Towards a More Articulated Typology of Internally Headed Relative Constructions: The Semantics Connection

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Abstract

This article outlines the shortcomings found in two well-known syntax-based typologies of internally headed relative constructions (IHRCs), and demonstrates the benefits of a typology that relies on the syntax–semantics interface and takes semantics seriously into account. It is argued that the latter approach yields a more revealing and empirically superior typology of IHRCs.

1. Introductory Remarks

The class of relative clause constructions is a highly diversified one. It consists of multiple syntactic and semantic sub-classes, and these are moreover related in a many-many fashion, in the sense that some syntactic sub-classes belong to more than one semantic sub-class, and some semantic sub-classes are realized in more than one syntactic garb. Presenting, illustrating, and discussing the entire class of relative constructions exceeds the scope of this article; the interested reader may consult, e.g., Lehmann (1984) and references therein for a syntactically oriented classification, and Grosu (2002) and references therein for a characterization of the semantic sub-classes and for some discussion of syntactic-semantic correspondences.

  This considerable diversity notwithstanding, the various subclasses are unified, roughly put, by the fact that they exhibit (i) a subordinate clause (i.e., the relative) and (ii) a (typically nominal) 'pivot' that plays a semantic role both in the relative clause and its matrix (de Vries 2002; Grosu 2002), and which may be realized as distinct tokens in the matrix and the relative, each of which may be either lexical or phrasal, and either overt or null. These two properties are transparently illustrated by the English construction in (1), which exhibits a relative clause (the constituent labeled 'CP', i.e., Complementizer Phrase), and two tokens of the pivot (the DP in the matrix, and the chain consisting of the DP in the relative and the 'gap' co-indexed with it and indicated by '[e]').

(1) [[$_{DP}$ *My younger brother*], [$_{CP}$ [$_{DP}$ *whom*]$_i$ you met [e]$_i$ last night]], has just left.

The construction in (1) belongs to the syntactic class of Externally Headed Relative Constructions (EHRCs), a term that purports to reflect the fact that the CP-external pivot is a fully specified phrase of arbitrary complexity, in contrast to the CP-internal pivot, which is typically overtly realized either as a chain of the kind illustrated in (1), or simply as a gap, or as a 'resumptive' pronoun. The reader is hereby warned that the term 'head' is used in this context with pre-theoretical import, and should not be confused with the homonymous term 'head' used in linguistic theorizing, where it typically denotes a lexical item.

The constructions that will concern us in this article belong to the syntactic class of Internally Headed Relative Constructions (IHRCs[1]), which differ from EHRCs in that it is the CP-internal pivot that is realized as a phrase of arbitrary complexity, CP-external material being either 'light' or entirely absent in overt representation. The latter state of affairs, i.e., with no overt material outside CP, is illustrated by the following example from Navajo (= (12) in Platero 1974); data illustrating the former state of affairs, that is, with some overt material outside CP, will be brought up in subsequent sections.

(2) [CP Tł'éédą́ą́' *áshkii* ałhą́ą́'-ą́ą] yádoołtih
     last.night boy imperf.3.snore-REL future.3.speak
     'The *boy* who was snoring last night will speak.'

Observe that the italicized element is incontrovertibly an internal head (IH), being flanked on both sides by material that belongs to the relative clause, in contradistinction to the italicized element in the fluent English translation, which is an external head (EH).

Note that the Navajo sentence in (2) and its English counterpart have, as far as one can tell, the same meaning, and one may wonder whether whatever is expressible by means of an EHRC is also expressible by means of an IHRC, and/or vice-versa. The answer is negative both ways. As will be seen in what follows, there are certain meanings that are expressible by EHRCs, but not by IHRCs, and some that are expressible by IHRCs, but not by EHRCs.

As stated in the title, this paper is concerned with the typology of IHRCs. Before tackling this task, however, a couple of general remarks about IHRCs are in order.

A first remark is that due to the lightness or total absence of CP-external material, IHRCs are often homonymous with sentential complements of verbs (Culy 1990 in fact hypothesizes that this possibility exists in all languages with IHRCs); for illustration of this state of affairs, the reader may consult, for example, Kuroda (1976–1977) and Gorbet (1976). Furthermore, IHRCs may also be homophonous with adverbial clauses in some languages (e.g., in Japanese, where some, albeit not all, Case markers are homophonous with adverbial markers). This is not to say, however, that IHRCs are invariably homophonous with subordinate declarative clauses. In some languages, in particular, in the Yuman and Gur languages, IHRCs may be unambiguously identified through a leftward displacement of the pivot from its 'basic' or 'in-situ' position, either all the way to the periphery of the relative clause, or to an intermediate position (e.g., Gorbet 1976; Munro 1976; Tellier 1989a,b; Basilico 1996). Moreover, as pointed out by Tellier 1989a,b, the pivot is typically marked by a special morpheme in the Gur language Mooré, and this seems to be the case in general for the Gur languages with IHRCs (on this point, see Hiraiwa 2005, 2008, 2009, and references therein).

A second remark is that a number of scholars have addressed the intriguing issue of whether it is possible to formulate a set of necessary and sufficient conditions for a language to have IHRCs. An early attempt was made by Kuroda (1974), who proposed that IHRCs are found only in languages with basic SOV order, a remark he credits S. I. Harada (p.c.) with, and which was viewed as correct by a number of later scholars, e.g., Cole (1987). It subsequently turned out, however, that this generalization was faced with numerous counterexamples, IHRCs being also found in Gur languages, which are SVO (Tellier 1989a,b; Hiraiwa 2005, 2008, 2009), as well as in Austronesian languages, which are VSO (Aldridge 2002).

Watanabe (2004), refining proposals in Watanabe (1992), noted the counterexamples just mentioned and proposed an alternative approach, which, however, was exclusively

based on SOV languages. In a nutshell, his proposal was that IHRCs are licensed in a proper subset of the languages that allow either wh–*in-situ* or focus *in-situ,* in particular, in those where the universal generalization in (3) (= his (61)) also holds.

(3) IHRC-Indeterminate Generalization
     Languages with an indeterminate system make available for ordinary nominal expressions the long-distance dependency (checking or binding) used by the indeterminate. This recruitment makes IHRC possible.

An indeterminate is basically an item that can function both as an interrogative pronoun and as a non–interrogative one with a variety of quantificational forces, either with no morphological differentiation (e.g., in Lakhota), or in virtue of the addition of quantificational particles (e.g., in Japanese, where we find the following forms: *dare* 'who', *dare-mo* 'everyone, anyone', *dare-ka* 'someone').

While Watanabe's proposal may well be adequate for the languages he examined, he admitted in the conclusion to his study that his theory does not obviously cope with the Gur language Bùli, which appears to lack an indeterminate system. Subsequently, Hiraiwa (2005, section 5.10.3.) pointed out that neither Bùli nor Mooré possess an indeterminate system, but do possess IHRCs, thereby challenging the generalization in (3). Hiraiwa's principal effort in all three studies cited two paragraphs above was aimed at finding necessary and sufficient conditions for IHRCs to be licensed within the Gur family of languages. With regard to the possibility of a universal theory of IHRC licensing, Hiraiwa (2009, section 4) suggests that such a theory needs to take typological distinctions in word order into account, in the sense that the necessary and sufficient conditions may differ from type to type. As far as I can tell, his suggestions are essentially programmatic, as well as inconclusive, insofar as he himself admits a number of (at least *prima facie*) counterexamples.

To this undoubtedly interesting debate, I have nothing of substance to contribute, and I believe that in the present state of our knowledge, the issue needs to be viewed as open and in need of a great deal of further research. As far as I can tell, all the above proposals seem to 'leak' in some way, and I thus prefer to remain agnostic concerning the possibility of universal necessary, and especially sufficient, conditions. To give just one example of arguable leakage, I note that Watanabe (2004) attributes the existence of IHRCs in Imbabura Quechua to the existence of an indeterminate system and of *in-situ* focus. However, Romanian also has a rich indeterminate system (as illustrated by: *cine* 'who', *care* which', *cine-va* 'someone', *ori-cine* 'whoever', *fie-care* 'each'), as well as *in-situ* focus, and moreover resembles Imbabura Quechua in having obligatory wh–interrogative fronting, but has no IHRCs. The only visible difference between the two languages is that *in-situ* focus is morphologically marked in Imbabura Quechua and intonationally marked in Romanian, but blaming the different behavior of the two languages on the presence/absence of overt marking is a dubious move, in view of so many well-known instances in which overt and covert elements behave alike. In short, I prefer to remain agnostic on the matter at issue, as already noted.

We now finally turn to the principal concern of this study, namely, the typology of IHRCs. The need for such a typology of IHRCs was not initially recognized in the theoretically oriented literature of the last forty years or so, some scholars assuming that IHRCs are uniform cross-linguistically (insofar as their significant properties are concerned); among them, I note Kuroda (1974, 1975–1976, 1976–1977) and Cole (1987). Beginning with the early nineties, however, a number of studies proposed to dis-

tinguish (at least two) distinct sub-classes, with different clusters of properties. Some of these typologies were primarily based on syntactic and/or morphological properties, and others, on semantic properties viewed from the perspective of the syntax-semantics inter-face. Non-exhaustive, alphabetically ordered lists of studies are: for the former approach, Hiraiwa (2005, 2008, 2009), Watanabe (2004), and for the latter approach, Grosu (1994), Grosu and Landman (1998), Hoshi (1995), Shimoyama (1999, 2001), Hastings (2004), Kim (2007). The thrust of the argumentation provided in what follows is that while the former approach has yielded some results, an approach that seriously takes semantics into account can reveal deeper and empirically superior generalizations.

The remainder of this paper is organized as follows: In section 2, I discuss and evaluate the (primarily) syntacto-morphologically oriented typologies proposed in Watanabe (2004) and Hiraiwa (2005, 2008, 2009). In section 3, I introduce a tripartite semantic classification of relative constructions (well known from earlier literature), and propose that IHRCs belong to two of these types; the two types of IHRCs are described and illustrated in sections 3.1. and 3.2. with data from two representative languages, Lakhota and Japanese, in which the crucial properties involved in the interpretation of IHRCs are reflected in the overt syntactic representation with a high degree of transparency. In sec-tion 4, I describe and illustrate a sub-type of the semantic type described in section 3.1. in which the relevant syntax-semantic connection is opaque. Section 5 notes the possibil-ity of multiple types within a single language, and section 6 summarizes the results of the paper, indicating promising topics for further research.

2. Two Syntax-Based Typologies

In addition to his concern with the factors that license IHRCs in the languages of the world, Watanabe (2004) also addresses the observation that the IHRCs of some languages (e.g., Lakhota, the Yuman languages) allow their IH to occur within a syntactic island, while those of other languages (e.g., Navajo, the Quechua languages, Japanese) are sensi-tive to islands, in particular, to Ross' Complex NP Constraint (CNPC). His account of island-(in)sensitivity in IHRCs, reduced to essentials and skipping numerous technicalities, is the following: In both types of IHRCs, the IH and the IHRC exhibit D(eterminer)s, either overt or null. Furthermore, Ds come in two varieties, each language making use of a single variety: (i) binding or (ii) checking. Variety (i) establishes a binding relation with a free variable at any distance, and this relation is island-insensitive; in languages with island-insensitive IHRCs, the CP-external D can directly bind the IH, owing to the fact that the latter's D is semantically vacuous, and thus unable to bind. Variety (ii) needs to enter a special relation with some other element, as result of which a [–interpretable] fea-ture (i.e., one which can cause a derivational 'crash' if it reaches the semantic interface), is 'checked off', that is, eliminated. Crucially, Watanabe assumes that the IH, which he views as being of category QP, must establish a checking relation with the external D. This implies that some feature on the IH must enter into an agreement relation with some feature on the external D under the probe-goal relation, and since this agreement mechanism is viewed as island-sensitive, IHRCs with checking are predicted to be island-sensitive.

With respect to island-insensitive IHRCs, I believe the above approach is essentially on the right track, insofar as it incorporates the insight (due to Williamson 1987) that the IH may not be locally bound, and the view (due to Bonneau 1992) that it may be involved in a long-distance island-insensitive relation, *due to the semantically vacuous status of the IH's D.* With respect to island-sensitive IHRCs, however, I believe that an

approach that relies exclusively on a *syntactic* relation between the IH and the external D suffers from a number of empirical drawbacks (in addition to being, as far as I can see, essentially stipulative). First, as will be seen in section 3.2., there exist IHRCs in which there is no IH in the syntactic representation, so that the proposed checking operation cannot take place. Second, as will be pointed out in sections 3.2. and 4, there are arguably two distinct motivations for island-sensitivity, which correlate with distinctions in the scope of quantified IHs and reveal themselves under the semantic approach to typology I will propose, but are lost under Watanabe's approach. These reservations notwithstanding, I do not view Watanabe's proposals as being entirely on the wrong track. What I think is right about them is the partial sensitivity to semantics that is indicated by the italicized remark above and that will play an important part in the typology I will argue for in ensuing sections.

In contrast to Watanabe's, Hiraiwa's (2005, 2008, 2009) typology is, as far as I can determine, independent of semantic considerations; in fact, Hiraiwa himself (2005, section 5.11.) plainly states that '[t]his chapter does not address the computation of the semantic interpretation of HIRC.' In the formulation of this typology, properties of the IH play no role, the typology relying entirely on properties of the CP-external material, and in particular, of *overt* CP-external material. Thus, Hiraiwa proposes a binary typology, according as the overt external material has the syntactic status of (i) Determiner or of (ii) Nominalizer or Complementizer (the two sub-classes are called D-type and NML-type respectively).

A first objection I have to this classificatory criterion is that the reliance on overt material coupled with the lack of a (semantic or other) language-independent characterization of the notions 'complementizer', 'nominalizer', and 'determiner', it is unclear that the proposed binary split has any interesting consequences, and therefore that a typology is called for in the first place. In fact, Hiraiwa himself (2005, section 5.8.1.) seems to attribute no profound significance to his proposed split in that he states that the two strategies are in fact instances of the same mechanism, whose *raison d'être* is to assign nominal status to the IHRC, and to ensure that Case is checked only once. The only hint I was able to find at the possibility that sub-classes may be correlated with more significant properties is in Hiraiwa (2008, fn. 2), but nothing of substance is proposed there, the investigation of this issue being entirely left to 'future research.'

The lack of significance of the label attached to overt CP-external material can be prominently appreciated by noting the following facts: In the Navajo example (5.98) of Hiraiwa (2005) (= (29) in Platero 1974), the suffix-ę́ę at the right edge of the IHRC is glossed as 'Rel', in keeping with Platero's own glossing, who explicitly characterizes this item as a 'relative complementizer' (p. 202). However, in the Navajo example (4b) of Hiraiwa (2008) (= 12 in Platero 1974), the suffix-ą́ą, which Platero also glosses as 'Rel', is now glossed as 'D'; the probable reason for this shift can be found in a statement made in Barss et al. (1991, section 1), a work that Hiraiwa also cites in connection with this example, and where the morphemes –yígii (iígii) 'nonpast' and yę́ę (-ę́ę, -ą́ą) 'past' are referred to as forms of 'the definite determiner.' The fact that Navajo could 'shift' with such ease from one of Hiraiwa's types to the other is indicative of the lack of depth of the label attached to these two types – For completeness, I also wish to note that the characterization of the suffix at issue as a *definite* article, while presumably appropriate in other contexts, is not to be taken at face value in relation to IHRCs, because IHRCs carrying it may also exhibit non-specific indefinite force, as in the following example, kindly provided to me by Ellavina Perkins (p.c.).

(4) [Bilasana hazho'o tanasgis-**ígíí**] nisin.
 apple carefully washed-REL 1-want.
 'I want an apple that is well washed.'

A second objection I have to Hiraiwa's typology is that the CP-external morphemes on which it relies sometimes fail to reveal typological distinctions. Thus, Hastings (2004) shows in detail that the IHRCs of Cuzco Quechua come in two semantic varieties (in particular, those that will be discussed in section 3.2. and 4 below). However, this important distinction is in no way reflected in the CP-external morphology, which exhibits the same nominalizing affix in both types.

A third objection I have to Hiraiwa's proposals concerns the Gur languages, which, as noted in section 1, constitutes the principal focus of his work on IHRCs. In section 5.2. of Hiraiwa (2008), it is explicitly predicted that 'if an overt D is not projected, HIRCs should be prohibited', and thus that those Gur languages that license IHRCs should not allow indefinite IHRCs, a prediction Hiraiwa claims is confirmed (see his (35)–(37), in particular, the example (36a) from Mooré). However, Emmanuel Nikiema (p.c.), a native speaker of Mooré, assures me that indefinite IHRCs are possible in this language, and provides the supporting data in (5):

(5) a. m mii [rawã sen seg **biig a ye**]
 I know the man REL meet child one
 ''I know one child that the man met.''
 b. m mii [rawã sen seg **biiga**]
 I know the man REL meet child.indef.
 ''I know a child that the man met.''

He also stresses that in order to achieve such readings, there must be no overt D at the right of the relative clause. This state of affairs is damaging for Hiraiwa's characterization of the necessary conditions for IHRCs in the Gur languages, which, as noted earlier in this paragraph, include the condition that an overt D must be projected.

Summarizing what has been established in this section, Hiraiwa's typological proposals have little to recommend them. As for Watanabe's proposals, while not optimal in my view, they nonetheless contain ingredients that seem to be on the right track, and which will be incorporated, with substantive modifications and substantial addenda, into the typology I will develop in ensuing sections.

3. The Two Semantic Classes of IHRCs

The remainder of this paper is devoted to presenting a classification of IHRCs from a combined syntax-semantics perspective, and to arguing that such an approach can go a great deal further in revealing interesting typological distinctions than the approaches discussed in section 2. As a preamble to this task, it will be useful to outline the major semantic types of relative clause constructions that have been recognized in earlier literature on the basis of syntactic constructions of a different sort, using English EHRCs for illustration.

Traditionally, relative clauses were semantically classified as *restrictive* and *appositive*. The distinction can be appreciated in relation to the EHRCs in (6).

(6) a. At the party, I saw only [three *boys* **who had beards**]. ← **restrictive**
 b At the party, I saw only [three *boys*, **who had beards**]. ← **appositive**

In both examples, the noun in italics restricts the denotation of the bracketed expression to boys, but it is only in (6a) that the boldfaced clause imposes a further restriction. Thus, (6a) allows for the possibility that the speaker saw additional boys, but beardless ones, while [6b] claims the speaker saw no more than three boys.

Over the last 35 years or so, a number of studies have argued for the recognition of a third semantic type, which appears to be manifested in a wide variety of syntactic garbs; for a survey of the literature up to the year of its publication, see Grosu (2002). For present purposes, we may roughly and informally characterize the third type as a sort of converse of the appositive type, in the sense that the denotation of the construction is fully defined within the relative clause, rather than within the matrix, as it is in appositives. This can be appreciated in relation to the EHRC in [7], whose special properties were initially pointed out by Carlson (1977) (for a formal analysis of this construction, see Grosu & Landman 1998).

(7) I suddenly noticed [the three books that there were on your desk].

The rough import of (7) is something like ''there were exactly three books on your desk, and I suddenly noticed them.''

The fact that the denotation of the bracketed construction is fully defined within the relative clause has (at least) two noteworthy consequences that distinguish this type from restrictive and appositives, and which can serve as 'diagnostics' for identifying the type.

First, third-type constructions are felicitous only with a definite or universally quantified interpretation, an existentially quantified (indefinite) construal being infelicitous. To illustrate, if *the* is suppressed in (7), the result is degraded in acceptability. This is not the case in (6a-b), which are fine despite their indefiniteness (for completeness, I note that restrictives allow the full range of quantificational forces, and that appositives also allow definite Ds). A plausible explanation for this effect (suggested in Grosu 2002) is that an indefinite version of the bracketed expression in (7) would fail to capture some of the information established within the relative, in particular, that there were exactly three books on the desk, by leaving open the possibility that there might have been additional books there. Grosu (2009) refines this characterization by noting that the information established within the relative has the status of a presupposition at the level of the matrix, and that existential quantification of the EHRC, in contrast to definite or universal quantification, would fail to 'acknowledge' the full extent of the presupposition, thereby running afoul of a more general principle dubbed 'Maximize presupposition' in Heim (1991). In view of the necessarily definite or universal import of third-type constructions, we will call the constructions under consideration 'maximalizing relatives' (following Grosu & Landman 1998).

Second, iterated (or 'stacked') third-type relatives differ in interpretation from iterated restrictives or appositives. The differences can be gathered from the examples in (8).

(8) a. At the party, I saw only [three boys who had beards **who wore no clothes**].
     b. At the party, I saw only [three boys, who had no beards, **who had no hair, either**].
     c. I suddenly noticed [the three books *that there were on your desk* **that (*there) had earlier been on my desk**]

In (8a), the boldfaced restrictive relative further restricts the denotation of the construction, leaving open the possibility that the speaker may have seen additional

bearded boys who were clothed; in slightly more technical terms, the interpretation of this example relies on the *intersection* of three predicates (construed as sets of entities), namely, the noun *boys* and the two relative clauses. In (8b), the boldfaced appositive provides additional information (subject to certain pragmatic 'coherence' requirements that need not concern us here); the denotation of the bracketed expression remains confined to three boys. In (8c), the boldfaced relative is unacceptable in its full version, because the denotation of the construction is already fully determined by the italicized relative, leaving no interpretation for it (except as a correction of the italicized relative, in which case, it needs to be preceded by comma intonation); the reduced version of the boldfaced clause does not induce unacceptability, because it is construable as an 'extraposed' restrictive relative that modifies the EH, a state of affairs that leaves open the possibility that there may have been additional books on 'your' desk which had not earlier been on 'my' desk.

Having hopefully clarified the basic semantic properties of the three types, we now turn to IHRCs, which, as far as I can tell at the moment, can only be either restrictive or maximalizing (*pace* earlier claims that they may also be appositive, a point to which I return in section 3.2.). This state of affairs illustrates one half of a generalization stated in section 1, namely, that not everything that is expressible by EHRCs is also expressible by IHRCs. The other half of the generalization, that is, that not everything expressible by IHRCs is also expressible by EHRCs, will be illustrated in section 3.2.

One final *caveat* before proceeding: one would naturally want to pinpoint observable syntactic properties from which the various semantic types can be inferred. This state of affairs is probably rarely attainable, and not only in relation to IHRCs, since syntax and semantics are often 'mismatched' in some way, something that led Landman (2003) to the following quip (based on Tolstoi's *Anna Karenina*): 'All perfect matchings [between syntax and semantics] are alike, each mismatch is interesting in its own way.' For the purposes of this study, I have chosen the languages used for illustration with a view to maximizing the transparency of the syntax-semantics connection, but the reader should keep in mind that a perfect match is a tall order in general, and that in the specific case of IHRCs, it is rarely, if ever, attainable.

3.1. RESTRICTIVE IHRCS

The restrictive type comes in two varieties, in which the syntax-semantics connection is, respectively, (relatively) transparent and opaque. The latter variety will be discussed in section 4, the former is discussed in this section on the basis of a language with a highly transparent syntax-semantics connection, at least insofar as IHRCs are concerned, specifically, Lakhota (this language has no EHRCs). I rely primarily (with one proviso indicated below) on Williamson (1987).

Unlike Navajo, which exhibits the same clause-external morphology in both definite and indefinite constructions (see section 2), Lakhota has a highly differentiated determiner system, and thus distinguishes such constructions overtly, as shown in (9a-b) (=Williamson's (4a) and (23a) respectively). For completeness, I note that Lakhota allows the entire range of semantically strong Ds in relative-external position, a fact not fully illustrated in Williamson's article, but brought to my attention by Janice Williamson (p.c.), and illustrated in (9c). Furthermore, Williamson notes that the strong Ds are all prohibited in clause-internal position as local binders of the IH:

(9) a. [Mary owížą *wą* kağe] ki   he ophewathų
      Mary quilt   a   make Def Dem I-buy
      'I bought the quilt that Mary made.'
   b. [Thaspa wą-ži taya yužaža] *cha*   wachi
      apple   a-Irr well wash   Indef I-want
      'I want an apple that is well washed.'
   c. Ed [šukawakha othehika pi] {ki, ihuya (ki), ota-hča,} wichayuha
      Ed horses   expensive Pl the all   (the) most   own–them
      'Ed owns {the, all (the), most} horses that are expensive.'

The fact that Lakhota IHRCs allow the full range of quantificational forces – in particular, existential force – shows that they do not belong to the maximizing type; note in particular (9b), where the IHRC has non-specific indefinite force. Furthermore, (10) (=Williamson's (10b)) shows that IHRCs may stack with restrictive/intersective import. These two facts jointly point to the conclusion that the IHRCs of Lakhota are (or at least, can be) restrictive.

(10) [[Ogle eya   šapšapa *cha*] agli   pi wachi] ki lena e
      shirt some dirty   Indef take-home Pl I-want the these be
      'These are the shirts that are dirty that I want them to take home.'

The prohibition of strong determiners in local association with the IHs is a fundamental characteristic of this type, and prominently distinguishes it from the types discussed in sections 3.2. and 4. Williamson points out in her section 7.3.2. that this 'indefiniteness effect' receives a straightforward explanation once an ambiguity in the term 'indefinite' is taken into account. Thus, 'indefinite' expressions, such as *a quilt* or *two doctors*, can function as predicates, as in (11a), as existentially quantified arguments, as in (11b), or as proper subparts of an argument that exhibits an overt strong D, as in (11c).

(11) a. The persons now operating on the patient are *two doctors*.
   b. *Two doctors* are now operating on the patient.
   c. The *two doctors* are now operating on the patient.

Items like *a* or *two* have sometimes been called 'weak determiners' (Milsark 1974), but the current consensus is that *two* in (11c) can only be viewed as an adjective of some sort, since the D position is filled by the strong D *the,* which determines the semantic force of the construction. With respect to (11a-b), however, the status of *two* is less straightforward, and arguably illustrates one of the syntax-semantics mismatches that I alluded to in the conclusion to section 2. Thus, Landman (2003, section 3) brings up data like (12) (adapted from his (4)-(5)).

(12) a. The animals in the shipment were {fifty ferocious, *ferocious fifty} lions.
   b. {Fifty ferocious, *ferocious fifty} lions were shipped to Blijdorp.
   c. We shipped the {fifty ferocious, ferocious fifty lions to Blijdorp (and the {thirty meek, meek thirty} lions to Artis).

These data show that weak determiners may appear in either order relative to incontrovertible adjectives when the D position is filled by a strong D, as in (12c), but not when a strong D is absent. Landman proposes on this basis that expressions like those italicized in

(11a–b) are not mere NPs, but DPs with a semantically vacuous D, which must be filled by a weak determiner, if there is one. This thesis seems to me well-motivated, and I wish to add the observation that some weak determiners seem to *have to* fill the syntactic D position, since they may not co-occur with a strong determiner, for example, *the (*a) man*. In short, there seem to be good reasons for assuming that the italicized expressions in (11a,b) are syntactic DPs. However, this state of affairs has no implications for the semantics. In (11a), the expression under consideration needs to undergo abstraction in order to function as a semantic predicate, and in (11b), the relevant expression needs to undergo Existential Closure in order to function as an existentially quantified argument.

The points made in the preceding paragraph are directly relevant to Lakhota. As it happens, this language uses morphologically distinct indefinite articles with simplex nominals and with IHRCs, as illustrated by the italicized items in (9a) and (9b) respectively, but both articles are excluded in the presence of a strong determiner within the same minimal nominal expression; thus, 'the quilt' can only be rendered by the reduced version of *owįža (*wą) ki*, and (9a) becomes ungrammatical if a token of *cha* is inserted to the immediate left of *ki*; in contrast, the internal token of *wą* and the external token of *ki* in (9a) are compatible with each other, because they belong to different DPs.

Turning now to semantic considerations, the indefinite IHRC in (9b) must undergo Existential Closure, since it occurs in argument position and is construed with existential force. The IH in (9a) must not undergo closure, and must retain predicate status, since the CP-external strong determiner would otherwise have no variable to bind. Importantly, all IHs in Lakhota must have predicate status, so that the variable they restrict should be accessible to CP-external strong Ds or Existential Closure. This requirement extends to complex IHs, such as the phrase within the smaller pair of brackets in (10); in general, only the maximal IHRC in a stacked construction may exhibit strong Ds or undergo Existential Closure, all IHs within them, whether simplex or complex, must have predicate status.

Taking stock of what has been established so far, the Lakhota IHRC in (9a) and the English EHRC in the translation of this example differ syntactically in that the former has a CP-internal pivot of category DP and the latter, a CP-external pivot of category NP. Both pivots have, however, the same semantic interpretation, and the compositional interpretation of the two examples differ only with respect to the stage in the semantic derivation at which the meaning of the pivot combines with the meaning of the (remainder of the) relative clause. Thus, both the Lakhota CP *Mary owįža wą kağe* and the complex NP *quilt that Mary made* in the fluent English translation receive the interpretation in (13), and following the combination of these constituents with the definite article, the two complex DPs end up synonymous.

(13) $\lambda x.\text{MADE}(\text{MARY}, x) \;\&\; \text{QUILT}(x)$
     [in words: the set of entities that are quilts and that Mary made]

The only difference between the two derivations concerns the steps that lead to (13). In Lakhota, we may assume that the relative CP has, prior to abstraction, the translation MADE(MARY, x) & QUILT(x), to which a single operation of abstraction applies, simultaneously binding the two tokens of x. In English, it is usually assumed that abstraction applies separately to CP and NP, yielding $\lambda x.\text{MADE}(\text{MARY}, x)$ and $\lambda x.\text{QUILT}(x)$, and that the two abstracts combine by coordination, yielding (13).

What has just been said makes possible a refinement of the syntactic account suggested by Bonneau (1992) and espoused by Watanabe (2004) (see section 2), which relies on

long distance binding by a D. From a compositional semantic perspective, such a mechanism makes little sense, given the characterization of determiners as functions of logical type <<e,t>,<<e,t>,t>>, that is, as functions *from predicates* to functions from predicates to truth values. From this perspective, it makes no difference whether the predicate that serves as argument of the determiner is of category NP, as in English EHRCs, or of category CP, as in Lakhota. In the latter case, the only long-distance mechanism needed within the analysis I have suggested is abstraction, whose ability to operate long-distance is amply motivated on independent grounds. In short, no language-specific long-distance binding by determiners needs to be added to linguistic theory.

Returning now to syntactic considerations, Williamson observes that the IHRCs of Lakhota are insensitive to the so called Complex Noun Phrase Constraint (CNPS, Ross 1986). As illustration, she offers the example in (14) (= her (15b)), where the island is the constituent within the less inclusive pair of brackets (in effect, an IHRC internally headed by the italicized expression). The constituent within the more inclusive pair of brackets is an IHRC internally headed by the expression in boldface; note that the location of the boldfaced constituent is in violation of the CNPC, but without resulting unacceptability.

(14) [[*Wichota*   **wowapi wa** yawa pi cha] ob   wo?uglaka pi ki]
      many-people paper   a   read Pl Indef with speak-we Pl the
      he L.A. Times e
      it   is
     'The paper that we talked to many people who read ***(it)** is the *LA Times*.'

In discussing Watanabe's (2004) typology, we noted that he attributed the island-insensitivity of certain IHRCs to the island-insensitivity of long-distance binding. The effect at issue is captured equally well by abstraction, which is independently known to be island-insensitive. To illustrate, the full version of the English translation of (14) is acceptable in those idiolects that tolerate resumptive pronouns, and comparable data are fine in languages where relativization with resumptive pronouns is a dominant strategy (e.g., in Modern Hebrew). The explanation usually provided for the contrast between data like the full and the reduced version of the English translation of (14) is that the full version makes no use of syntactic movement (which is island-sensitive), while the reduced version does. In sum, if abstraction is the only long-distance process operating in Lakhota IHRCs, their island-insensitivity is unsurprising.

For the reason just indicated, the acceptability of (14) is in conflict with an additional proposal made by Williamson, namely, that the IH needs to undergo covert raising to a relative-external position. This proposal is motivated by (i) the observation that negative polarity items typically need to be licensed by a clause-mate token of sentential negation, and by (ii) the claim that when such items function as IHs, the licensing token of negation can only be in the matrix. (ii) relies on Williamson's example in (15) (= her (21)), whose (alleged) acceptability is accounted for by an analysis that involves raising of the IH into the matrix, if it is also assumed that the clause-mate requirement holds at the level of Logical Form. However, as already noted, the assumption of covert raising is in conflict with island-insensitivity.

(15) [Šų̓ka **wą̓žini** ophewathų̓] cha sape **šni**
      dog a-not   bought.I   Ind black Neg
     'No dog that I bought is black.'

Basilico (1996, section 7) notes this problem, and endeavors to circumvent it by means of an elaborate alternative analysis. There are, however, good grounds for concluding that there is no need to circumvent anything, because the data on which Williamson's raising proposal relied appear to be incorrect. Thus, Regina Pustet, who has devoted many years to the study of Lakhota with large numbers of native consultants, informs me (in a p.c.) that she has never encountered data like (15) in all her years of contact with Lakhota, and that all her native consultants unanimously and unhesitatingly reject (15). She furthermore kindly brought to my attention the fact that the only way to express something relatively close to the intended meaning of (15) is by means of the partitive construction in (16), where – crucially – both the negative polarity item and the token of negation are clause-mates in overt representation. There is thus no need to assume covert displacement of the IH, at least insofar as the licensing of negative polarity items is concerned.

(16) [Šúka eya   ophewathų] ki **wąžini** sape **šni**
        dog some.Pl bought.I   the a-not   black Neg
     'None of the dogs I bought is black.'

For the sake of completeness, I note that what was said in the preceding paragraph does not imply that there can be no other reasons for assuming some form of covert raising of the IH, in particular, raising to a sufficiently low position to induce no island violation. For example, Basilico (1996) observes that if one assumes Diesing's (1990) theory, in particular, the view that indefinite arguments within VP necessarily undergo Existential Closure, one needs to assume covert raising of the IH high enough to get it out of VP, in order to ensure that it remains available for long-distance binding (by a CP-external D). This conclusion depends, of course, on the strength of Diesing's theory, concerning which a number of scholars have expressed some doubts (see, e.g., Landman 2004). However, since the point raised by Basilico is orthogonal to the issues with which this section is concerned, we need take no position on this matter, and I will thus put it aside.

   Taking stock of what has been established in this section, the IHRCs of Lakhota may exhibit the full range of quantificational forces in virtue of either Existential Closure or CP-external strong determiners, which – importantly – take scope from their surface position; in contrast, IHs cannot be locally bound by either strong determiners or Existential Closure, and end up restricting the predicate denoted by the relative CP. These two properties jointly determine a *restrictive* semantic status for IHRCs, which is reflected in the availability of existential force and of stacking with intersective import. Moreover, there are no known grounds for assuming long-distance raising of the IH, so that its ability to occur within syntactic islands without degradation is unsurprising.

   As far as I can tell, the same constellation of properties seems to be found in (at least some) Yuman languages, in particular, in Mojave, with the proviso that this state of affairs is a bit harder to read off the surface structure in view of the absence of a morphologically richly diversified determiner system. To illustrate, note first that a variety of data brought up in Munro (1976) (e.g., those reproduced in Basilico 1996 as examples (6)-(9)) are translated into English with definite expressions. One may be tempted to trace this interpretation to the fact that IHRCs exhibit the suffix n^y, which elsewhere has demonstrative force, and is in fact glossed as Dem. However, this morpheme does not have definite force in IHRCs, because it also occurs in incontrovertibly non–specific constructions, as Pamela Munro (p.c.) kindly informed me, providing the illustration in (17a). Furthermore, it also occurs with every relative clause in stacked constructions, and

since such constructions have intersective import, as can be seen in (17b) (= (64) in Munro 1976), the non-maximal clauses cannot be closed by a definite article. It thus seems clear that this item, if a D, is unspecified for definiteness (much like the item glossed 'Rel' in the Navajo example (4)), and that the (in)definite force of IHRCs is contextually determined.

(17) a. ['-avhay nyany lu:vi:c-n^y]   -'a:r-m
         1-dress   that   resemble-Rel 1-want-Tns
         'I want to have a dress of mine that resembles that (one).'
     b. [[tunay   pi:pa   ?-u:yu:-n^y] hatčoq k^{y}o:-n^y-č]   poš ka?a:k-k
         yesterday person I see-Dem dog   bite-Dem-Subj cat kick-Tns
         'The man I saw yesterday whom the dog bit kicked the cat.'

The fact that the IHRCs of Mojave may have existential force and allow stacking with intersective import clearly points to restrictive semantics. Furthermore, much as in Lakhota, an IH may occur within a syntactic island without resulting unacceptability (see example (70) in Munro 1976, reproduced as (24) in Basilico 1996), presumably, for the same reason.

3.2. MAXIMALIZING IHRCS

The maximalizing type will be discussed in relation to Japanese, a language in which at least some of the properties that crucially distinguish its IHRCs from those discussed in Section 3.1. are transparently reflected in overt representation. An additional reason for choosing Japanese to illustrate the maximalizing type is that its IHRCs have been addressed most extensively in earlier literature, and from a variety of perspectives, for example, the syntactic, semantic and/or pragmatic perspective. At the same time, it needs to be noted that IHRCs do not constitute the 'dominant' relativization strategy in Japanese, in the sense that while all the speakers seem to allow EHRCs, some do not allow IHRCs at all, and those who do allow them fall into groups that exhibit variation as to the range of IHs they allow (for details, see Grosu & Landman 2012). Furthermore, as noted by Kuroda (1975–1976), the IHRCs of Japanese − in contrast to its EHRCs − are subject to a pragmatic requirement which he dubbed 'The Relevancy Condition', a constraint that makes it (at least potentially) more challenging, but also more interesting, to study some of the properties of these relatives; in particular, those properties that can in principle be attributed to either grammatical or pragmatic factors. The condition will be made explicit and illustrated later in this section (see (26), (27) and surrounding text)[2].

Unlike those of Lakhota, the IHRCs of Japanese do not exhibit overt CP-external Ds, although there are grounds for assuming that a null D may be present (see, e.g., Watanabe 2006 for arguments that Japanese nominal constructions in general are endowed with a D, which occasionally, although not always, houses an overt item). Be this as it may, Japanese IHRCs invariably have definite force, an important property first pointed out by Hoshi (1995). A crucial property that overtly distinguishes the IHRCs of Japanese from those of Lakhota is that the IHs are sometimes bound by strong Ds *that occur within the relative and − importantly − have relative-internal scope* (they can furthermore also be bound by Existential Closure with relative-internal scope). The contribution of the IH to the semantics of the IHRC can thus not be of the same kind as in Lakhota, and this important issue will be prominently addressed in this section.

The CP-internal scope of quantifiers binding the IH contrasts with the matrix scope of quantifiers binding the EH of EHRCs, as illustrated by the following data (adapted from Shimoyama 1999), where (18)-(19) exhibit EHRCs, and [20]-[21], IHRCs.

(18) Taro-wa [[Yoko-ga reezooko-ni __ irete-oita] **hotondo-no kukkii-o**]
     Taro-Top Yoko-Nom fridge-Loc   put-Aux   almost-all-Gen cookie-Acc
     paatii-ni motte itta.
     party-to   brought
     'Taro brought to the party almost all the cookies that Yoko had put in the fridge.'

(19) Taro-wa [[Yoko-ga reezooko-ni __ irete-oita] **kukkii-o hotondo**]
     Taro-Top Yoko-Nom refrigerator-Loc put-Aux   cookie-Acc almost-all
     paatii-ni motte itta.
     party-to   brought
     'Taro brought to the party almost all the cookies that Yoko had put in the fridge.'

(20)[3] Taro-wa   [[Yoko-ga reezooko-ni **hotondo-no kukkii-o**
     Taro-Top   Yoko-Nom fridge-Loc   almost-all-Gen cookie-Acc
     irete-oita]-no-o   paatii-ni   motte itta.
     put-Aux-NML-Acc party-to   brought
     'Yoko put almost all the cookies in the fridge and Taro brought {them, *some} to the party.'

(21) Taro-wa [[Yoko-ga reezooko-ni **kukkii-o hotondo** irete-oita]-no-o
     Taro-Top Yoko-Nom refrigerator-Loc cookie-Acc almost-all put-Aux-NML-Acc
     paatii-ni motte itta.
     party-to   brought
     'Yoko put almost all the cookies in the fridge and Taro brought {them, *some} to the party.'

Assume there are ten cookies on the kitchen table, and Yoko put nine of them in the fridge. In that situation, (18) and (19) are true if Taro brought to the party almost, but not quite, all of the cookies in the fridge, say, eight of them. In contrast, (20) and (21) are true only if Taro brought to the party *all* the cookies in the fridge, that is, the nine put there by Yoko. The semantic contrast between (18), (19) and (20), (21) is a consequence of the more general fact that Japanese seems to be a language in which – roughly put – quantifiers 'wear their scope on their sleeves' (on this point, see, e.g., Hoji 1985 and references therein), so that in the data at issue, what you see is essentially what you get.

For completeness, I note that in data like (18) and (20), the quantifier *hotondo* is usually viewed in the literature as being essentially *in situ,* and as incontrovertibly forming a DP constituent with the noun it modifies. In (19) and (21), on the other hand, it is viewed as being 'floated' away from its *in situ* position, and this raises the issue of whether the quantifier is adnominal or adverbial (i.e., a sub-constituent of DP or VP), an important distinction, because it can in principle affect meaning[4]. In the example in (22) (kindly provided by Koji Hoshi), there are two tokens of *hotondo* in distinct terms of a coordinate

structure, and these can only be adnominal, since *to* can only conjoin nominal expressions, and in any event the same adverb does not normally occur twice in the same sentence.

(22)] Taro-wa [Yoko-ga reezooko-ni **kukkii-o hotondo to**
Taro-Top Yoko-Nom fridge-Loc **cookie-acc almost–all and**
kyandii-o hotondo irete-oita]-no-o paatii-ni motte itta.
candy-acc almost–all put-aux-no-acc party-to brought
'Yoko put almost all the cookies and almost all the candies in the fridge and Taro brought them (= all the cookies and candies in the fridge) to the party.'

The data in (22), in conjunction with the fact that there is no difference in meaning between (18) and (19) (or between (20) and (21) for that matter), as Koji Hoshi kindly informed me (p.c.), point to the conclusion that the quantifiers in (19) and (21) are (or at least can be) adnominal. For completeness, I note that this conclusion is arguably rein-forced by a great deal of past literature concerning floated *weak* quantifiers, in particular numerals, concerning which it has been maintained that they need to be locally associated in some way with (argument) NPs (see, e.g., Inoue 1978, Fujita 1994, for specific discus-sion of this issue in relation to IHRCs, see Hoshi 1995, section 2.2.4.1.2.).

The fact that (20)–(22) necessarily say that Taro brought to the party the totality of cookies (and candies) in the fridge reveals their necessarily definite force, which consti-tutes a diagnostic for maximalizing status, as noted in Section 2. That they also satisfy the other diagnostic (i.e., impossibility of stacking with restrictive/intersecting import) can be appreciated in relation to (23), kindly constructed by Koji Hoshi (p.c.).

(23) [John-ga [Mary-ga **omosiroi ronbun**-o kaita-no]-o
John-Nom Mary-Nom interesting paper-Acc wrote-NML-Acc
{yonda, kaizensita-no}-ga sokuzani *LI*-ni zyurisareta.
{read, improved}-NML-Nom unhesitatingly *LI*-Loc was-accepted
'Mary wrote an interesting paper, John {read, improved} it, and it was unhesitatingly accepted by *LI*.'

This example is the closest that one may come to creating a 'stacking construction', but it should be noted there are no stacked *clauses*, because the more deeply embedded brack-eted constituent is a full-fledged IHRC, that is, a Case-marked DP that serves as direct object of the immediately higher verb. In contrast to the Lakhota example in (10), the higher IHRC does not purport to denote a proper subpart of some sum of papers written by Mary, but simply the paper she wrote on the version with *yonda* 'read', and the paper with modifications made by John on the version with *kaizensita* 'improve'[5].

Having shown that Japanese IHRCs are maximalizing and distinct from restrictive rela-tives, it seems important to clarify how they differ from appositives (in view of a number of past suggestions that they might be 'non-restrictive' in the sense of being appositive). In English and other languages with post-nominal EHRCs, appositives are typically set off from the matrix by flanking pauses; this is, however, not a necessary property of appositive modifiers in general, since it is not found in languages with pre-nominal EHRCs (such as Japanese is). What crucially distinguishes appositives from maximalizing constructions is that the denotation of the construction is fully characterized by the matrix in the former case, and by the relative in the latter (for a similar remark, see Hoshi 1995,

Chapter 3, footnote 7)[6]. To illustrate, note that (24a) is true just in case Anthony caught exactly two thieves last night, and false otherwise; this is brought out by the fact that (24b) is not a felicitous continuation. In contrast, (25a) is compatible with the possibility that Anthony may have caught additional thieves last night, so long as they were not running away; accordingly, (25b) is a felicitous continuation.

(24) a. Anthony caught exactly two thieves last night, who were running away.
   b. Furthermore, he also caught last night two thieves who were hiding outside the prison.

(25) a. Sakuya   Anthony-wa   [dorobou-ga tyoodo futa-ri
      last night Anthony-Top thief-Nom   exactly two-cl
      nige-teiru-no]-o   tsukamae-ta.
      run.away-prog-no-acc catch-past
      'Last night, exactly two thieves were running away, and Anthony caught them.'
   b. Sosite sarani   sakuya   Anthony-wa   rooya-no   soto-de
      and furthermore last night Anthony-Top prison-Gen outside
      kakureteiru doroboo-mo futari   tukamaeta.
      were-hiding robber-also   two-cl caught
      'And, furthermore, last night, Anthony also caught two thieves who were
      hiding outside the prison.

Before turning to the analysis of Japanese IHRCs, it seems appropriate to note that their maximalizing status has been challenged, in particular, by Kubota & Smith (2007), who claimed that these constructions could be either definite or indefinite, depending on context. In support of this claim, they offer data of the kind illustrated in (26) (= their (9), with inconsequential modifications); the fluent English translations are theirs.

(26) a. (At the security check of an airport:)
      Dono   zyookyaku-mo   [pro poketto-ni koin-ga hait-te i-ta] no]-o
      every   passenger   pocket-Dat coin-Nom in be-Past NL-Acc
      toridasi-te torei-ni nose-ta.
      pick.up   tray-Dat put-Past
      'Every passenger picked up the coins that she/he had in (her/his) pocket and put
      them on the tray.'
   b. (At the ticket gate of a train station:)
      Dono   zyookyaku-mo   [[pro saifu-ni kaisuuken-ga hait-te i-ta] no]-o
      every   passenger   wallet-Dat coupon.ticket-Nom in be-Past NL-Acc
      toridasi-te kaisatu-ni ire-ta.
      pick.up ticket.checker-Dat put-Past
      'Every passenger picked up a coupon ticket that she/he had in (her/his) wallet
      and put it in the ticket checker.'

Kubota & Smith observe that (26a,b) can both be appropriately used in situations where every passenger had more than one coin/coupon in his/her pocket, with the difference that the natural interpretation of (26a) is that each passenger put *all* the coins in his/her pocket on the tray, while the natural interpretation of (26b) is that each passenger put only *one* ticket into the machine. On the basis of this and other comparable data, Kubota

& Smith conclude that Japanese IHRCs are unspecified for (in)definiteness, and that preferred readings one way or the other are coerced by the pragmatic context.

There are, however, good reasons for doubting that IHRCs can be indefinite. First, observe that in (20)–(21), pragmatics in no way favors a definite over an indefinite reading, and nonetheless the latter is impossible, as shown in the English translations. Even more seriously, Koji Hoshi informs me that if any specification or intimation of cardinality is added to the IH in (26a), resulting in expressions with the meaning of, say, 'twenty tickets' or 'many tickets', the definite reading becomes the only option; that is to say, if the IH is construed as 'twenty tickets', (26b) has only the absurd reading that every passenger stuck twenty tickets into the checker. Thus, pragmatics is unable to overcome grammatically provided specifications of cardinality/size. How can one then reconcile these facts with the contrast in (26)? I submit that the alleged indefinite reading of (26b) is an illusion made possible by the absence of cardinality specifications (note that Japanese nouns are unmarked for number) and that the meaning of this example is appropriately rendered by the (rough) English translation in (27), but not by the translation provided by Kubota & Smith.

(27) Every passenger had a coupon ticket in his/her pocket, and (s)he picked it up and
      put it in the ticket checker.

My view is that pragmatics is indeed responsible for the preferred readings of (26a) and (26b), but I believe that it 'kicks in' at the level of the IH, not at the level of the IHRC. Observe in this connection that if a little boy sees an ice-cream stand and asks his father 'do you have one dollar with you?', an appropriate and felicitous answer is 'yes, I do' even if the father has more than one dollar in his wallet, and not, for example, '#no, I have twenty dollars with me.' The reason is that the additional money the father may have in his wallet is irrelevant in this context, and is in fact ignored by both participants. Similarly, (27) can be felicitously used regardless of how many tickets each passenger may have had in his/her pocket, because any tickets in excess of a single randomly chosen one are contextually irrelevant. If so, I submit that (26b) can be safely viewed as a straightforward maximalizing IHRC, in which the cardinality/size of the IH is pragmatically inferred, rather than grammatically specified. There are thus no grounds for accepting Kubota & Smith's thesis.

Having put to rest Kubota & Smith's challenge to the maximality thesis, we will now consider and compare two lines of analysis that have been proposed in the literature in an attempt to deal with the maximality effect (as well as with other properties of IHRCs).

One line, developed by Hoshi (1995) and Shimoyama (1999, 2001), essentially proposes to view the relative clause and its matrix as a discourse consisting of two sentences related by an E-type anaphoric relation (Evans 1980). What this means in effect is that data like (18) will be analyzed in essentially the same way as the two-sentence discourse found in its fluent English translation, in which the counterpart of the IH serves as antecedent of a definite anaphor in the matrix.

A second line of analysis was put forward in Grosu (2010) and significantly refined in Grosu & Landman (2012). These authors objected to a *discourse* anaphoric analysis on a number of grounds, two of which will be addressed in what follows, and proposed instead a *grammar*-based analysis, which made crucial use of the formal semantic mechanism of *quantifier-disclosure* (a generalization of a mechanism proposed in Dekker 1993). The two objections to a discourse-based analysis just alluded to were (a) that certain forms of accommodation available in discourse are unavailable in the IHRCs at issue, and (b) that these IHRCs – in contrast to discourse anaphora – are sensitive to islands, and in

particular, to the CNPC. We begin by addressing (b) in some detail (for (a), see example (39) and the immediately preceding paragraph).

Sensitivity to the CNPC was signaled as early as Watanabe (1992), but it was subsequently contested by a number of writers, for example, by Mihara (1994) and Kitagawa (2005). These writers bring up data in which IHRCs seem to violate the CNPC with impunity, and attribute the deviance of Watanabe's data to violations of Kuroda's Relevancy Condition. This condition, already mentioned earlier in this section, was stated as follows in Kuroda (1975–1976, example (6)):

(28) For a pivot–independent [i.e., head internal; AG] relative clause to be acceptable, it is necessary that it be interpretable pragmatically in such a way as to be directly relevant to the pragmatic content of its matrix clause.

Kuroda makes a number of remarks that attempt to make the notion 'directly relevant' more precise, and later writers (e.g., Kim 2007, 2008; Grosu 2010; Grosu & Landman 2012) propose further refinements. For current purposes, I will assume the added sub-condition in (29) (= Grosu & Landman's (26b')), noting furthermore that when the events at issue may be construed as causally or purposefully related, acceptability is sometimes further enhanced.

(29) The event in which the denotation of the internal head is a participant, or some state resulting from this event, must temporally, spatially, and modally intersect with the event described by the matrix clause.

To illustrate the effect of the conjunction of (28) and (29), consider the example (21), repeated below for convenience.

(21) Taro-wa [[Yoko-ga reezooko-ni **kukkii–o hotondo** irete-oita]-no-o
      Taro-Top Yoko-Nom refrigerator-Loc cookie-Acc almost-all put-Aux-NML-Acc
      paatii-ni motte itta.
      party-to   brought
      'Yoko put almost all the cookies in the fridge and Taro brought {them, *some} to the party.'

While Yoko may have put the cookies in the fridge in the morning and Taro may have taken them to the party in the evening, it may be assumed – in the absence of indications to the contrary – that the cookies were still in the fridge when Taro picked them out, so that the state resulting from the event of putting the cookies in the fridge is temporally, spatially and modally continuous with the event of taking them out. This suffices to ensure acceptability.

To further illustrate ways of satisfying (28), (29), consider (23), repeated below for convenience.

(23) [John–ga   [Mary–ga   **omosiroi ronbun**-o kaita-no]-o
      John–Nom   Mary–Nom   interesting paper-Acc wrote-NML-Acc
      {yonda, kaizensita–no]–ga   sokuzani   *LI*-ni   zyurisareta.
      {read, improved}-NML-Nom unhesitatingly *LI*-Loc   was-accepted
      'Mary wrote an interesting paper, John {read, improved} it, and it was unhesitatingly accepted by *LI*.'

Both on the version with *yonda* 'read' and on the one with *kaizensita* 'improved', the state resulting from writing the paper is temporally continuous with the onset of the process of reading/improving it, and the state resulting from the latter process(es) is temporally continuous with its acceptance by LI. Furthermore, on the version with *kaizensita*, the three clauses form a highly coherent complex event, since the writing of the paper by Mary was a necessary condition for John to improve it, and his improvements may reasonably be assumed to have contributed to its unhesitating acceptance. A comparable coherent complex event arises on the version with *yonda* as well, provided it is assumed, for example, that John was Mary's instructor and that his approval was necessary for its submission and ultimate acceptance. – For illustration of unacceptability arising from non-satisfaction of the Relevancy Condition, see Kuroda (1975-6).

We now turn to the challenges to the view that Japanese IHRCs are island-sensitive that were alluded to above. Kitagawa (2005) provides the acceptable example in (30) (= his (14)), which he attributes to Mihara (1994), and in which the presumed IH (in boldface) is internal to an EHRC embedded within the presumed IHRC (I modify Kitagawa's fluent English translation to fit the pattern adopted in this paper).

(30) [Kyoozyu-ga   [**sono daigakuinsei**-ga kaita ronbun-o] hometeita-no-ga]
      professor-Nom that grad-student.Nom wrote paper-Acc praising.was-no-Nom
      kondo zyosyu-de saiyoosareru koto-ni-natta.
      now   instructor-as hired.be   came-to-be
      'The professor praised the paper that that graduate student had written, and he (= the student) was appointed as an instructor.'

The problem with (30) is that, as Kuroda (1974) observed, constructions superficially identical to IHRCs may be interpreted as adverbial when they carry certain suffixes, in particular, *-ga*, as the constituent within the larger set of brackets in (30) does. Under an adverbial interpretation, (30) illustrates a genuine instance of discourse anaphora (with an antecedent in the adverbial and a null anaphor in matrix subject position), and since discourse anaphora is island-insensitive, the acceptability of this example is unsurprising.

For completeness, I note that Mihara (1994) in fact proposed that all 'alleged' IHRCs should be re-analyzed as adverbial, but Hoshi (1995) and Kuroda (1999) showed that this is not always possible, in particular, when the suffix on the IHRC is the Genitive Case marker *-no*.

The following example, based on data in Watanabe (1992), but with modifications introduced by Koji Hoshi (p.c.), makes it possible to check the thesis that IHRCs are sensitive to the CNPC.

(33) *Mary-ga   [John-ga   [**atarashii kasetu**-o   teianshita *gakusei*-o]
      Mary-Nom   [John-Nom   [**new hypothesis**-Acc proposed student-acc]
      hidoku   homete-ita-no]-no akirakana kekkan-o suguni   shitekishita.
      extravagantly praise-had- no]-Gen obvious defect-Acc promptly pointed-out
      'John extravagantly praised the *student* [who had proposed **a new hypothesis**] and Mary promptly pointed out an obvious defect in **it**.'

The suffix *-no* on the constituent within the more inclusive pair of brackets coerces an analysis of this constituent as an IHRC, and the phrasing has been devised in such a way as to maximize compatibility with (28), (29). Thus, the hypothesis which the student

proposed plausibly lingered after its proposal in awareness states in the minds of interested linguists, and plausibly a relevant such state temporally intersects with Mary's rebuttal; furthermore there is an obvious causal connection between John's exaggerated praise and Mary's puncturing of the balloon. In short, there seems to be no basis for attributing the deviance of this example to violations of the Relevancy Condition, and I submit that Watanabe's claim of island-sensitivity stands.

We now turn to Grosu & Landman's (2012) analysis of Japanese IHRCs. In contrast to Watanabe (1992, 2004), who tacitly assumed that any nominal expression within the relative can function as IH so long as island constraints are respected, Grosu and Landman incorporated a refined version of an observation made in Shimoyama (2001), namely, that IHs need to play *a salient thematic role* within an eventuality associated with the relative[7]. To capture this insight, they proposed to assume a functional category Choose Role (ChR), which takes a VP within the relative clause as its complement, whose distribution within Japanese and cross-linguistically is controlled by general principles that will not be detailed here (for details, see Grosu & Landman's (2012) section 2), and which has the semantic translation in (34).

(34) $[[ChR]] = \lambda E\lambda x\lambda e.E(e) \wedge C_E(e)=x$

In this formula, E is a variable over sets of events, e is a variable over events, x is a variable over individuals, and C_E is a function that picks out a contextually salient thematic role in the set of events E indicated by its subscript, and thus in its event argument e (since e is a member of E).

To see what (34) does and what facts it captures, note first that VP, the complement of ChR, denotes a set of events, call it α. Application of ChR to α yields (35) as the translation of ChR'.

(35) $[[ChR']] = \lambda x\lambda e.\alpha(e) \wedge C_\alpha(e)=x$

Now, the output of applying C_α to its argument is the value of a salient thematic role, that is, an entity or sum of entities, which gets equated with the individual variable x. Since a thematic role is typically associated with a quantificationally closed DP, the second conjunct in (34) and (35) has the effect of 'disclosing' that DP, in the sense that x can now in principle form the basis for abstraction at the relative CP level, and thus for interpreting this CP as a predicate. Why then is x already abstracted over in (34)? The reason is that, if x were left free until the level of the relative CP, there is no guarantee that abstraction at this level will target precisely x, rather than some other free variable within the relative, for example, one represented by a pronoun. The λx prefix provides the desired guarantee in the following way: To ensure that the subsequent semantic derivation is not disrupted by the category headed by ChR, the denotation of ChRP had better be of the same logical type as VP. The expression in (35) does not satisfy this desideratum, but the desired result can be achieved if the category ChRP has a Specifier that houses an individual variable, call it y, to which (35) can apply, yielding (36).

(36) $[[ChRP]] = \lambda e.\alpha(e) \wedge C_\alpha(e)=y$

However, if the element in [Spec, ChRP] is simply a free variable, we are back at square one, in the sense that there is no guarantee that the y variable will ultimately be bound

by abstraction. The minimal state of affairs that guarantees the desired result is for [Spec, ChRP] to dominate the trace of a null operator, which raises to [Spec, CP] of the relative clause in the syntax and triggers abstraction in the semantics, thereby guaranteeing that the variable abstracted over will be the y variable. Thus, while semantics cannot directly affect syntax, we may nonetheless say that disclosure 'indirectly coerces' a syntactic null operator launched from [Spec, ChRP], since without it, the introduction of the λx prefix in (34) remains a vacuous move, in violation of what may arguably be viewed as 'optimal language design' (Chomsky 2004).

The account I have outlined has the following desirable consequences: First, the null operator provides an account of the island-sensitivity of the construction. Second, the disclosure mechanism arguably provides a motivation for maximalization in the relative CP, since without it, the full effects of the equation in (34) will not be preserved in the meaning of the IHRC. Third, the semantically relevant pivot is not the IH, but the variable introduced by ChR *through equation with a salient thematic participant in an event(uality)*. Since this salient participant need not be overtly represented in the syntax (see Grosu & Landman 2012, section 4.2. for justification), the analysis under consideration effortlessly accounts for 'change' IHRCs, as in (37) (= Grosu & Landman's (28), based on (10) in Hoshi 1995, p. 121).

(37) John-wa [Mary-ga   (gozentyuu-ni)   ringo-o sibottekureta-no]-o
     John-top [Mary-nom (in-the-morning) apple-ac squeezed-no]-acc
     (gogo-ni)   hitoikide nomihosita.
     in-the-afternoon in-a-gulp drank-up
     'Mary squeezed apples (in the morning), and John drank it [= the juice produced by squeezing the apples] in a gulp (in the afternoon).'

Fourth, by launching the null operator from [Spec, ChR], rather than from [Spec, DP] of an overt IH (as in Watanabe 1992), the analysis at issue accounts for the fact that change IHRCs like (37) also exhibit sensitivity to the CNPC, as illustrated in (38), kindly provided by Koji Hoshi (p.c.). – Note that data like (37) and (38) are beyond the reach of the analyses in Watanabe (1992, 2004).

(38) *Mary-wa   [[Bill-ga   [[oisisoona gureepu-o sibotta]   kokku-ni
      Mary-Top Bill-Nom delicious   grapes-Acc squeezed   cook-Dat
      tyuui-o mukesaseta]-no]-no azi]-o   temote yorokonde tanosinda.
      attention-Acc turned-NL-Gen taste-Acc with-great-pleasure enjoyed
      'Bill drew Mary's attention to a/the cook who squeezed some delicious grapes, and she greatly enjoyed the taste of it [= the resulting juice].'

Fifth, the analysis accounts for the contrast in (39) (= (33) in Grosu & Landman 2012), in particular, for the impossibility of accommodation in (39b), because the students who had not come to the party are not salient participants in any event denoted by the relative clause.

(39) a. **Hitorino insei-mo** doyoobi-no   party-ni ikanakatta.
        no grad-student   Saturday-Gen party-to go-**Neg**-Past
        Karera-wa jitsuwa uchi-de term paper-o   kaite   ita.
        they-Top   in-fact home-at term paper-Acc writing was
        'No graduate student(s) came to the party on Saturday. They (i.e., the students) were in fact writing term papers at home.'

    b. ***[[Hitorino insei-mo** doyoobi-no   party-ni ikanakatta]–no]–ga
        [[no grad-student   Saturday-Gen party-to go-**Neg**-Past]–no]–Nom
        jitsuwa uchi-de term paper-o   kaite   ita.
        in-fact home-at term paper–Acc writing was
      '*****No graduate student(s) came to the party on Saturday, and they (i.e., the non-existent students at the party) were in fact writing term papers at home.'

Sixth, the analysis can account for IHRCs with multiple IHs, such as (40) (= (93) in Grosu & Landman 2012), since ChR may also pick out sums of roles (see Grosu & Landman 2012, section 6, for detailed discussion).

(40) [[**Keisatsukan**-ga   **doroboo**-o   oikakete-i-ta]–no]–ga
      policeman–NOM robber–ACC was chasing-no–NOM
      futari-tomo ayamatte   gake-kara oti-ta.
      two   accidentally cliff-from fall–PAST
      '**A policeman** was chasing **a robber** and **they** *both* fell off the cliff accidentally.'

Seventh, the analysis can account for 'collecting' construals of IHRCs, which are found in cases where the IH is in the scope of a distributive quantifier, as in (41) (= (69) in Grosu & Landman 2012), where the IHRC denotes the total sum of apples bought by the three children together, that is, six apples.

(41) Wasaburo-wa [*3-nin-no kodomo-ga   sorezore ringo-o* ***2-tu-zutu***
      Wasabura-Top 3-Cl-Gen *children-Nom each*   ***apple-Acc 2-Cl**-each*
      katte-kita]–no-o   tana-ni oita
      buy-came-no-Acc shelf-on put
      '*Three children bought **two apples** each and Wasaburo put **them** on the shelf.*'

This sum of apples will be picked out by ChR if its argument VP is interpreted as a sum of events e such that for each child, there is a subevent e' of e such that (the value of) the Theme of e' is a sum of two apples (see Grosu & Landman 2012 section 4.5. for detailed discussion).

    (40) and (41) illustrate the second half of a generalization enunciated in section 1, namely, that there are meanings expressible by IHRCs that are not expressible by EHRCs (an illustration of the first half was provided in section 3). Importantly, data like (41) are distinct from 'functional' EHRCs like the one in (42), which cannot denote the collection of delegates elected by the various cities, as brought by the fact that it cannot serve as subject of a predicate that requires a group subject, as shown in (42b). In contrast, IHRCs like (41) do have this privilege, as illustrated in (43) (kindly provided by Akira Watanabe, p.c.).

(42) a. [The delegate that each city elected] will need to represent it in Parliament.
      b. *[The delegate that each city elected] met/congregated in the reception hall.

(43) [Dono toshi-mo daigiin-o   hitori-zutu senshutushita-no]–ga
      which city-MO delegate-acc one.cl-each elected-NM-nom
      Kokkai-Gijidou-ni atumatta.
      Parliament-Hall-loc gathered
      'Every city elected one delegate, and they gathered in Parliament-Hall.'

In concluding this section, I wish to briefly address an issue that was raised by a reviewer, namely, the status of the so called 'free' relatives, which, unlike IHRCs, necessarily exhibit a gap in the position of the internal pivot. To be sure, an IHRC may have a phonologically null element instead of an overt IH, as, for example, in (44) (provided by Koji Hoshi, p.c.), where the IH is a null definite pronoun anteceded by *ringo* in the preceding sentence. In contrast, a free relative, as in (45) (= (23b) in Hoshi 1995, with inconsequential adaptations), is an EHRC with a necessary internal gap (as in Japanese EHRCs in general), and headed by a pronominal *no,* which means roughly 'one', and happens to be homophonous with the nominalizer *no* found in IHRCs.

(44) Mary-wa   ringo$_i$-o   katte-kita.
     Mary-Top apple-Acc bought and came home
     'Mary bought apples and came home.'
     John-wa   [[Mary-ga   teeburu-no ue-ni pro$_i$ oite-oita] no]-o tabeta.
     John-Top Mary-Nom table-Gen on   put   no-Acc ate
     'Mary put them on the table and John ate them.'

(45) Ken-wa   [[Risa-ga   teeburu-no ue-ni [e] oiteoita]
     Ken-Top Risa-Nom table-Gen on   had put
     (oisisoonsa)   no]-o totte tabeta
     delicious-looking ones-Acc picked up and ate.'
     'Ken picked up and ate the (delicious-looking) ones that Risa had put on the table.'

The difference between the two tokens of *no* can be appreciated by noting that the nominalizer is semantically vacuous, and thus compatible with any denotation that the IHRC might have, while the pronoun is insulting when used to denote a respectable person, as in (46) (= (11) in Kuroda 1976–1977). The fact that the pronoun has content is also brought up by the fact that it may be modified by an adjective (as in the full version of (45)), something that is not possible with −*no* in incontrovertible IHRCs. Finally, other pronominal elements may be substituted for the pronoun in (45), for example, *yatu* 'thing', but not for the nominalizer of an IHRC.

(46) #[[Asoko ni   [e] tatte irassyaru] go-roozin]-o   soko ni oyobi site,
      (over-)there   stand be (hon) aged (hon) -Acc there   have-come
      [[mukoo ni [e] tatte irassyaru] no]-o   koko ni oyobi site kudasai
      (over-)there   stand be (hon) thing-Acc here   have-come please
      'Please have those honorable aged persons standing over there come there near
      you, and those standing far over there come here.'

In addition to Japanese, maximalizing IHRCs have been signaled in Korean (see, Kim 2007 and pertinent references therein) and in Imbabura and Cuzco Quechua (see Hastings 2004 and references therein).

4. *Restrictive IHRCs with a Syntax-Semantics Mismatch*

The two types of IHRCs discussed in section 3 exhibited a high degree of matching between overt representation and semantics, at least insofar as the scope of overt strong Ds is concerned: in Lakhota, such Ds occur and are construed CP-externally, in Japanese,

they occur and are construed CP-internally. In this section, we will discuss and illustrate a sub-type of the restrictive type, which contrasts with the subtype illustrated by Lakhota in that strong quantifiers associated with the IH occur CP-internally, but are construed CP-externally. Furthermore, arguably as a consequence of the necessary CP-external construal, the placement of the IH is sensitive to island constraints. This subtype will be illustrated with data from Navajo.

In addition to IHRCs, Navajo also has EHRCs, just like Japanese, but with two important differences: In Navajo, IHRCs, rather than EHRCs, constitute the dominant type (Platero 1974, p. 203), and there is furthermore no difference in interpretation between IHRCs and minimally different EHRCs (cf. with the Japanese data in (18)–(21)).

I have already noted in connection with example (4) that Navajo IHRCs may be indefinite, and thus satisfy one of the two diagnostics for restrictive status. That they also satisfy the other diagnostic, that is, the ability to stack with restrictive/intersective import, is brought out by (47) (= (15) in Barss et al. 1989[8]).

(47) [[Hastiin łééchąą'í bishxash-ę́ę] be'eldooh néidiité-(n)ę́ę] nahał'in.
       man   dog   bite-REL   gun   pick-up-REL   bark
      'The dog that bit the man (and) that picked up the gun is barking.' Or:
      'The man that the dog bit (and) that picked up the gun is barking.'

The wide scope of strong quantifiers associated with the IH can be appreciated in relation to (48), whose reduced version is example (107) in Faltz (1995) (with inconsequential adaptations). As Faltz stresses, this sentence does not say that John bought all of Bill's cars, or that all the cars that John owns were purchased from Bill. Rather, the sentence is true in a situation where, say, Bill is a dealer who owns hundreds of cars, John owns eight cars, and exactly three of John's cars were bought from Bill. In this context, the claim of good functioning is limited to those three cars, and nothing is said about the others. If the quantifier had relative-internal scope, the sentence would assert that John bought all of Bill's cars, or that all of John's cars were bought from Bill. Regrettably, I have not yet been able to check the behavior of other strong quantifiers in Navajo, so this point remains to be investigated in future research.

(48) [John Bill **chidí t'áá ałtso (dóó dzi'izí dilchxoshí t'áá ałtso)** yaa nayiisnii'ę́ę]
       John Bill car 3   all   and motor cycle   3   all   from 3.3.buy P.REL
       t'éiyá nizhónígo nidaajeeh
       only well   *da*.3.run.1
      'All the cars (and all the motorcycles) that John bought from Bill – and only those – run well.'

For completeness, I note that Faltz (1995) proposes that the quantifiers of Navajo are invariably adverbial, but the fact that the universal quantifier in the reduced version of (48) takes wide scope argues against this claim, since adverbials in general cannot take wide scope (e.g., *John believed that Napoleon* sometimes *ate meat* cannot mean that John sometimes believed that Napoleon ate meat). The full version of (48) (kindly provided by Ellavina Perkins in a p.c.), further argues for viewing the quantifiers as having adnominal status, for reasons noted earlier in relation to (22).

The island-sensitivity of Navajo IHRCs is illustrated by (49b) (= (82) in Platero 1974), which violates the CNPC; for perspicuousness, the IH of the island is italicized, and the IH of the containing IHRC is boldfaced. (49a) (= Platero's (50)) shows that the IH may

be embedded arbitrarily deep, so long as island constraints are respected. Example (50) (kindly provided by Ellavina Perkins, p.c.) shows that the pattern of (un)acceptability in (49) is preserved when the IHs are universally quantified.

(49) a. [[[**Chidí** dilwo'] nisin] ní-(n)ę́ę̨] yícho'.
        car   fast   think tell–REL ruin
        'The car he said he thought was fast is broken down.'
    b. *[[*Hastiin* **łééchąą'í** bishxash-ę́ę̨] be'eldooh néidiitá-(n)ę́ę̨] nahał'in.
        man   dog   bite–REL   gun   pick–up–REL bark
        'The dog that the man who was bitten by (it) picked up the gun is barking.'

(50) a. [[**Chidí t'áá ałtso** dadilwo'] nisin-ę́ę̨]   daacho'.
        car   3   all   fast   think –REL broken.down
        'All the cars I thought were fast are broken down.'
    b. *[[*Hastiin* **łééchąą'í t'áá ałtso** bishxash-ę́ę̨] be'eldooh néidiitás-(n)ę́ę̨] nahał'in.
        man   dog   3   all   bite–REL   gun   pick–up–REL bark
        'All the dogs that the man who was bitten by (them) picked up the gun are barking.'

Concerning the analysis of these IHRCs, current linguistic theory makes available a number of syntactic and/or semantic mechanisms for dealing in a unified way with the matrix-scope and island-sensitivity properties of Navajo IHRCs, and for accounting for the fact that EHRCs exhibit the same two properties (for island-sensitivity, see example (83) in Platero 1974). One way of doing this made available by the Minimalist framework (Chomsky 2004) is to assume that the IH must be cyclically 're-merged' within the narrow syntactic component, eventually reaching a position of re-merger external to the relative clause (I note that the re-merger process constitutes a 'reconstruction' of the earlier process of movement, and is thus island-sensitive, just like its predecessor). The constituent is interpreted in the position of highest re-merger, but may be pronounced either in its highest or in its lowest position, thereby giving rise to synonymous EHRCs and IHRCs; so that island-sensitivity is straightforwardly predicted for both IHRCs and EHRCs, since they have the same syntactic derivation, and differ only in what is overtly pronounced. At this stage, and pending an investigation of the properties of the full range of quantified internal/external heads in Navajo, I take no position on whether an analysis along these lines is appropriate, or even plausible, for the full range of IHRCs in Navajo.

    One point I wish to stress, though, is that if what has been proposed in this section and in section 3.2. is on the right track, island-sensitivity in Japanese and Navajo IHRCs is traceable to different factors and requires different analyses (cf. with the uniform analysis proposed in Watanabe 2004). In Navajo, it is traceable to whatever factors require matrix scope for IHs, and in Japanese, to the need to ensure abstraction over a particular variable introduced in the semantics.

5. Multiple Types within a Single Language?

The types and sub-types of IHRCs discussed in sections 3 and 4 have been illustrated with data from languages that exhibit only one of these (sub-)types. There is in principle no need for a language to exhibit a single (sub-)type, and Hastings (2004) argues in detail that Cuzco Quechua exhibits both the type of section 4 and the one of section 3.2., with

the following distribution: when the IH is strongly quantified, it takes matrix scope and the IHRC has restrictive semantics, and when it undergoes Existential Closure, it has narrow scope and the IHRC has maximizing semantics.

For completeness, I note that a proposal to recognize multiple types within a single language was also put forward by Kitagawa (2005) in relation to Japanese. Specifically, Kitagawa proposed three distinct types, which he characterized in terms of the IH being a definite expression, an interrogative expression, or a non-interrogative quantified expression. His motivation for this particular proposal was that, given an analysis that assumes a *pronominal* EH for the IHRC, a potential syntactic conflict arises with Condition C of the Binding Theory. This conflict does not, however, arise for Grosu & Landman's (2012) analysis, which posits no pronoun outside the relative clause (recall that -*no* is a semantically vacuous nominalizer). More importantly, the disclosure mechanism described in section 3.2. applies effortlessly to all the types of IHs brought up by Kitagawa, so that from the perspective I have proposed, there is no need to recognize multiple types in Japanese.

6. Concluding Remarks

In this paper, I brought up and addressed three syntactically based proposals concerning the typology of IHRCs (section 2) and one semantically based approach, which also takes into account the transparency of the syntax-semantics connection (sections 3 and 4).

By making the semantic restrictive/maximizing distinction the fundamental criterion of classification, the approach outlined in sections 3 and 4 provides a novel perspective for determining what the natural classes of IHRCs are. The distinction at issue has been solidly established in relation to classes of relatives other than IHRCs, and thus constitutes a sound and well-motivated criterion for classification.

An obvious shortcoming of the typology outlined in this article is that it is based on a very small sample of languages. The reason for this state of affairs is that the information needed for reliably assigning IHRCs to specific classes and sub-classes is notoriously difficult to obtain, and often impossible to find in the literature on the languages in question, since it does not naturally emerge in the context of asking questions that are not necessarily relevant to the present enterprise. It is for this reason that a substantial amount of the information and argumentation marshaled in this paper was obtained through lengthy and detailed personal communications with colleagues who are both linguistically sophisticated and native speakers of the languages that were studied. In any event, the typology I have proposed is by no means presented as definitive. Rather, I view it as an attempt to 'set the ball rolling' within the kind of approach I have outlined.

I should like to emphasize that even the analyses of IHRCs in languages that have been addressed in some detail in this paper will unquestionably benefit from further investigation; for example, it seems important to check whether in Navajo quantifiers other than the universal one behave in the same way when associated with an IH. Concerning the languages that have not been analyzed here, and in particular, the SVO and VSO languages mentioned in section 2, there are good grounds for expecting that a close study of their IHRCs from a two-pronged syntax-semantics perspective might yield a treasure-trove of novel facts, with potential theoretical implications. One reason for feeling this way is that Hiraiwa (2005, Chapter Five), while not basing his typology on semantics (see section 2), nonetheless provides a certain amount of information about the semantics of IHRCs in Bùli, which is highly intriguing, but insufficient for drawing firm conclusions without additional investigation.

To illustrate, Hiraiwa shows in section 5.2.1. that IHRCs may stack with intersective import (see his (5.9)), much like those of Lakhota, but also asserts that IHRCs may not have indefinite force (section 5.3.1.) and that they obey island constraints (section 5.3.2., in particular, his example (5.42)). Concerning the impossibility of indefinite construals, it seems to me desirable to carefully check this issue with additional consultants, because, as noted in section 2, Hiraiwa (2008) made this particular claim about Gur languages in general, but the Mooré data in (5), which as noted earlier, were provided by a native consultant, conflict with his generalization. Should it turn out that indefinite IHRCs are after all possible, one may then infer that the IHRCs in the examples referred to above are restrictive, there being no conflict in principle between restrictive status and island-sensitivity.

This is, however, not the whole story, because Hiraiwa also provides data of a different sort, which raise the possibility of maximalizing IHRCs co-existing with restrictive ones. Thus, the data referred to in the preceding paragraph have IHs consisting of simplex nouns (with a relativizing suffix), and additional data with IHs that include numerals, such as those in Hiraiwa's example (5.77), appear to be consistent with restrictive status. However, Hiraiwa (section 5.6.3.) also provides data in which the IHs exhibit universal, existential, and partitive quantifiers, as in (51) (his (5.76a)), which are hard to fit into the restrictive pattern.

(51) Àtìm dɛ́ [Àmok àlī dà **mángo-tī: mé:ná/gèlà/yègà**] lá.
    Atim ate Amok Czer bought mango-Rel.Pl all/some.most   Dem
    'Amok bought all/some/most (of the) mangoes and Atim ate them.'

Crucially, Hiraiwa stresses that these quantifiers are construed as binding the IH with relative internal scope, as reflected in the translation he provides, so that the version of (51) with 'most' has the crucial properties of the Japanese examples in (20)-(21). Moreover, Hiraiwa also points out that the item *lá* must be viewed as a definite article (devoid of demonstrative content in this context), on the grounds that in stacked constructions (which, as noted in the preceding paragraph, have intersecting import), it can only occur with the maximal relative (contrast this state of affairs with the one noted in section 3.1. in relation to the item $-n^y$ of Mojave, which occurs with every relative in stacked constructions; see (17b)). The narrow scope of quantified IHs in conjunction with the CP-external overt definite operator points to maximalizing semantics. There is, however, an additional twist: Hiraiwa states that (51) can have not only the meaning indicated in the translation, but also a partitive meaning, to the effect that Atim ate *some of* the mangoes bought by Amok. This points to the possibility of a partitive construction in which a maximalizing IHRC serves as complement of a null partitive head. However, without knowing more about this language, it is impossible to tell whether such an analysis is plausible. In short, additional research on Bùli appears to be sorely needed, and of course, on the remaining Gur languages that allow IHRCs.

In sum, while I hope that this paper has shed novel light on how the task of constructing a satisfactory typology of IHRCs may be approached, I also hope it will succeed in whetting the appetite of further researchers, so that they may tackle the IHRCs of additional languages, preferably in greater breadth and depth than I have been able to; so that they may check the extent to which the analytical proposals I have outlined can be extended to the IHRCs of a larger sample of languages; and so that they may be in an improved position for aiming at the construction of a more complete and – if this turns out to be necessary – a further articulated typology of IHRCs.

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Notes

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[1] An alternative acronym that is sometimes used in the literature is HIRC, which stands for Head Internal Relative Construction.

[2] Comparable relevancy effects have been noted in Korean (see, e.g., Kim 2007, 2008, and references therein). As far as I can tell, however, the Relevancy Condition is not invariably found in maximalizing IHRCs. For example, it has not been signaled with respect to any of the Quechua languages.

[3] This example, as well as all following examples from Japanese, are translated, following Shimoyama, by means of two coordinate sentences, rather than by means of a restrictive relative construction, as in example (2). This type of translation reflects Shimoyama's analysis based on discourse anaphora, an analysis that has been challenged, successfully, in my view, as will be seen further down in this section, but I will nonetheless use the kind of translation in question because it seems to capture truth conditions adequately, in contrast to translations by means of restrictive or appositive constructions, which do not.

[4] For discussion and illustration of such semantic distinctions in English, see Dowty (1986). For discussion of comparable distinctions in Korean, see Kwak (1995).

I provide below an illustration from English which, to the best of my knowledge, has not been pointed out in the earlier literature.

(i) [(#*All*) the brilliant mathematicians that these students clearly are] should have little difficulty with this problem.
(ii) The brilliant mathematicians that these students clearly are should *all* have little difficulty with this problem.

As discussed in detail in Grosu & Krifka (2007), the reduced version of the bracketed constituent in [i] denotes 'these' students endowed with the property of being brilliant mathematicians, while the full version has only the pragmatically odd construal that the students at issue can be different individuals who are brilliant mathematicians. (ii), where the quantifier is in the VP, does not have this odd meaning (I am grateful to Fred Landman for this observation).

[5] On this version, the higher IHRC is a so called 'change' IHRC, that is, one whose denotation includes the result of a change or creation process described by the relative clause's predicate. For further illustration and discussion of this variety, see example (37) below, as well as Hoshi (1995, section 3.2.), and Grosu & Landman (2012, section 4.2.).

[6] This characterization is slightly over-simplified in that it abstracts away from situations where the IH of an IHRC is semantically dependent on a distributive quantifier in the matrix (see (41)).

[7] This effect has also been observed in Korean. Whether it applies to the maximalizing IHRCs of other languages remains to be investigated.

[8] These authors note that the readings assigned to this example are obtained 'with some difficulty', but nonetheless consider them grammatical, since they are far better than the string-wise identical (32b), which is completely unacceptable.

Works Cited

Aldridge, E. 2002. Internally headed relative clauses in Austronesian languages. Paper presented at GLOW in Asia 2002. Yaiwan: National Tsing Hua University.

Barss, A., K. Hale, E. T. Perkins, and M. Speas. 1989. Aspects of logical form in Navajo. Athapaskan linguistics: current perspectives on a language family, ed. by Eung-Do Cook and K. Rice, 317–34. Trends in linguistics. State-of-the-Art Reports 15. Berlin: Mouton de Gruyter.

——, ——, ——, and ——. 1991. Logical form and barriers in Navajo. Logical structure and linguistic structure, ed. by C.-T. James Huang and Robert May, 25–47. Dordrecht: Kluwer Academic Publishers.

Basilico, D. 1996. Head position and internally headed relative clauses. Language 72. 498–532.

Bonneau, J. 1992. The structure of internally headed relative clauses. McGill University, Montreal: PhD Dissertation.

Brame, M. 1968. On Navajo relative clauses. Department of Linguistics, MIT, Ms.

Carlson, G. 1977. Amount relatives. Language 53. 520–42.

Chomsky, N. A. 2004. Beyond explanatory adequacy. Structures and beyond (= The cartography of syntactic structures, vol. 3), ed. by Adriana Belletti, 104–31. Oxford & New York: Oxford University Press.

Cole, P. 1987. The structure of internally headed relative clauses. Natural Language and Linguistic Theory 5(2). 277–302.

Culy, C. 1990. The syntax and semantics of internally-headed relative clauses. Stanford University: OhD dissertation.

Dowty, D. 1986. Collective predicates, distributive predicates, and all. ESCOL 86. 97–115.

Evans, Gareth. 1980. Pronouns. Linguistic Inquiry 11. 337–62.

Faltz, L. 1995. Towards a typology of natural logic. Quantification in natural languages, ed. by E. Bach, E. Jelinek, A. Kratzer and B. H. Partee, 271–319. Dordrecht: Kluwer.

Fujita, N. 1994. On the nature of modification: a study of floating quantifiers and related constructions. University of Rochester: PhD dissertation.

Gorbet, L. 1976. A grammar of Diegueño nominals. New York: Garland.

——. 1977. Headless relatives in the Southeast: are they related? Proceedings of the Berkeley Linguistics Society 3. 270–8.

Grosu, A. 1994. Three studies in locality and case. London: Routledge.

——. 2002. Strange relatives at the interface of two millennia. GLOT International 6. 145–67.

——. 2009. Two kinds of degree-denoting relatives: Hebrew versus Romanian. Brill's Annual of Afro-Asiatic Languages and Linguistics 1. 176–203.

——. 2010. The status of the internally-headed relatives of Japanese/Korean within the typology of definite relatives. The Journal of East-Asian Linguistics 19(3). 231–74.

Grosu, A., and M. Krifka. 2007. The gifted mathematician that you claim to be: equational intensional ''reconstruction'' relatives. Linguistics and Philosophy 30. 445–85.

Grosu, A., and F. Landman. 1998. Strange relatives of the third kind. Natural Language Semantics 6. 125–70.

——, and ——. 2012. A quantificational disclosure approach to Japanese and Korean internally headed relative clauses. The Journal of East-Asian Linguistics 21. 2.

Hastings, R. 2004. The syntax and semantics of relativization and quantification: the case of Quechua. Cornell University: PhD dissertation.

Heim, I. 1991. Artikel und Definitheit. Semantics: an international handbook of contemporary research, ed. by A. von Stechow and D. Wunderlich, 487–535. Berlin: Mouton de Gruyter.

Hiraiwa, K. 2005. Dimensions of symmetry in syntax: agreement and clausal architecture. MIT: PhD dissertation.

——. 2008. The head-internal relativization parameter in Gur: D and its typological implications. The proceedings of NELS 38, 371-84, Amherst, MA: GLSA.

——. 2009. A note on the typology of head-internal relativization. Proceedings of conference on language documentation and linguistic theory 2, ed. by Peter K. Austin, Oliver Bond, Monik Charette, David Nathan and Peter Sells, 123–31. London: SOAS.

——. 2012. Kuroda's left-headedness and linkers. Japanese/Korean Linguistics 20. 321–36.

Hoji, H 1985. Logical form constraints and configurational structures in Japanese. University of Washington, Seattle, Doctoral dissertation.

Hoshi, K. 1995. Structural and interpretive aspects of head-internal and head-external relative clauses. University of Rochester: PhD Dissertation.

Inoue, K. 1978. Nihongo-no Bunpoo Kisoku (Grammatical rules in Japanese), Tokyo: Taishukan.

Kim, M.-J. 2007. Formal linking in internally headed relatives. Natural Language Semantics 15. 279–315.

——. 2008. Relevance of grammar and pragmatics to the relevancy condition. Language Research 44. 95–120.

——. 2009. E-type anaphora and three types of kes-construction in Korean. Natural Language and Linguistic Theory 27(2). 345–77.

Kitagawa, C. 2005. Typological variations of head-internal relatives in Japanese. Lingua 115. 1243–76.

Kubota, Y., and E. A. Smith 2007. The Japanese internally headed relative clause is *not* an e-type pronoun. Formal Approaches to Japanese Linguistics 4, MIT working papers in linguistics 55, 149–60.

Kuroda, S.-Y. 1974. Pivot-independent relativization in Japanese I. Papers in Japanese Linguistics 3. 59–93.

——. 1975–1976. Pivot-independent relativization in Japanese II. Papers in Japanese Linguistics 4, 85–96.

——. 1976a. Headless relative clauses in modern Japanese and the relevancy condition. Proceedings of the second annual meeting of the Berkeley linguistic society, ed. by H. Thompson, K. Whistler, V. Edge, J. Jaeger, R. Javkin, M. Petruck, C. Smeall and R. D. van Valin, Jr., 269–79. Berkeley: University of California.

——. 1976b. Pivot-independent relativization in Japanese III. Papers in Japanese Linguistics 5, 157–79.

Kwak, E.-J. 1995. Floated quantifiers in Korean and English. Harvard Studies in Korean Linguistics VI, ed. by S. Kuno, J. Whitman, Y.-S. Kang, I.-H. Lee, J. Maling and Y.-J. Kim, 283–95. Cambridge, MA: Harvard University Press.

Landman, F. 2003. Predicate-argument mismatches and the Adjectival Theory of Indefinites. From NP to DP, ed. by M. Coene and Y. D'hulst, 221–38. Amsterdam: John Benjamins.

——. 2004. Indefinites and the type of sets. Malden, MA: Blackwell.

Lefebvre, C., and P. Muysken. 1988. Mixed categories: nominalization in Quechua. Dordrecht: Kluwer.

Lehmann, C. 1984. Der Relativsatz. Tübingen: Gunter Narr Verl.

Mihara, K. 1994. Iwayuru Syuyoobunaizaigatakankeisetu ni tuite (on the so-called head-internal relative clauses), *Nihongogaku* 13, Mijishoin.

Milsark, G. 1974. Existential sentences in English. MIT: PhD dissertation.

Munro, P. 1976. Mojave syntax. New York: Garland.

Platero, P. 1974. The Navajo relative clause. International Journal of American Linguistics 40: 202–46.

Ross, J. R. 1986. Infinite syntax! Norwood, NJ: ABLEX.

Shimoyama, J. 1999. Internally headed relative clauses in Japanese and E-type anaphora. Journal of East Asian Languages, 8. 147–82.

——. 2001. Wh-constructions in Japanese. University of Massachusetts at Amherst: PhD dissertation.

Tellier, C. 1989a. Head-internal relatives and parasitic gaps in Mooré. Current Approaches to African Syntax 6, ed. by Isabelle Haik and Laurice Tuller, 298–318, Dordrecht: Kluwer.

——. 1989b. More on Mooré relatives: licensing internal topics. UQAM, Ms.

Vries, Mark de. 2002. The syntax of relativization. Utrecht: Lot.

Watanabe, A. 1992. WH in situ, subjacency and chain formation. MIT occasional papers in linguistics 2. Cambridge, MA.

——. 2004. Parametrization of quantificational determiners and head -internal relatives. Language and Linguistics 5(1). 59–97.

Watanabe, A. 2006. Finctional projections of nominals in Japanese: syntax of classifiers. Natural Language and Linguistic Theory 24(1). 241–306.

Williamson, J. 1984. Studies in Lakhota Grammar. UCSD: PhD dissertation.

——. (1987). An indefiniteness restriction for relative clauses in Lakhota. The representation of (in)definiteness, ed. by E. Reuland and A. ter Meulen, 168–90. Cambridge, MA: The MIT Press.

Yeom, J.-I. 2011. Three types of IHRCs in Korean, Seoul, ms.