana-o tabete-i-ru.  
cat.NOM fish.ACC eat.PROG.PRES  
‘That white cat [that (a white cat) went out from the kitchen window yesterday] is now eating a fish.’

The firm judgment of all our consultants is that (30) is as acceptable as (29), both contrasting with (28), which is distinctly odd. Thus, E&G’s attempt to argue for a unified analysis of the three constructions by alleging that two of them, IHRCs and DHRCs, share sensitivity to the KRC, while coupling this proposal with a not particularly plausible account of the KRC-insensitivity of EHRCs (see the first paragraph of this section), collapses, in view of the failure of DHRCs to exhibit sensitivity to the KRC.

## 4 The (un)explained status of definiteness in relatives with an internal numeral

We saw in section 3 that two of the empirical facts used by E&G to argue for a unified analysis of the three kinds of construction illustrated in (2)–(4) do not exist. There is, however, a property incontrovertibly shared by the three constructions, namely, necessary definiteness (see section 2). This property can, in principle, support a unified analysis **if it follows from the analysis**, rather than being accounted for by stipulation.

E&G claim in their section 4.4 that definiteness is **predicted** by their analysis, for the following reason: the analysis proposes that the quantificational expression within the

copied phrasal head (in (2)–(4), the numeral *mit-tsu* ‘three-CL’) is “reconstructed”, i.e., interpreted in the position of the lowest copy of the chain, and this – on their analysis – triggers the application of Inverse Trace Conversion, which substitutes a definiteness operator for the determiner in the highest copy.<sup>7</sup> E&G’s claim relies on the assumption that complex DPs with reconstruction are invariably definite. However, this assumption, much like those evaluated in section 3, is incorrect.

Thus, while reconstruction has often been illustrated in the literature with definite data like (31), data like (32) also exist.

- (31) a. [The relative of his that Bill admires the most] is his sister.  
 b. [The picture of each other that Bill and Mary like the most] is the one taken one day before their wedding.
- (32) a. [Two relatives of his that Bill admires more than most others] are his sister and his mother.  
 b. [Two pictures of each other that Bill and Mary like more than most others] are those taken on the first and on the second anniversary of their wedding.

Therefore, definiteness yields no argument for a unified analysis, a state of affairs which, taken in conjunction with the results of sections 3.1 and 3.2, leave E&G’s unified analysis without any independent support.

The earlier literature has prominently noted the definiteness of Japanese IHRCs, as well as of a number of additional constructions in the languages of the world (see Grosu & Landman 1998 and references therein). To our knowledge, no one has yet provided a convincing explanation of such states of affairs, and E&G are no better off than their predecessors in this respect.

## 5 Summary of results

We have argued in this reply that E&G’s full-set construal of Japanese IHRCs does not exist, and that the arguments they adduced in support of undertaking a unified analysis of IHRCs, EHRCs and DHRCs do not go through.

In comparing their own approach with those of earlier studies, in particular, the one in Grosu & Landman (2012), E&G proposed that the former is superior to the latter in being able to capture the full-set reading of IHRCs, in explaining, rather than stipulating, the definiteness of IHRCs, and in unifying the analysis of the three constructions, something for which they alleged the existence of empirical support. If the argumentation in our reply goes through, all these claims are refuted. We thus submit that E&G have made no dent in the approach proposed in Grosu & Landman (2012), and subsequently refined in

<sup>7</sup> E&G propose to analyze definiteness by means of “maximal informativeness” (von Stechow et al. 2014), rather than by means of “maximality”, as in Sharvy (1980) and Link (1983).

While the arguments for this move provided by von Stechow et al. seem to us convincing, E&G provide no example in which the extra power provided by the more recent analysis of the definite article is necessary, and neither have we been able to construct an IHRC that requires this extra power. For example, [i], which is modeled on the pattern of E&G’s (50), denotes the maximal number of apples peeled by Junya. Thus, if the extra power of maximal informativeness is ever needed for the kind of data addressed by E&G, this remains to be demonstrated.

(i) Junya-wa [Ayaka-ga (kare-o manzokus-ase-ru dake-no)  
 Junya.TOP Ayaka.NOM (he.ACC satisfy.CAUS.PRES degree.GEN)  
 zyuubunna kazu-no ringo-o mui-ta no]-o tabe-ta.  
 sufficient number.GEN apple.ACC peel.PAST NO.ACC eat.PAST  
 ‘Ayaka peeled sufficiently many apples (to satisfy Junya) and Junya ate them.’

Landman (2016). If anything, their approach is saddled with the problems noted in the last paragraph of section 3.1, which the competing approach has dealt with effectively.

## Abbreviations

ACC = accusative case, CAUS = causative element, CL = classifier, COMP = complementizer, CONT = contrastive focus element, DAT = dative case, GEN = genitive case, NEG = negative element, NOM = nominative case, PAST = past tense, PRES = present tense, PROG = progressive element, TOP = topic marker

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## Competing Interests

The authors have no competing interests to declare.

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