

Strange relatives at the interface of two millennia

By Alexander Grosu

1. Introduction

Both the traditional and the generative literature have devoted an enormous amount of attention to various aspects of the syntax and semantics of relative clause constructions in the languages of the world. Nonetheless, the nature of their semantic typology, as well as the ways in which syntactic and semantic types correlate, have been seriously addressed only quite recently. This article will attempt to highlight the major issues, controversies, and results that have arisen in this connection. At the same time, this article will not attempt to deal with issues that primarily concern syntax alone, such as the head-raising analysis, the treatment of relatives within antisymmetric frameworks, and the possibility of a unified syntactic derivational treatment for all or most relative constructions (as proposed, for example, in de Vries 2002 and various references therein). Such issues are among those that will be addressed in the State-of-the-Article by Valentina Bianchi, to appear in *Glott International* 6, issues 7 and 8.

The notion "relative clause" is probably harder to characterize in a general way than such notions as "declarative clause" or "interrogative clause", in view of the greater semantic diversity of constructions that arguably deserve to be called "relatives", and also in view of the existence of a variety of constructions that arguably do not deserve to be called "relatives", but nonetheless superficially resemble *bona fide* relatives of some sort. The earlier literature contains a number of attempts to provide maximally general working definitions of the notion at issue. For example, de Vries (2002, 14) proposes the definition in (1), which is both syntactic and semantic in nature.

- (1) a. A relative clause is subordinated.
b. A relative clause is connected to surrounding material by a pivot constituent.

De Vries indicates that the "pivot" referred to in (1b) purports to be "a constituent **semantically shared** by both the relative clause and the matrix clause", and furthermore one that has some **syntactic realization** in both clauses, possibly as a phonological "gap". For convenience, we may refer to the semantically related elements in the relative clause and the matrix clause as the "internal pivot" and the "external pivot" respectively.

The characterization in (1) is probably on the right track, but it arguably needs to be made more precise, since "pivot" is a pre-theoretical term, and "semantic sharing" is insufficiently precise. I suggest the following, which is inspired by certain proposals made in Grosu (2000a, 85).

- (2) a. A relative clause is subordinated.
b. A relative clause includes, at some level of semantic representation, a variable that ultimately gets bound *in some way* by an element of the matrix.

The term "bound in some way" purports to subsume "discourse binding", that is, the relation that obtains between a free variable and an antecedent that does not c-command it, and "syntactic binding", which involves binding of a variable by a c-commanding element. As we shall see, these two forms of binding characterize appositive and non-appositive relative constructions respectively.

Much like (1), (2) assumes the existence of distinguished **syntactically represented** elements in both the matrix and the relative clauses. In the spirit of Grosu (2000a), I propose to view (2) as a characterization of a **prototypical core** of relative constructions. As we shall see, there exist constructions that meet only some of the requirements expressed by (2), and which may be viewed as **peripheral** relatives of some sort.

Traditionally, the semantic typology of relatives was assumed to include just two types, appositives and restrictives, which are illustrated by the externally-headed English constructions in (3) and (5) respectively.

- (3) a. *John, who works for the CIA, is my cousin.*
b. *John owns three sheep, which Mary feeds.*
c. *A tutor will register each student, who is then responsible for getting his papers to the Dean's office on time.*
d. **Every student, who attended my course, submitted a term paper.*
(4) a. *John is my cousin. He works for the CIA.*
b. *John has three sheep. Mary feeds them.*
c. *A tutor will register each student. He is then responsible for getting his papers to the Dean's office on time.*

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d. **Every student* submitted a term paper. *He* attended my course.

(5) Every student who attended my course submitted a term paper.

(3) illustrates a variety of relations that may obtain between the external and internal pivots of an appositive: coreference, as in (3a), E-type anaphora, as in (3b), and the special kind of E-type anaphora that Sells (1985) calls cospecification, as in (3c). The last of these is allowed only under special conditions of “modal subordination” (see Roberts 1989), as shown by the unacceptability of (3d), where modal subordination is lacking. These various kinds of relations are exactly those that are found in cross-sentential discourse anaphora, as shown by the parallelism between (3a–d) and (4a–d). It thus makes perfect sense to refer to the external pivot of an appositive as the **antecedent** of the internal pivot.

The term “antecedent” is also frequently used to designate the external pivot of a restrictive, but this terminology is at least potentially misleading. On most analyses, a restrictive relative clause in cases like (5) forms a constituent with the external NP, not with a DP, so that the external pivot is *student*. But the external NP is not itself an antecedent of the relative pronoun, or of the trace that it binds. Rather, the external NP designates a set that intersects with the set designated by the relative clause. At the same time, the external NP semantically restricts a variable that ends up syntactically bound by a determiner that binds another token of the same variable within the relative clause, and it thus seems possible to view the former token as ‘antecedent’ the latter at the appropriate level of representation. Be this as it may, the fact that restrictives, unlike appositives, involve syntactic, rather than discourse binding, is brought out by the insensitivity of the binding relation to the presence/absence of modal subordination (note the contrast in acceptability between (3d) and (5)).

In what follows, I will have virtually nothing more to say about appositives, and will discuss restrictives only to the extent that it is necessary to distinguish them from non-appositive constructions of a different sort. But before leaving the topic of appositives, I wish to note that, despite the properties they share with independent discourse sentences, in particular, the fact that both constructions have **independent illocutionary force** (a state of affairs that is arguably responsible for the parallelism between (3) and (4)), the fact that they are, unlike independent sentences, syntactically subordinate (see (1a) and (2a)) is not without implications. Thus, it is well known that simple definite pronouns need not have a linguistically expressed antecedent, and may pick up a value from the non-linguistic context. This is illustrated by (6a), which is a possible felicitous discourse-initial sentence, provided that non-linguistic circumstances make available an unambiguous value for the italicized pronoun. In contrast, the relative pronouns of appositives require a linguistic antecedent. Thus,

(6b) is unacceptable, even if uttered in circumstances in which (6a) is acceptable.

(6) a. The house collapsed; *she* ran away terrified.
b. *The house collapsed, *who* ran away terrified.

Furthermore, in discourses, but not in appositive constructions, a potential linguistic antecedent that is unacceptable as it stands can be rendered acceptable by “accommodation.” Thus, in (7a), *few students* is not naturally construable as the antecedent of *they*, since this would imply that the same individuals are simultaneously in two distinct locations, an impossibility in the world in which we live. Instead, (7a) normally receives a sensible interpretation in which *they* designates a plurality of students distinct from those that attended the party, in particular, (most of) the remainder. Such accommodation is, however, not available in (7b), which has only the absurd reading that simultaneously assigns the same individuals to distinct locations.

(7) a. At the party, John saw *few students*. *They* were at home, preparing for a test.
b. #At the party, John saw *few students*, *who* were at home, preparing for a test.

All this points to the conclusion that the subordinate status of appositives imposes on them some of the ‘stricter’ requirements of sentence grammar, thus blocking some of the flexibility that discourses may avail themselves of to achieve coherence.

The appositive and restrictive constructions illustrated by (3) and (5) clearly fall under the **core** of relatives in the sense of (2), since in both cases the relative CP includes a syntactic gap that is construed as a variable, and this variable ends up bound in some way by an antecedent or determiner that is syntactically represented. Now, over the last twenty-five years or so, a number of pioneering studies have drawn attention to the fact that a variety of constructions which also appear to be core relatives (see below), do not comfortably fit into the traditional binary semantic typology. Among these, I note the following:

(8) a. ‘Standard’ free relatives (SFRs).
b. Correlatives.
c. Externally-Headed Relatives (EHRs) of certain sorts.
d. Internally-Headed Relatives (IHRs) of certain sorts.

Prior to the pioneering studies just alluded to, the above constructions were simply assumed to be restrictive (an appositive analysis was never contemplated, as far as I am aware, presumably because the relative clauses of these constructions do not have the independent illocutionary force that characterizes appositives). However, there are at least two properties that distinguish the constructions in (8) from restrictives. These are listed in (9), and will be illustrated in a number of subsequent sections.

- (9) a. The entire construction may have definite or universal, but not existential, force.
 b. The relative clauses do not stack with intersective import.

Full or partial analyses of the above constructions in specific languages were put forward in: (i) Jacobson (1988, 1995) with respect to (8a) in English, (ii) Dayal (1991a,b, 1996) with respect to (8b) in Hindi, (iii) Carlson (1977) and Heim (1987) with respect to (8c) in English, and Hoshi (1995) and Shimoyama (1999) with respect to (8d) in Japanese. These various analyses, while all distinct from the standard analysis of restrictive constructions, nonetheless differed from each other in important respects. A proposal to bring all the constructions in (8) under a common analytical umbrella was first put forward in Grosu & Landman (1998), who defined a single overarching class of relatives that they jocularly dubbed ‘strange relatives of the third kind’; in what follows, I will simply refer to them as ‘third-kind relatives’. For completeness, I note that Grosu (1994) observed that all the constructions in (8) share the properties in (9), but he failed to offer a unifying analysis.

Basically, the tripartite typology of core relatives envisaged by Grosu & Landman can be characterized as follows (I slightly reinterpret their proposals, and combine them with ideas put forward in Grosu 2000a): Assume a feature [REL], which is borne by C and characterizes the entire class of core relatives. If no further characterization is provided, CP will designate a proposition that includes a distinguished free variable that will need to get a value from the matrix in some way; this seems to be an appropriate characterization of **appositives**. Assume now that a further feature [PRED] is borne by C, its import being that the distinguished variable needs to be abstracted over, so that CP denotes a property; this appears to be an adequate characterization of **restrictives**. Finally, assume that C bears a third feature [DEF], which has the essential (but not the exact!) import of the definite article. The definite article itself is usually viewed as a uniqueness operator (MAX) which maps a set to its unique maximal member if there is one, and is undefined otherwise (see, for example, Sharvit 1999 for a cross-categorical characterization of the definiteness operator). Now, if the meaning of CP were assumed to be simply that of a definite expression, in particular, an individual, external determiners would be unable to bind into CP, since determiners apply to sets, and CP would fail to fall under the core class of relatives as defined in (2). To avoid this outcome, Grosu & Landman propose that in third-type relatives, which they dub **maximalizing relatives**, CP is interpreted not as the output of MAX, but rather as the singleton set whose unique member is the output of MAX. That is to say, [DEF] is interpreted in a way that makes it consistent with the simultaneous presence of [PRED]: instead of shifting a set into a lower type object (e.g., an individual), as the definite article usually does, or into a higher type (e.g., a

generalized quantifier), as other determiners do, [DEF] triggers the mapping of a set to a singleton set, thus preserving the type of the input. Looking at this in a slightly different way, we may say that the operation of determiner-binding of a variable is here broken down into two sub-steps, one internal and one external to CP, the former in effect ‘priming’ CP for ultimate binding of its variable by an operator of a special kind. In particular, Grosu & Landman’s characterization of maximalizing relatives has the following implications and consequences:

- (10) a. Since the unique maximal member of the set defined by abstraction needs to end up as the value of the entire construction, the various restrictions that characterize this member need to apply within CP; in particular, if there are CP-external restrictors, e.g., an external NP, such restrictors must be interpreted within CP (syntactically, an internal token of the external restrictor must be somehow ensured).
 b. In view of the singleton status of CP, we may expect external determiners to be felicitous just in case their implications are consistent with the uniqueness of CP’s only member. Definite determiners clearly satisfy this requirement, and so do universals (which may be viewed as exhaustively enumerating the parts of a unique sum), but existentials carry non-uniqueness implications, and these are in conflict with the implications of [DEF]. Looking at this from a different perspective, the priming effected within CP cannot be ignored CP-externally.
 c. The singleton status of CP also predicts the unacceptability or infelicity of stacked third-type relatives. If singletons contain distinct members, their intersection is vacuous, and no individual (or set of properties thereof) can be defined by the construction. In the special situation where the singletons have identical members, their intersection is tautologous, and thus infelicitous (much as restrictive constructions like *#a man who likes Mary who likes Mary* are).

In sum, Grosu & Landman’s analysis predicts the two diagnostic properties of third-type relatives noted in (9) for the reasons spelled out in (10b-c).

The remainder of this article is organized as follows. The four constructions listed in (8a-d) are discussed in sections 2 – 5 respectively; earlier analyses are compared with Grosu & Landman’s, and occasional refinements of the latter are introduced. Section 6 discusses a variety of free relatives, called ‘transparent’ (TFRs), which a number of writers have analyzed as syntactically and semantically radically distinct from SFRs (in particular, as lacking the [DEF] feature). This section also brings up arguments from Grosu (in press) to the effect that TFRs are simply a special instance of SFRs, and thus

typed by [DEF]. Section 7 discusses two constructions that do not fully satisfy (2), but arguably qualify as relatives of a peripheral sort. Section 8 discusses a number of constructions that superficially resemble *bona fide* relatives, but arguably do not qualify as relatives at all; these are brought up primarily in order to indicate how far the limits of the class of relatives can plausibly stretch.

2. Standard Free Relatives (SFRs)

Free relatives are so called because in contrast to uncontroversial externally-headed relatives (EHRs), such (11a), they do not seem to exhibit an overt external pivot, as can be seen by examining (11b).

- (11) a. John bought [_{DP} something [_{CP} that Mary was willing to sell him *e*]].
 b. John bought [_? what(ever) Mary was willing to sell him *e*].

At the same time, due to the fact that in languages like English, SFRs exhibit a *wh*-phrase **at their left periphery**, which is precisely where external pivots occur in EHRs, potential ambiguity arises concerning the internal/external status of the *wh*-phrase. This state of affairs has given rise to a controversy between writers like Bresnan & Grimshaw (1978) and Larson (1987), who argued for a CP-external analysis of the *wh*-phrase, and writers like Groos & van Riemsdijk (1981), Harbert (1983, 1992), Suñer (1984), Jacobson (1988, 1995), Grosu (1989, 1994, 1996), and Grosu & Landman (1998), who argued for a CP-internal analysis (in particular, for viewing it as occupying the SpecCP position in derived representation). My own view is that the weight of evidence is heavily tipped in favour of a CP-internal analysis (for strengthened versions of earlier arguments offered in support of this analysis, see Grosu, in press). One thing that deserves mention is that those who argued for the latter view also took the position that SFRs are not “bare” CPs, but rather complex XPs that properly contain CP, the external pivot being phonologically null. The principal reason for this view was that SFRs have the essential distribution of the categories to which their *wh*-phrases belong, not that of uncontroversial CPs, and this can straightforwardly be accounted for if the *wh*-phrases are taken to have corresponding null homocategorial elements in CP-external position. For additional discussion of the complex XP status of SFRs, see Grosu & Landman (1998), Grosu (in press), and references therein.

Jacobson (1988) drew attention to the fact that SFRs have definite force. This can be appreciated in relation to (11b), which implies that John bought all the things that Mary was willing to sell him, not just some of them. This points to the conclusion that SFRs are exclusively of the maximalizing type (see (9a)), and thus bear – according to what was said in the preceding section – the typing features [REL], [PRED], [DEF]. This hypothesis is supported by two further observations: (i) the necessarily definite construal is

attested not just in languages where SFRs exhibit (counterparts of) *wh*-phrases, but also in languages where such phrases are absent, for example, in Turkish and Chinese (I am grateful to J. Kornfilt and L. Cheng, p.c., for this information); a Chinese example with this property is provided in (12).

- (12) [[[ni mai e] de] e] ...
 you buy Modifier-marker
 ‘That which you bought’
 NOT: ‘something you bought’

(ii) SFRs do not stack with intersecting import (see (9b)); this is illustrated by (13b), which contrasts in this respect with (13a), where stacked restrictives occur.

- (13) a. John is listening to the records that Mary bought (that he likes best).
 b. John is listening to what Mary bought (*what he likes best).

Under the analysis of SFRs in Grosu & Landman (1998), the compositional semantics of SFRs includes the following successive steps: (A) At the CP level, a set is formed by abstracting over the free variable (this step may be viewed as triggered by [PRED]). This set is defined by the restrictions expressed by the *wh*-phrase (which may be complex, as, for example, in (14)) and by the remainder of IP.

- (14) I will read [*whichever books* you ask me to read].

The element *-ever*, when present, affects the nature of the set in ways that have been the object of lively discussion and controversy in the literature (see, for example, Horn 2000 and references therein; see also Jacobson 1988, 1995). Basically, we may say – in the spirit of Kadmon and Landman (1993) and Horn (2000) – that this element, much like “free choice” *any*, is a “weak D”, and thus a sort of adjective (according to the view of weak Ds put forward in, for example, Bartsch 1973, Partee 1987, Bowers 1991, Bittner 1994, and Landman 2002), whose effect is to explicitly “widen” the membership of the set along some dimension, thereby creating a “stronger” statement (Kadmon & Landman 1993), and also to introduce a certain amount of uncertainty (Dayal 1998) or “indiscriminacy” (Horn 2000), something which, depending on context, may mimic the effects of universal quantification (e.g., *he shot whoever crossed his path*) or of existential quantification (e.g., *marry whoever you please*). (B) The set so formed is mapped to the singleton that contains its maximal member (this step may be viewed as triggered by [DEF] in conjunction with [PRED]). (C) The next step is determined by how much null structure the XP is assumed to include. If the XP is, for example, a DP, and if one assumes both a null NP and a null D, NP is construed as the identity function on CP, and D maps the output to the singleton’s only member. If the null NP is lacking, the outcome is the same, since the identity function contributes nothing to interpretation.

The semantic analyses proposed in Jacobson (1988) and Jacobson (1995) were slightly different. In the former, step (B) was skipped, and the set obtained at stage (A) was directly mapped to its maximal member at the DP level. Note that this analysis cannot account for the impossibility of stacking (see (9b) and (13b)), since CP is indistinguishable from a restrictive clause. In Jacobson (1995), MAX was built into the meaning of the *wh* element, thus in effect collapsing stages (A) and (B). This makes it possible to capture (9b), but the motivation for doing things this way is unclear. Jacobson notes that English SFRs, but not English restrictives, can use the element *what*, much like interrogatives (which have also been claimed to involve the application of MAX), but this is clearly a language-specific accident. In languages like Chinese (see (12)), the clauses of SFRs are morphologically indistinguishable from the clauses of headed relatives, both contrasting sharply with interrogatives. This is also true of Hindi correlatives (which share much with SFRs; see next section), and whose relative phrases exhibit the element *j-*, just like all other relatives, while interrogatives exhibit a *k-*.

A point of some importance is that the feature [DEF] does not restrict the applicability of MAX to sets of individuals, but to whatever set happens to be formed by abstraction. In particular, MAX may target degrees, as in (15a), or properties, as in (15b). In the latter case, MAX picks out the maximal unique property that is contextually relevant (for some discussion of this, see Sharvit 1999). For completeness, I note that MAX can also apply to sets with more complex members, which is arguably the case in (15c), but discussion of such constructions is postponed until section 4.

- (15) a. I will buy [*however many books* you are willing to sell me *e*].
 b. John is [*what* his mother had always hoped he would be *e*] (e.g., a great leader).
 c. John bought [*what(ever)* there was *e* on the top shelf].

Before leaving the topic of SFRs, it is worth noting an additional aspect of them that has generated some debate in recent years, and which is orthogonal to the issue of “headedness” (i.e., of whether SFRs are headed by the *wh*-phrase or by a null element). Bresnan & Grimshaw (1978) proposed that SFRs are pluri-categorical, relying on data like those in (16); the categorial labels are (updated versions of) those assumed by Bresnan & Grimshaw.

- (16) a. I'll sing [_{DP} {*whichever songs, however silly a song*} you want me to sing].
 b. I'll sing [_{AP} *however erect* you want me to sing].
 c. I'll sing [_{AdvP} *however carefully* you want me to sing].
 d. I'll sing [_{PP} *in whatever town* you want me to sing].

Larson argued against this view, proposing that SFRs are restricted to the nominal variety (illustrated by

(16a)), that data like (16b–c) are (free) comparatives, and that data like (16d) consist of a preposition and a nominal FR complement, the “missing” preposition being part of a clause-internal elliptical PP which gets reconstructed by a generalization of May's (1985) approach to antecedent-contained deletion (ACD) of VPs. Grosu (in press), expanding and refining some argumentation in Grosu (1996), argues that Bresnan & Grimshaw's pluricategorical analysis is essentially correct (*modulo* the treatment of the headedness issue).

In particular, he argues against the comparative treatment of data like (16b–c) by pointing out that such data are not genuine paraphrases of data like (17a–b) (contrary to what Larson asserts).

- (17) a. I'll sing [as erect as you want me to sing].
 b. I'll sing [as carefully as you want me to sing].

The bracketed structures in (17), unlike those in (16b–c), allow an “at least” construal, and this, because the application of MAX to a set of degrees in the subordinate clause is independent of the quantification that applies to a set of degrees in the matrix clause (if this were not so, *more/less than* comparatives would be impossible). In contrast, the structures in (16b–c) allow only an “exactly” construal, since the effects of MAX need to be preserved in the meaning of the complex XP (as noted in the preceding section). With respect to data like (16d), Grosu (in press) argues that the extension of May's ACD approach from null VPs to null PPs is an illegitimate step, and that a PP-headed analysis constitutes the null hypothesis for such data; he also brings up a number of empirical arguments against Larson's analysis, some of which are strengthened versions of arguments put forward in Grosu (1996).

We now turn to a discussion of correlatives, but will return to SFRs when discussing other kinds of free relatives in sections 6 and 7.

3. Correlatives

The semantics of correlatives has many features in common with that of SFRs, as Dayal (1991a,b) observed. The major distinguishing properties are largely traceable to syntactic differences. Thus, correlative CPs may occur either left-adjoined to a DP in argument position (called the correlate), or may be adjoined to an IP that contains the correlate. In the latter case, the correlative CP may include multiple *wh*-phrases, which may be related to correlates in one-one, many-one, or one-many fashion (McCawley 1994). For an interesting and revealing discussion of the syntax of correlatives in Hindi, see Bhatt (in press), who argues that correlatives are initially merged as locally as possible with respect to their correlates, from where they may subsequently raise.

Much like SFRs, correlatives typically exhibit CP-internal *wh*-phrases, which, depending on the syntax of the language, may or may not remain *in situ*. An important feature that distinguishes them from SFRs is that their external pivot, that is, the correlate, is

typically overt, so that the range of permissible determiners (property (10b)) may be observed more easily. (18b) shows that only definite or universal determiners are allowed, in contrast to what happens in restrictive EHRs (see (18a)). As expected, correlatives do not stack with intersecting import (see (19)).

- (18) a. {ve, dono, sab, do, kuch, adhikam}
 the both all two few most
 laRke [jo khaRe hai]
 boys WH standing are
 lambe haiN.
 tall are
 ‘The, both, all, two, few, most} boys who are standing are tall.’
- b. [jo laRke khaRe hai], merii teacher
 WH boys standing are my.f teacher.f
 sochtii hEN ki
 thinks.f is.FPI that
 {ve, dono, sab, *do, *kuch, *adhikam}
 they both all two few most
 lambe haiN.
 tall are
 ‘Which boys are standing, my teacher thinks that
 {those, both, all, *two, *few, *most} are tall.’
- (19) jo laRkii khaRii hai
 WH girl standing is
 (*jo ravii kii dost hai),
 WH Ravi Gen friend is
 vo (laRkii) bahut lambii hai
 Dem girl very tall is
 ‘Which girl is standing (*who is Ravi’s friend),
 {she, that girl} is tall.’

Within the set of assumptions put forward in Grosu & Landman (1998), the interpretation of correlatives with a single j-phrase and a single correlate proceeds essentially as in SFRs. For example, in the acceptable version of (19) with two tokens of *laRkii*, the CP internal token restricts the individual variable, and the external token is interpreted as the identity function applied to the singleton designated by CP. At the CP level, the singleton is shifted to its unique member if the determiner is definite, and to the set of properties exhibited by all the parts of that member if the determiner is universal. I omit discussion of constructions with more than one j-phrase and/or more than one correlate (the interested reader may consult Grosu & Landman’s article for an analysis).

The analysis proposed by Dayal (1991a,b) is somewhat different. She assumes that MAX is built into the meaning of a correlative j-element, which maps the intersection of the properties designated by the NP within the j-phrase and by the remainder of CP to the maximal individual within this intersection. The correlative CP is then shifted to the generalized quantifier that designates the set of properties of this individual, and this generalized quantifier is then applied to the matrix clause, which is assumed to designate a property. Note that for the matrix to be so interpreted, it is necessary for the correlate to be

construed as a variable. Grosu & Landman point out that this is plausible when the correlate is definite, but not when it is universally quantified. It thus seems that the unified analysis proposed by Grosu & Landman for all maximalizing constructions fares better with respect to correlatives than Dayal’s.

4. Maximalizing Externally-Headed Relatives

The feature [DEF] is, as far as I can tell, a necessary property of the constructions discussed in sections 2 and 3. In this section and the next, we will look at constructions where [DEF] is demonstrably present only as part of a “rescue strategy.” That is to say, the constructions at issue can in principle be restrictive, but become maximalizing just in case the restrictive construal is blocked in some way. An alternative view of looking at this is that constructions of the latter type are ambiguous between restrictive and maximalizing status, but the latter is detectable just in case the former is unavailable. That this is so may be appreciated by noting that when a restrictive construal is allowed, maximalizing constructions cannot be teased apart from a proper subset of the restrictives, in particular, those with definite or universal force and with no stacking.

Carlson (1977) was, to my knowledge, the first scholar who drew attention to the fact that English externally-headed relatives (EHRs), which can certainly be restrictive, exhibit the characteristic diagnostics of maximalizing constructions (see (9)) when the “gap” of relativization is found in certain syntactic contexts, in particular, in the *there – be XP* context. The presence of the properties (9a-b) is illustrated in the (b) subcases of (20)–(21) respectively, which contrast with the corresponding (a) subcases, where the gap of relativization occurs in straightforward subject or object positions.

- (20) a. {The (two), all (the), every, both, some, few, a few} book(s) that *e* lay on the desk seem to have disappeared.
 b. {The (two), all (the), every, both, #some, #few, #a few} book(s) that there were/was *e* on the desk seem(s) to have disappeared.
- (21) a. The only students I saw at today’s party (that I had also seen at yesterday’s concert) were John and Mary.
 b. The only students there were at today’s party (*that there had also been at yesterday’s concert) were John and Mary.

Carlson observed that the individual variable in cases like (20b) is existentially bound within the subordinate IP, and thus unavailable for abstraction at the CP level. If so, how can the acceptable versions of (20b) exist in the first place? Carlson observed that the existentially bound individual variable can in principle be ‘modified’ by a degree variable, which provides a cardinality restriction, and which is not targeted by existential binding. This variable can in principle remain free and receive a value from the context, as in

there are (exactly) *that many* persons outside; Heim (1987) pointed out that kind modifiers have the same privilege, as illustrated by *there is (exactly) that kind of wine in this vat*. Since a modifying degree/kind variable is not “preempted” by IP-internal existential quantification, it is in principle available for abstraction at the CP level. Carlson and Heim suggested that precisely this kind of abstraction operation is involved in the interpretation of the constructions under consideration.

However, neither Carlson nor Heim explicitly discussed the compositional interpretive steps that take place **after** abstraction over the degree/kind variable. If nothing more is said, one would expect the construction to end up designating a degree, rather than an individual. In fact, Heim drew attention to the fact that such an interpretation is found in data like (22a), which is normally understood to imply that “we” might attempt to drink **an amount** of champagne equal to the one that was spilled, not that very champagne; for completeness, I provide the example in (22b) (adapted from Grosu 1999), which shows that a comparable reading may arise when the gap occurs in the context of (20b).

- (22) a. It will take us the rest of our lives to drink the champagne that they spilled *e* that evening.
 b. It will take us the rest of our lives to drink the champagne that there was *e* on the floor after last night’s party.

But, as Grosu & Landman (1998) pointed out, the tack suggested by Carlson and Heim has an important drawback: it fails to account for the fact that data like (22a) **also** have an implausible reading (on which “we” would drink the actual champagne that was spilled). This point is more saliently brought out by the observation that the felicitous versions of (20b) have **only** this kind of meaning (call it the “substance” reading, and call the alternative the “pure degree/kind” reading). The contextual factors that license or favour one or the other reading are hard to make precise, as Grosu & Landman noted, but what matters is that a substance reading is in principle possible, and that Carlson and Heim offered no account for this state of affairs.

Before examining the analysis of substance readings proposed by Grosu & Landman, I wish to note that, given the possibility of abstracting over modifying degree/kind variables, there is no reason why pure degree/kind constructions should exhibit the properties in (9), and why they should be anything other than *bona fide* restrictive constructions. Carlson (1977), who did not distinguish between the two kinds of readings and mixed examples of both kinds, assumed that all the data he brought up have maximalizing status, and this assumption was tacitly taken over by Heim (1987) and Grosu & Landman (1998). However, Grosu (1999, 2000b) showed that the apparent maximalizing character of pure degree/kind readings was an artifact of the particular examples chosen, and that more carefully chosen examples reveal the restrictive

character of these constructions. This point is illustrated by the following data.

- (23) a. In this vat, there is now {the exact, *an} amount of wine (that) there was *e* in it an hour ago.
 b. In this vat, there is now an amount of wine (that) there has {never, often} been *e* in it before.
 (24) a. She spoke with {the, *a} warmth (that) there was *e* in her voice last night.
 b. She spoke with a warmth (that) there had {never, often} been *e* in her voice before.

The (a) subcases of (23)–(24) illustrate the kind of data that led to the impression that pure degree/kind readings have maximalizing status. However, the infelicity of the indefinite versions of (23a) and (24a) appears to be due to the unique time reference in the relative, which implies that the degree/kind referred to is also unique. When a plurality of time points is assumed, existential quantification becomes perfectly acceptable, as shown by the (b) subcases of (23)–(24). For additional discussion of these matters, and for illustration of the possibility of restrictive pure degree/kind readings when the gap of relativization lies in other syntactic contexts, see Grosu (2000b).

We may now return to the kind of substantive readings illustrated by the acceptable versions of (20b). I outline below the essential interpretive steps proposed by Grosu & Landman, making explicit certain points that were left implicit in their article, and viewing [DEF] as the trigger for a rescue strategy aimed at circumventing the absence of a free individual variable. (i) A first step, which is required by the IP-internal quantification over the individual variable, is that – assuming a relatively conservative structure for (20b), in which *book(s)* is a CP-external nominal – this nominal must be **interpreted within CP** as a restriction on that variable (this can be achieved, for example, if the syntax ensures a CP-internal token of the nominal). (ii) A second step, which is in effect the first step of the rescue strategy, is that the degrees/kinds in the range of the degree/kind variable are assumed to form **ordered pairs** with the individuals they characterize the cardinality/kind of; the result is a free variable over such ordered pairs. (iii) A third step consists in abstraction over the ordered-pair variable at the CP level. (iv) A fourth step is forced by [DEF], which requires the mapping of the set obtained at the preceding stage to the singleton that harbours its unique maximal member, and is undefined otherwise. That is to say, MAX is defined just in case there is a single plural individual with the maximal cardinality/kind value. (v) Since the maximal individual within the maximal pair of the singleton possesses the cardinality/kind property designated by the other member of the pair, no information is lost if this singleton is mapped to another singleton that contains just the maximal individual. Grosu & Landman propose exactly such an operation, which they call “SUBSTANCE”, and

which takes place at the complex NP level. (vi) At the complex DP level, the singleton obtained at stage (v) serves as input to D, which, for reasons made clear in (10b), can only be definite or universal.

The special rescue steps triggered by [DEF], given the unavailability of a free individual variable, are two: ordered-pair formation at stage (ii), which in effect uses the free degree/kind variable and the intimate relation that exists between degrees/kinds and individuals as a “Trojan horse” for reintroducing individuals as parts of ordered pairs, and SUBSTANCE at stage (v), which takes advantage of the fact that degree/kind modifiers become dispensable following the successful application of MAX to a set of ordered pairs. Steps (iii), (iv) and (vi) are straightforward, given the features [PRED] and [DEF], and are also found in SFRs and correlatives (see sections 2 and 3).

What has just been said gives rise to the following query: why should a rescue strategy be associated with [DEF], and not simply with [PRED]? After all, one could in principle imagine a rescue strategy that skips stage (iv), and in which the output of stage (iii) is mapped by an operation akin to SUBSTANCE to the set whose members are all the individuals in the various ordered pairs; this set would then get bound by the external D, with the difference that nothing would limit D to definite or universal force. Why rescue strategies in this and other relative constructions (see section 5) are only triggered by [DEF] is something on which I can only speculate at the moment. Here is my conjecture: Restrictives and appositives are arguably extensions or grammaticalizations of other phenomena; by “grammatization” I mean incorporation into grammars of principles that exist in other domains (for example, in processing or discourse), possibly with modifications imposed by the more restrictive grammatical framework. In particular, it seems reasonable to view restrictives as clausal, and thus arbitrarily complex, counterparts of lexical adjectives (hence, the traditional term “adjective clause”), and appositives may be viewed as grammaticalized versions of discourse sentences related by anaphora. If one assumes that maximalizing relatives constitute grammaticalizations of the E-type strategy (a possibility to which I return in the next section), their use for rescue purposes makes good sense, since the E-type strategy involves both the creation of a property on the basis of a closed DP and the application of MAX to this property.

Concerning the rescue strategy itself, I wish to re-emphasize that the crucial step which ultimately makes available an appropriate variable for abstraction and maximalization, namely, ordered-pair formation, relies on an existing intimate relation between degrees and objects they measure. To highlight the potential of this relation, I will briefly note its usefulness in another construction discussed by Carlson (1977). Carlson observed that effects analogous to those in (20b) and (21b) also arise when the gap of relativization is in a “context of cardinality”,

such as the one filled by the boldfaced measure phrase in *the movie lasted **three hours***. Much like constructions based on the context *there be – XP*, those based on contexts of cardinality exhibit pure degree readings, which moreover allow existential quantification under special circumstances only (cf. (23') with (23)), as well as substance readings (cf. (20'b) with (20b)).

- (23') a. {The six, *some} hours that this movie lasts exceed the duration of most films.
 b. The movie lasted a number of hours that few other movies ever lasted.
 (20') b. {The six, *some} hours that this movie lasted will be remembered primarily for events that took place in the Far East at the time.

What distinguishes this construction from the previously considered one is that the individual variable is not existentially bound in contexts of cardinality, rather, it is typically not present at all in the first place, since such contexts select measure phrase, which denote nothing more than degrees on some scale. Still, owing to the fact that such degrees can in principle measure individuals under certain circumstances, ordered pairs of degrees and individuals make sense in principle, and may thus be assumed, given suitable contexts. This makes it possible for the matrix subject in (20'b) to denote a particular time period, not just an abstract time length.

5. Internally-Headed Relatives (IHRs)

In this section, we will look at IHRs, which just like EHRs, may in principle be either restrictive or maximalizing. Much as in the case of EHRs, maximalizing construals involve “rescue” steps, triggered by the unavailability of a restrictive construal. One difference between EHRs and IHRs, though, is that restrictive and maximalizing varieties of EHRs typically co-occur in the same language, while IHRs seem to be, as far as I can tell, either restrictive or maximalizing in specific languages. This state of affairs, whose underpinnings will be discussed below, in conjunction with the fact that earlier researchers often concentrated on single languages, may well be responsible for the fact that most earlier studies failed to recognize the dual semantic nature of IHRs and usually assumed that they are semantically uniform.

To illustrate, Ito (1986), Cole (1987), Culy (1990) and Bonneau (1992), to cite just a few, tacitly or explicitly assumed that IHRs have the semantics of externally-headed relatives in the corresponding languages, that is to say, of restrictives (presumably due to unawareness of the existence of the maximalizing type). In contrast, Dayal (1991a,b) demonstrated that the IHRs of Quechua have maximalizing semantics, but at the same time assumed that IHRs in general have this character. In contrast, Grosu (1994, 2000c) and Grosu & Landman (1998) argued that IHRs are not semantically uniform. The only writer known to me who independently alluded to a possible semantic split

within the class of IHRs was Basilico (1996), but, as far as I can tell, he got the classification upside-down (he stated that the IHRs of, e.g., Lakhota and Mojave are “quantificational”, a term used by Dayal 1991a,b to designate the maximalizing type, and that the IHRs of Navajo are restrictive, when in fact precisely the converse is the case; see below).

To be sure, certain writers, for example, Bonneau (1992) and Watanabe (2002), did recognize the existence of two classes of IHRs, but the criterion for classification was strictly syntactic: (in)sensitivity to Subjacency. As it happens, sensitivity/insensitivity to Subjacency seems to correlate with maximalizing/restrictive status respectively in the small sample of languages about which I have sufficient information (six in all), and this correlation may well be more extensive, or even completely general. The correlation is undoubtedly intriguing, and I will attempt to make some sense of it below, but it is unlikely that the syntactic distinction can be derived from the semantic distinction alone, since no comparable correlation has been reported for EHRs (e.g., in English, all EHRs, whether restrictive, appositive or maximalizing, are Subjacency-sensitive).

I begin by demonstrating the split of IHRs into two semantic classes, note the factors that block restrictive construals in certain languages, and sketch the rescue steps needed to achieve a maximalizing construal.

Two languages whose IHRs exhibit the two diagnostic properties of restrictives, that is, compatibility with existential quantification and with stacking (see (9)), are Lakhota and Mojave. I illustrate these properties in, respectively, the (a) and (b) subcases of (25)–(26).

LAKHOTA (WILLIAMSON 1987)

- (25) a. [[Thaspa *wa-ži* tayayužaža pi] cha] wachi
apple a-Irealis well wash Pl *Ind* I-want
‘I want an apple that is well washed.’
b. [[[[wowapi wa Deloria owa] cha]
book a Deloria wrote *Ind*
blawa] {ki, cha}] ...
I-read the *Ind*
‘(The, a) book that Deloria wrote that I have read ...’

MOJAVE (MUNRO 1976, BASILICO 1996)

- (26) a. ‘-avhay nyany lu:vu:c-n^y ‘-a:r-m
1-dress that resemble-Rel-Dem 1-want-Tns
‘I want a dress that resembles that one.’
b. [[tunay pi:pa ?-u:yu:-n^y] hatcoq
yesterday man I-see-Dem dog
k^ʷo:-n^y-c] pos ka?a:k-k
bite-Dem-Subj cat kick
‘The man I saw yesterday that the dog bit
kicked the cat.’

Both languages are insensitive to strong island constraints, in particular, to Subjacency (for illustration, see the sources just cited). This suggests that syntactic A'-movement is not involved in the derivation of these constructions, and that their interpretation is achieved due to binding operations; this is in effect the tack pursued in Bonneau (1992), Grosu

(2000c), and Watanabe (2002). In particular, Grosu (op. cit.) proposes that the italicized glosses in (25) and (26) are misleading, and that the corresponding items, at least in the contexts under consideration, are **scope-markers** indicating the position where the internal head clause that functions as their left-sister is interpreted. That *cha* in (25) does not have indefinite force is brought out by the fact that it is compatible with both indefinite and definite readings (see (25b)), and that *-n^y* in (26) does not have demonstrative (and thus, definite) force is brought out by a comparable state of affairs (see, in particular, (26a)). On the other hand, there is independent evidence that the internal heads are construed in the position indicated by the proposed scope-markers (for especially convincing evidence based on the interaction of internal heads with other logical operators in Lakhota, see Williamson 1987). In particular, the internal heads are construed just like the external NPs of, say, English restrictive EHRs, that is to say, as intersecting with the remainder of the relative clause. This kind of construal is a straightforward consequence of two properties of the internal heads (which are especially clear in Lakhota): (i) their scope, and (ii) the fact that they are NPs, not DPs. The latter property emerges from the following state of affairs (carefully documented by Williamson): only semantically weak determiners may co-occur with internal heads, all semantically strong determiners are right-sisters of the relative clause (in particular, of the highest relative in stacked constructions). On the assumption that weak determiners are in fact a sort of adjective (as proposed, for example, in Bartsch 1973, Partee 1987, Bowers 1991, Bittner 1994, and Landman 2002), and that the existential force of weak nominals in argument positions comes from somewhere else (see the sources just cited for specific proposals), the internal heads designate **properties**. The output of intersection is mapped to a generalized quantifier by a strong external determiner or by existential closure.

IHRs that have the diagnostic properties of maximalizing constructions are found in Quechua, Japanese, Korean and Navajo. I illustrate below the properties in (9a-b) with respect to the first two languages. The (b) subcases of (27)–(28) illustrate the exclusion of existential readings, and the (c) subcases illustrate the impossibility of stacking; for purposes of comparison, the (a) subcases show that EHRs in the corresponding languages allow existential readings, and thus, restrictive construals.

QUECHUA (DAYAL 1991 A,B, GROSU 2000c)

- (27) a. [[nuna ranti-shqa-n] ishkey bestya] alli
bestya-m ka-rqo-n.
man buy-PERF-3 two
horse-NOM good horse-VALIDATOR be-PAST-3
‘(The) two horses that the man bought were good horses.’
b. [nuna ishkey bestya-ta ranti-shqa-n
man two horse-ACC buy-PERF-3

alli] bestya-m ka-rqo-n.
 good horse-VALIDATOR be-PAST-3
 'The two horses that the man bought were good horses.'

NOT: *Two (just any two) horses that the man bought were good horses.*

- c. *[Juzi [nuka warmi-ta kuya-shka]
 Jose I woman-Acc love-RC/Nom
 kulki-ta kara-shka-ka]
 money-Acc give-RC/Nom-Tom
 sumaj-mi ka-rka
 beautiful-Val be-Past.3
 'The woman that I love that Jose gave money to was very beautiful.'

JAPANESE (SHIMOYAMA 1999, GROSU 2000c)

- (28) a. Taro-wa [[Yoko-ga reezooko-ni
 Taro-Top Yoko-Nom refrigerator-Loc
 e irete-oita] kukkii-o hotondo]
 put-Aux cookie-Acc most
 paatii-ni motte itta.
 party-to brought
 'Taro brought to the party most cookies that Yoko had put in the refrigerator.'
- b. Taro-wa [[Yoko-ga reezooko-ni
 Taro-Top Yoko-Nom refrigerator-Loc
 kukkii-o hotondo irete-oita]-no]-o
 cookie-Acc most put-Aux-NM-Acc
 paatii-ni motte itta.
 party-to brought
 'Yoko put most cookies in the refrigerator and Taro brought {them, *some} to the party.'
- c. *[John-ga [Mary-ga nagai ronbum-o yonda
 John-Nom Mary-Nom long paper-Acc read
 (-no)] kaita-no-ga]
 NM wrote-NM-Nom
 LI-ni notta
 LI-Loc appeared
 'The long paper that John wrote that Mary read appeared in LI.'

Soyoung-Yun Roger kindly informs me that Korean IHRs exhibit the same pattern of behaviour as those of Japanese; comparable behaviour is reported with respect to Navajo in Platero (1974), Basilico (1996) and Watanabe (2002). Furthermore, the four languages just referred to also exhibit sensitivity to Subjacency; this is illustrated with respect to Quechua in Cole (1987), with respect to Japanese in Watanabe (1992, 2002), and with respect to Navajo in Platero (1974).

For completeness, I note that the IHR status of Japanese constructions like (28b) was challenged in Mihara (1994) and Murasugi (1994, 2000), who proposed that the subordinate clauses are in fact adverbials. This kind of analysis was critically examined in Shimoyama (1999, section 5.3.), where it was argued that while some superficially similar constructions may plausibly be analyzed as having adverbial status, those which occur in subject or in a genitive-marked position need to be analyzed as

bone fide IHRs. I will assume the correctness of this view in what follows.

The sensitivity to Subjacency of IHRs in the languages under consideration suggests that syntactic movement of some sort is involved in their derivation. Bonneau (1992) proposes that the internal head undergoes raising at LF, Watanabe (1992) proposes that a null operator generated in the Spec of internal head raises to SpecCP, and Watanabe (2002) proposes an account in terms of feature-movement. Shimoyama (1999) notes that the wholesale raising of the internal head makes incorrect predictions concerning its scope properties, which are basically determined by its superficial position. For current purposes, I will assume the relatively conservative analysis in Watanabe (1992).

One important property of IHRs in the languages with maximalizing semantics that we have just considered, which distinguishes them from IHRs with restrictive semantics, is that the internal heads appear to have DP status, and this, because they may exhibit strong determiners. This is shown in considerable detail with respect to Japanese in Shimoyama (1999), and Soyoung-Yun Roger informs me that parallel facts are found in Korean; Faltz (1995) reports similar facts in Navajo. If so, we must assume that the individual variable associated with the internal head is locally bound by D, and thus unavailable for abstraction at the CP level. It thus seems that a rescue strategy is operative, and that it is triggered, much as in the constructions discussed in the preceding section, by the feature [DEF].

As far as I can see, the rescue strategy cannot take **exactly** the form of the one employed by Grosu & Landman with respect to data like (20b), since there is no evidence that modifying degrees or kinds are involved in the construal of maximalizing IHRs. What seems to be needed is a free "duplicate" of the quantifier-bound individual variable whose range of variation is identical to that of the "primary" variable; that is to say, all the restrictions **explicitly** expressed by the internal head, and no others, must apply to the duplicate variable. For example, if the IH is *three books*, the duplicate variable will range over the set of exactly three books that the IH explicitly refers to (not at least three books), and if the IH is *most books*, the duplicate variable will range over the precise majority of books (out of some larger set of books) that the IH denotes. At this point, we may assume that abstraction applies to the duplicate variable and that this variable is restricted in the way just indicated, as well as by the remainder of the clause minus the IH. Note that leaving out the IH leads to no loss of information, since the restricting content of the IH has been, by assumption, "transferred" to the duplicate variable. From here on, everything is straightforward: [DEF] maps the output of abstraction to a singleton, and a null (definite) D maps the singleton to its unique member. The interested reader may find a formalization of the sequence of steps just outlined in Grosu & Landman (2001), where a solution is also offered for

Japanese data like (29) (= Shimoyama's (51a)), where the IH is distributed over by a higher-scope quantifier (basically, Grosu & Landman propose that abstraction is followed by a scopal distributive operation, and that [DEF] "collects" the various sums of three books into a single maximal sum).

- (29) Wasaburo-wa [[dono gakusei-mo peepaa-o
Wasaburo-Top every student term-paper-Acc
3-bon dasita]-no]-o
3-Cl turned-in-NM-Acc
itiniti-de yonda.
one-day-in read
'Every student turned in three term papers and
Wasaburo read *them* in one day.'

The analysis just suggested may be contrasted with the one put forward in Shimoyama (1999), who proposes, building on Hoshi (1995), that Japanese IHRs are interpreted by the kind of *E-type strategy* that also operates in discourses. That is to say, the relative clause plays a role comparable to that of an earlier discourse sentence that contains an antecedent, the IH functions as the antecedent, and the CP-external material, as the anaphor. Furthermore, the CP-external material includes a null NP, which necessitates the formation of a property by whatever pragmatic principles govern the formation of properties in E-type anaphora, so that strictly referential anaphora, which is a possibility in discourses, is excluded here; this particular assumption is made in order to account for the fact that strictly referential internal heads, in particular, proper names, have low acceptability. Observe that, under this view, the subordinate clause is simply a declarative clause, and not a relative in the sense of (2), and the formation of a property outside this clause is governed by *pragmatic* principles, not by *grammatical* ones, contrary to what is assumed in Grosu & Landman (2001).

This pragmatic view of Japanese IHRs faces a number of problems, which arise from the fact that IHRs are subject to *tighter requirements* than discourses with E-type anaphora. The major differences between the two types of situation are listed in (30).

- (30) a. In discourses, potential E-type antecedents need not be resumed by anaphors, and anaphors need not have linguistically expressed antecedents; in IHRs, both an antecedent and an anaphor must exist.
b. In discourses, pragmatically inappropriate antecedents may undergo accommodation, as illustrated in (7a), reproduced below for convenience as (31a). In contrast, (31b) (cited in an earlier version of Shimoyama 1999) has only the absurd reading that attributes to some group of students simultaneous presence at the party and at home.
c. In discourses, antecedent and E-type anaphor may be separated by island boundaries, as

shown in (32); in maximalizing IHRs, this is not possible (see above).

- d. In discourse E-type anaphora, antecedents like *three children* in the first sentence of (33) tend to be construed as "exactly three children", but this is a defeasible implicature, as shown by the fact that the second sentence of (33) is not felt to contradict the first. In contrast, a Japanese text like (33b), from Hoshi (1995, 132), is felt to be self-contradictory according to my informants, much like the English text in (33c).
- (31) a. At the party, John saw *few students*. *They* were at home, preparing for a test.
b. *[[Honno *suunin-no insee-sika*
only a-few-Gen grad-student
doyoobi-noparty-ni ikanakatta]-no]-ga
Saturday-Gen party-to do-Neg-Past NM-Nom
jitsuwa uchi-de term paper-o kaite ita.
in-fact home-at term paper-Acc writing was
'Only a few graduate students came to the party on Saturday. In fact, they were writing term papers at home' [purported reading].
- (32) John knows [_{DP} a shepherd [_{CP} who owns *three sheep*]]; *they* are fed by a servant.
- (33) a. John has *three children*, and *they* are communists. But he also has two other children, and these are not communists.
b. John-ga [Mary-ga sanko-no ringo-o
John-nomMary-nom three apple-acc
muitekureta]-no-o tabeta.
peeled -no -acc ate
#Atode, Bill-wa sono nokori-no
afterwards Bill-top the remainder-gen
ringo-o tabeta.
apple-acc ate
'John ate the three apples that Mary peeled.
#After that, Bill ate the rest of the apples.'
c. The three children that John has are communists. #But he has two more children who are not (communists).

These distinctions point to the conclusion that whatever similarities there may be between E-type anaphora and maximalizing IHRs, the latter can at most be viewed as *grammatized* versions of the former, but cannot be simply reduced to the former, as Shimoyama proposes.

In section 1, I noted that appositives also differ from discourses with anaphoric connections, and suggested that the two distinctions illustrated in (6) and (7) are traceable to the *subordinate* status of the relative clause. But observe that these two distinctions are entirely parallel to those indicated in (30a-b), so that the latter, too, may be viewed as due to the subordinate status of maximalizing IHRs. In fact, such IHRs are arguably subordinate in a stronger sense than appositives, since they do not possess the independent illocutionary force of the latter. I conjecture that this fact is responsible for the property

in (30d), since appositives lack it, a point illustrated in (33d) below.

- (33) d. John has three children, who – incidentally – are communists. But he also has two other children who are not communists.

Be this as it may, it is important to note that the distinctions in (30) do not follow from Shimoyama's analysis. In contrast, (30a,b,d) do follow from the analysis proposed in Grosu & Landman (2001), and (30c) follows from the assumption that the subordinate clauses of maximalizing IHRs form the domain of syntactic movement, and are thus core relatives, not declaratives.

6. Transparent Free Relatives (TFRs)

In this section and the next, we return to FRs, and examine two constructions that differ *impressionistically* from the SFRs we examined in section 2 in significant ways. I will argue that this initial impression is matched by a substantive distinction with respect to the construction examined in section 7, but not with respect to the one addressed here.

Although quite common in everyday speech and texts, the construction at issue did not attract the attention of Western linguists until Wilder (1998) and van Riemsdijk (1998, 1999, 2001), who pointed out a number of properties that distinguish it from the kind of SFRs that were addressed in section 2. As it happens, some of the distinguishing properties of this construction were noted in two studies that were published in Japan in the seventies, in particular, Nakau (1971) and Kajita (1977), but they remained without echo in the West until Wilder's article, although McCawley (1988) included a succinct summary of Kajita's proposals. The most striking property of this construction, which also constitutes the justification for the term "transparent" (introduced by Wilder), is that its **pivot** (in the sense of (1)) appears to be not the *wh*-phrase, but rather a phrase predicated of the latter's trace. The *wh*-phrase itself is invariably *what* or a cross-linguistic counterpart, and its trace is located in the subject position of a small clause or copular construction. These points can be appreciated by examining the examples in (34).

- (34) a. John made [_{DP} what may appear to be [t a radically new proposal]]
(but is in fact a notational variant of well known analyses).
b. John is [_{AP/NP} what some people would characterize as [t {devious, a crook}]].
c. John is a dangerous and [_{AP} what Mary would characterize as
[t {devious, *(a) crook}]] spy.
d. I never got a chance to talk to him [_{AvDP} what you might call [t privately]].
e. She was [_{VP} what one may call [t poisoning his mind]].

Observe that the italicized small clause predicates agree in syntactic category with their TFRs, and can in fact be substituted for the latter without loss of grammaticality. On the other hand, the remainder of the TFR seems to have the essential force of an intensional modifier, and is at least *prima facie* comparable to lexical intensional modifiers like *alleged(ly)*. (34c) shows that TFRs not only **can**, but also **must** agree in syntactic category with their small clause predicates, and this, because this particular TFR cannot be nominal, since attributive modifiers are necessarily adjectival (cf. *this is a {disastrous, *disaster} proposal*), and a nominal small clause predicate induces deviance. The various writers mentioned earlier in this paragraph note a number of additional effects that appear to confer pivot status to the small clause predicate.

This state of affairs brings up a dilemma comparable to the one that confronted linguists who tackled SFRs, namely: Is the small clause predicate an internal or an external pivot of the TFR? Interestingly, all earlier writers known to me who proposed analyses of TFRs (that is to say, the five writers mentioned two paragraphs earlier) converged on the view that (a token or proper sub-token of) the small clause predicate is a CP-external head of the construction, and this, despite non-trivial differences between the various analyses. Thus, these writers proposed to assign to TFRs configurational properties radically different from those that had ever been assigned to SFRs. Furthermore, some of these writers also suggested that TFRs should be semantically distinguished from SFRs. This suggestion was motivated by the observation that TFRs can felicitously occur in contexts of indefiniteness (see (35a)), something which was interpreted as signaling the absence of the maximalizing properties that characterize SFRs (brought out by the deviance of (35b)).

- (35) a. There is [what {looks like, appears to be} a pork-chop] on your plate.
b. *There is [what John brought from the market] on the table.

An entirely different view of TFRs is argued for in Grosu (in press), where it is shown that an external-head analysis of the small clause predicate faces a number of empirical difficulties, which are all avoided by assuming that TFRs have the same configurational properties as SFRs. It is also argued in this paper that the contrast in (35) does not require a distinct semantic analysis for TFRs, since the context *there be* – *XP* requires only that the **individual** variable should not be bound by a definiteness operator (see section 4). In this connection, it is pointed out that SFRs are not barred from the context at issue when MAX binds something other than an individual variable, as illustrated in (36), and it is argued that the acceptability of (35b) is traceable to a comparable state of affairs (in particular, to the fact that MAX binds a property variable).

- (36) There will be [*however many books you require*] on your desk by tomorrow.

As for the pivot-properties of the small clause predicate (or, somewhat differently put, the transparency effects found in TFRs), they are argued to arise when the following constellation of factors is present: (i) the internal small clause or copular construction is not “strictly predicative”, but **equative-specificational**, a state of affairs that requires the equated terms to be of **the same logical type**; (ii) both the wh-phrase and the null external material are underspecified with respect to logical type and syntactic category (as well as other syntactic properties), and specification is provided by the small clause predicate under equation. The upshot of (i)-(ii) is that the small clause predicate **determines** the logical type and syntactic properties of the TFR, thus in effect acting as an internal pivot. However, the variable referred to in (2b) is still the one defined by the trace of the wh-element, just as in SFRs. To provide an idea of how MAX operates in TFRs, I provide in (37a) a semantic translation of (34c), and in (37b), a paraphrase of (37a) in words.

- (37) a. [λx . [DANGEROUS(x) & SPY(x) & [MAX(λP . WOULD-CHARACTERIZE [m, \hat{P} = $\hat{DEVIOUS}$]])(x)]] (j)
 b. John is dangerous, a spy, and has the unique property that Mary would characterize as identical to the DEVIOUS property.

For completeness, I will note two more points made in Grosu (in press). The first is that transparency is not an exclusive property of FRs, and that it may also be found in so called “light headed relatives”, provided that the element in SpecCP and the CP-external material are underspecified in the sense of (ii) of the preceding paragraph; this is illustrated by the following French example (which is parallel to (34c)).

- (38) Il s’agit d’une nouvelle et [*ce que j’appellerais it concerns a new and Dem that I-would.call très intéressante*] proposition.
 very interesting proposal
 ‘We are faced with a new and what I would call very interesting proposal.’

The second point is that the small clause predicate in constructions like (34c) and (38) may be an adjective of the kind that is considered strictly attributive, as shown in (39a). This fact supports the hypothesis that TFRs involve an equative internal small clause, since attributive adjectives may not function as “strict” predicates, but may function as equative predicates, as illustrated by (39b) and (39c) respectively.

- (39) a. He is a dubious and [what most people would call *false*] prophet.
 b. *This prophet is {former, false, quasi, pseudo, mere}.
 c. Alleged is presumed; pseudo is false; former is earlier.

We have now in effect concluded our discussion of core relatives in general and of maximalizing relatives in particular. We have proposed to view core relatives as subordinate clauses that exhibit, in **semantic** representation, a distinguished variable that gets discourse bound or syntactically bound, and in which both the variable and the binder have correlates in **syntactic** representation. We further proposed that appositives are typed as [REL], restrictives as [REL, PRED], and maximalizers as [REL, PRED, DEF], and that in the last case, the constellation [PRED, DEF] triggers the mapping of a set X to the singleton whose member is X’s unique maximal member. Finally, it was shown that, with respect to the constructions discussed in sections 2, 3 and 6, the characterization of maximalizing constructions just alluded to is sufficient to derive their semantics and to account for their two major diagnostic properties, that is, the exclusion of construals other than definite or universal, and the impossibility of stacking with intersecting import. With respect to the maximalizing constructions discussed in sections 4 and 5, it was shown that certain rescue steps are needed as well, and a conjecture was offered concerning the association of rescue strategies with MAX.

7. Some non-core relatives

In the preceding sections of this article, we were concerned with constructions that belong to the core class of relatives, as defined in the last paragraph of the preceding section. In this section, we will discuss two kinds of construction that do not fully satisfy core requirements, but that nonetheless are arguably relative constructions of some sort.

The first kind of construction is illustrated by English data like those in (40) and Japanese data like (41) (from Kuno 1973).

- (40) a. The mathematical system [such that two and two are four] is Peano arithmetic.
 b. This is the kind of American car [that the windows never close properly].
 (41) [[California-syuu-ga Nihon yori ooki] California-state-Nom Japan than big America]-wa hontooni ooki kuni desu.
 America-Top really big country is
 ‘America, which is such that the state of California is larger than Japan, is really a big country.’

What characterizes these constructions is that the bracketed clauses do not obviously include a variable of the kind required by (2) in **semantic** representation, and this, because there is no gap or other element that can plausibly provide syntactic support for such a variable. Nonetheless, the way in which these sentences are understood suggests that a variable is, after all, introduced by **pragmatic** accommodation. Thus, (40a) is about a system such that two and two are four **within it**, (40b) is about a car such that **its** windows never close properly, and (41) imputes to

America the property that the state of California **within it** is larger than Japan. Since a variable is introduced, but not by grammatical means, it makes sense to view the constructions at issue as relative constructions, but not of the core kind.

The second kind of construction to be discussed is, in a sense, a converse of the first, because it does exhibit a grammatically introduced variable within its subordinate clause, but no clause-external syntactically represented material that can support a binder for the variable, the construction being a “bare” CP. Nonetheless, the variable ends up operator-bound, much as in core relatives. The construction thus arguably qualifies as a relative, but not of the core kind, since binding is not syntactically supported. The construction is found in (apparently all) Romance and Slavic languages, as well as in Modern Greek, Hungarian and Modern Hebrew, but is, for some reason, absent from the major Germanic languages. Apart from its special syntactic properties, the construction at issue also differs semantically from the core relatives it superficially resembles most, that is to say, from SFRs. The distinction lies in the fact that the CP-internal variable ends up bound by a narrow-scope **existential** operator, rather than by a definite or universal operator. To complete the characterization, I note that the IP which restricts the variable has (possibility or ability) **modal** force, something which is conveyed by a non-indicative grammatical mood in the languages referred to above, but which may also be signaled by other means (e.g., future tense, lexical modal verbs, etc.). An appropriate name for this construction might be Modal Existential Clausal Construction (MECC). An illustration from Romanian is provided in (42).

- (42) (Nu) avem [cu cine {vorbi,
not have.1.Pl with whom talk.Inf
să vorbim}].
Subjunctive-Particle talk.1.Pl
'We have ((someone, no one)) with whom we
could talk.'

While MECCs have been much less widely discussed in the generative literature than SFRs, two of their aspects have received a certain amount of attention: (i) their configurational structure, and (ii) the source of their existential binding.

In relation to syntactic structure, some writers (e.g., Suñer 1984) assumed without argument that they have the gross structure of SFRs, in particular, that they are complex nominals which are headed by a null pronoun and properly include a CP, the interpretation only being different from that of SFRs. Against this view, it was argued in some of the subsequent literature, in particular, in Grosu (1989, 1994, 2001), Grosu & Landman (1998), and Izvorski (1998) that MECCs are bare CPs, and this, because of a number of properties they share with interrogative complements (which are incontrovertible bare CPs), and which distinguish them from SFRs. The major properties in question concern the degree of resistance to extraction, the possibility of multiple wh-phrases,

and the ability of the wh-phrase to trigger Pied-Piping and to freely exhibit just any morphological Case or prepositional marking required within the relative. The last property, in particular, is notoriously restricted in SFRs and overtly headed relatives with null operators in SpecCP, the severity of restrictions varying cross-linguistically (for the characterization of these restrictions, see Grosu, in press, and references therein). I illustrate the contrast between SFRs on the one hand and MECCs and interrogatives on the other in (43a–c) respectively.

- (43) a. *[*Avec la femme de qui tu viens de danser*]
with the wife of who you come of dance.Inf
devra quitter la salle
will-have-to leave the hall
'The fellow whose wife you just danced with
will have to leave the hall.'
[purported reading]
- b. Je n'ai plus [*avec la femme de qui danser*].
I not-have anymore with the wife of who
dance.Inf
'There is no longer anyone whose wife I could
dance with.'
- c. Je ne sais plus [*avec la femme de qui danser*].
I not know anymore with the wife of who
dance.Inf
'I no longer know whose wife to dance with.'

The bare CP hypothesis was challenged in Rappaport (1986) on the basis of Russian data that exhibit some morphological interaction between the relative pronoun and elements of the matrix, in particular, negation. Partly on these grounds, Rappaport proposed that the apparent relative pronoun is in fact an indefinite that is clause-external and heads a complex nominal. Strangely enough, however, Rappaport did not show how such an analysis can be reconciled with phenomena like (43b), which are manifested in Russian in essentially the same way as in other languages that allow MECCs. It thus seems that, while the Russian-specific morphological effects certainly deserve careful study, they are not sufficient to justify a complex nominal analysis of Russian MECCs.

The striking morphological and syntactic similarities between MECCs and interrogative complements that exist in a number of languages led Izvorski (1998) to the hypothesis that MECCs are interrogatives as far as morphology and configurational syntax goes. Furthermore, she proposed to partly unify the semantic analysis of the two constructions by assuming that MECCs are simply **underspecified interrogatives**, in the sense that their C lacks the operator feature which, in questions, maps the output of abstraction to a set of propositions. Rather, the output of abstraction is taken to designate the meaning of CP, and the existential binding and lifting into a generalized quantifier is taken to be provided by the lexical semantics of the matrix verb. Essentially the same semantics for MECCs was suggested by Grosu & Landman (1998). Thus, both sets of authors viewed the source of existential binding as **external to CP**.

Grosu (2001) showed that the morphological and syntactic parallelism between MECCs and interrogatives is not universal, and pointed out that a clause-external source for existential binding is conducive to difficulties. In particular, he showed that it incorrectly predicts (a) that MECCs should be able to function as predicates, and (b) that they should be able to exhibit free-choice force in environments where nominals can. The latter point is brought out by the contrast between the two Romanian constructions in (44), which differ minimally in that (44a) exhibits a free-choice item in CP-external head position and (44b) exhibits such an item in SpecCP of a MECC.

- (44) a. Poți avea [orice cu
you-may have anything with
care să cureți podeaua].
which Subj clean.1.Sg floor-the
'You may have/get anything with which to
clean the floor.'
- b. *Poți avea [cu orice să
you-may have with whatever Subj
cureți podeaua].
clean.1.Sg floor-the
[same purported meaning as (44a)]

On the grounds noted in (a) and (b) above, Grosu (2001) proposes that the source of existential binding is **CP-internal**, in particular, that it is triggered by an operator feature on C which **requires** the mapping of the output of abstraction to an existential generalized quantifier, thus eliminating the possibility of predicate or free-choice meanings for MECCs.

8. Apparent, but not genuine relative constructions

We have so far discussed a variety of constructions that arguably qualify as core or peripheral relatives. In this last section, we will examine a number of constructions that superficially look like relatives, and may in fact even share certain syntactic and/or semantic properties with them, but are arguably too distant from (1) and (2) to qualify as relatives, even in a peripheral way. We will look at three such constructions, with no claim whatsoever to exhaustiveness.

A first illustration is provided by French data like the following.

- (45) a. On entend la pluie [qui tombe].
one hears the rain that falls
'One can hear the rain falling.'
- b. Il est là [qui arrose son jardin].
He is there that waters his garden
'He is there watering his garden.'
- c. Avec Marie [qui se prend pour un génie],
with Marie that Refl takes for a genius
la situation est devenue intolérable.
the situation is become intolerable
'With Marie fancying herself a genius, the
situation has become intolerable.'

The bracketed structures look superficially just like French restrictive relatives; in particular, they are introduced by complementizers, rather than by *qu*-pronouns, as French interrogatives and free relative CPs are, a state of affairs brought out by the fact that the introductory element in (45a) is *qui*, not *que* (in interrogatives and free relatives, the *qui/que* distinction correlates with animate/inanimate status of the gap position, while in restrictives and appositives, it correlates with subject/object status; essentially uncontroversial analyses of this state of affairs attribute pronominal status to the former set of elements and complementizer status to the latter; see, for example, Rizzi 1989 and references therein). Furthermore, these structures designate properties, much like restrictive relative clauses. However, the way in which they combine with further material is different, and does not fall under (2). Thus, the variable denoted by the gap does not end up bound by an operator (as in restrictives), not even a semantically created one (as in MECCs), and thus does not qualify as a pivot in the sense of (1). Rather, as suggested by the English translations, these constructions function as small clause predicates, being primarily distinct from the kind of small clause predicates that are allowed in English in the finiteness of their verb. In fact, these constructions also resemble small clause non-finite verbal predicates, rather than restrictive relatives, in that their internal gap can only occur in subject position, as illustrated in (46).

- (46) Le professeur était là
the teacher was there
{qui, *à qui on} parlait.
that at whom one spoke
'The teacher was there {speaking, *at whom one
was speaking}.'

For detailed discussion of the properties of these finite small clause predicates, see Lambrecht (1994) and references therein.

A second construction that masquerades as a relative is also found in French, where the counterpart of English finite *what* interrogative complements has the appearance of a complex DP headed by a demonstrative, just like the "straightforward" DP in (47a) (the expected counterpart of *what*, *quoi*, is barred for reasons that need not concern us here; for a proposed characterization of the distribution of *quoi*, see Grosu, in press). An illustration of the interrogative option is provided in (47b).

- (47) a. [Ce [e que tu as acheté t]]
Dem Op Czer you have bought is
est trop lourd.
too heavy
'What you bought is too heavy.'
- b. Je me demande [ce [qu' il veut t]].
I me ask Dem that he wants
'I wonder what he wants.'

Note that the variable designated by the trace of the null operator does not end up bound by an element of

the matrix, as required by (2), nor is it in any sense “semantically shared” by the matrix clause (see (1) and ensuing text). Rather, if CP is construed as the set of propositions whose content is ‘there is an x such that x is identical to the maximal entity that “he” wants’, as proposed in Jacobson (1995) with respect to standard questions, this set is in effect a singleton, and the demonstrative plausibly shifts this singleton to its unique member. Conversely, if CP denotes a unique proposition, as proposed by Groenendijk & Stockhof (1982) with respect to standard questions (see also Rullmann 1995), the demonstrative may be viewed as denoting the identity function. Be this as it may, the construction ends up designating (a set of) propositions, not the kind of entities over which the variable designated by the trace ranges. It thus may be viewed as a “concealed” question (in the sense of Grimshaw 1979), but not as a relative.

A third and final pseudo-relative construction, which is quite widespread cross-linguistically, is illustrated by the English example in (48).

(48) [*Whatever* you tell me], I am still leaving tomorrow.

The bracketed structure has the appearance of an SFR of the *wh+ever* variety, but the semantic force of a concessive adverbial. As Izvorski (2000) convincingly argues, this construction is, unlike SFRs, a bare CP, and furthermore one whose *wh*-phrase is not a pivot in the sense of (1), since it is in no way “shared” by the matrix. In particular, the nature of the *wh*-phrase does not affect the distribution of the construction, whose interpretation is invariably that of an exhaustive conjunction of conditional clauses of

the form ‘if you tell me p, I am leaving tomorrow, and if you tell me q, I am leaving tomorrow, etc.’, or, alternatively, ‘for any x whatsoever, if you tell me x, I am leaving tomorrow.’ That the concessive adverbial is a CP, not a complex XP, is also suggested by the fact that it may masquerade as a yes/no question (see (49)), something that is not found with genuine SFRs.

(49) [Whether you like it or not], I am still leaving tomorrow.

In sum, there exist constructions that look like relatives and may even share significant properties with them, but cannot plausibly be viewed as genuine relatives, either core or peripheral.

As a parting shot, and for the sake of completeness, I wish to note that there also exist constructions that look like relatives **and** like interrogatives, and whose precise status has been the object of lively debate in recent years. I am thinking of specificational pseudoclefts like [*what John likes*] is himself, whose bracketed structure has been vigorously argued to be an SFR by Heycock and Kroch (1999), Sharvit (1999), and Heller (1999), and an interrogative, at least at the semantic level, by Den Dikken et al. (2000) and Schlenker (in press). For lack of space, I cannot discuss the many interesting points raised by these authors, and the interested reader is advised to consult the works just cited and the references therein.

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