Transparent free relatives: two challenges for the grafting approach*

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ABSTRACT

This chapter argues that Free and Transparent Free relatives have bi-dimensional configurational structures, with the wh-element as 'pivot' in both constructions, and against the view that they have distinct multi-dimensional structures, being internally and externally headed by the wh-element and a distinct nominal respectively. It is argued that the proposed view yields superior analyses of the following facts: [i] Transparent Free Relatives are invariably construed as existentially quantified, regardless of the quantificational force of the pivot, and [ii] certain Case effects predicted by the competing approach fail to materialize in most idiolects, and are only weakly manifested in a small number of idiolects in which they affect both Free and Transparent Free Relatives, contrary to predictions.

1. Introduction

This is the most recent 'instalment' of a lively debate that Henk van Riemsdijk and the author of this paper have had over the years concerning the preferred analysis of 'transparent free relatives' (henceforth: TFRs), a construction signaled to the linguistic world by Nakau (1971) and Kajita (1977), but so named by Wilder (1998), in view of his impression, shared by the two other authors just mentioned, that a 'pivotal' element (see below), although apparently relative-internal, is in fact (also) relative-external. In all the languages known to me in which TFRs have been identified, they have the superficial appearance of an 'ordinary' free relative (henceforth: FR),

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but are impressionistically distinguishable from the latter by a number of properties, which can serve as their diagnostics:
(i) While FRs may be introduced by a variety of *wh*-phrases, whether 'plain' or with free-choice import, TFRs are introduced exclusively by *what* and its cross-linguistic counterparts (*ce que* in French, *ceeace* in Romanian, *was* in German, and *ma-she* in Hebrew).
(ii) In contrast to FRs, whose intuitively felt 'pivot' is the *wh*-phrase, the intuitive pivot of a TFR is a phrase that serves as non-subject of a copular construction or small clause.
(iii) This pivot sometimes shares with the containing complex DP a number of syntactic and semantic properties, in particular, syntactic plurality, syntactic category, and (non-)human status, a state of affairs not found in minimally different FRs, as shown in (1) (but see also the discussion of (1b', b") in section 2); also, when a TFR has adjectival status its pivot exhibits head-like behaviour in relation to the Head Final Filter.
(iv) TFRs are felicitous only if the pivot is construed in the scope of a relative-internal intensional operator (modal, temporal, locational, etc.), whose raison d'être is to ensure that the pivot denotes the value of an appropriate intensional object (e.g., an individual concept) at a *proper subset* of the entire set of intensional indices of some kind (i.e., modal, temporal, etc.) that are contextually taken into account, *and at no others*. The need for such an intensional operator is brought out by the contrast between (2a) on the one hand and (2b-c) on the other, where the latter two only exhibit a temporal operator within the relative. Note that the absence of such an operator in (2a) has the consequence that what 'he' lives in is defined as Moscow at all the temporal indices that are contextually taken into account, with the result that (2a) says nothing other than a sentence obtained by substituting in (2a) the pivot for the TFR[1]; in contrast, the presence of such an operator in (2b-c) allows for the possibility that what 'he' lives in may in principle be differently defined at the remaining contextually assumed temporal indices, as made explicit by the *but*-initiated post-comma continuations[2].

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[1] The infelicity of a semantically 'vacuous' use of equation is not limited to TFRs, but is found in FRs as well. For example, (i), which is clearly an FR, in view of the wh-pronoun that introduces it, and which purports to say nothing more than that she is talking to John, is infelicitous, in contrast to (ii).

(i) #She is talking to [who is John].
(ii) She is talking to [who seemed to her to be John] (even though it was someone else).

[2] In the interest of clarity, I note that the presence in the relative of an intensional operator of *a certain kind* does not necessarily impose a partition on indices of *the same kind*. To illustrate, consider (ib), which contrasts in felicity with (ia).

(i) a. #I live in [what is Jerusalem].
b. I live in [what is, has been, and will always be *Jerusalem*].

(1) a. *Free Relative*
She invited [$_{CP}$ who(m)/#what her father asked her to].

b. *Transparent Free Relative*
She invited [$_{CP}$ what seems to be *a policeman*].

(2) a. #He lives in [$_{CP}$ what is *Moscow*].
b. He lives in [$_{CP}$ what was once *Leningrad],* but is today St. Petersburg.
c. He lives in [$_{CP}$ what is today *St. Petersburg],* but was once Leningrad.

Detailed descriptions of the full range of distinguishing properties of TFRs may be found in Grosu (2003), van Riemsdijk (2006a,b, 2012), and Kim (2011). The major disagreement between van Riemsdijk (1998, 2000, 2001, 2006a, 2012) and Grosu (2003, 2007, 2010) concerns the precise way in which TFRs differ analytically from FRs.

Adopting a "direct" analytical approach to (iii), van Riemsdijk proposes that the *wh*-phrases of FRs and the pivots of TFRs are simultaneously their internal and external 'phrasal heads.' This idea is implemented in a framework that allows for multi-dimensional representations, and which assumes that a phrase belonging to a bi-dimensional tree may be 'grafted' on another bi-dimensional tree, so that the phrase in question ends up shared by both trees. I should note that the Grafting approach is not required for assigning external head status to the *wh*-phrase of an FR, in view of its left-peripheral position, but is necessary for assigning such a status to the pivot of a TFR, which may occur string-medially, as in the German examples in (24).

The approach put forward by Grosu (op. cit.) is more "indirect" insofar as capturing (iii) is concerned, and relies on more conservative assumptions. In particular, it assumes exactly the same kind of (bi-dimensional) representation for FRs and TFRs, with the *wh*-phrase hosted by the [Spec, CP] of the TFR, and a Null Determiner that serves as a CP-external head.

Clearly, the temporal specifications within the relative cover the entire range of temporal indices and impose no partition on them. However, whoever utters (i) wishes to *emphasize* the eternal status of Jerusalem, which means that (s)he has in mind the possibility of *alternative views* of the past and/or future of Jerusalem, which thus become part of the context taken into account. What this means is that a partition is imposed on the set of contextually relevant belief-worlds.

The contrast in (i) is comparable to the one in (ii), adapted from Nakau (1971), where emphasis in the (b) sub-case suffices to ensure felicity.

(ii) a. #He eats with [what is a fork].
b. He eats with [what *IS* a fork] (even if Mary thinks it is a spoon).

Grosu (2007, 2010) proposes – *contra* Grosu (2003) – to distinguish TFRs from minimally different FRs by assuming that the featural specifications present in *what*-FRs are absent in TFRs. In particular, Grosu (2007, 2010a) proposes that *what,* which is arguably the least specified *wh*-item in FRs (see (18) below and preceding remarks thereon), is entirely voided of syntactic and semantic content, and furthermore that the inherent definiteness FRs (Jacobson 1995) is suppressed.

Relying on the additional assumption (argued for in Grosu 2003) that there is a copular construction or a small clause present, which is *equational,* rather than *predicational*, Grosu (2007, 2010) proposes that underspecification coupled with the equational relation between the 'trace' of *what* and the pivot gives rise to a 'transparency channel' through which certain types of information may be conveyed from the pivot to the TFR, and *vice versa*.

As far as I can see, both approaches can deal in an essentially adequate manner with some (but not all; see the discussion of (1a-b) in section 2) of the particular facts indicated in (iii) above, and the choice between them might be viewed as a matter of taste and/or theoretical commitments. The principal goal of this paper is to address two sets of facts that do not fall under (iii), and which, I will argue, can be handled straightforwardly and naturally within the approach I proposed, but constitute challenges, one of them very serious, for the approach advocated by van Riemsdijk. These facts are discussed in sections 2 and 3. Section 4 is a summary of results.

I briefly outline in (3a) and (3b) the gross structures assigned by van Riemsdijk to an FR and a TFR respectively, and in (3c-d), the common structure I assign to both constructions ('∅' stands for a null determiner). Note that in (3a-b), A and B are distinct trees with distinct roots, which share nothing but the italicized items; these items are pronounced just once (inside the relative), and there is a single token in the representation, which has two mothers, a state of affairs obtained by re-merging a phrase out of B into A. Grafting is thus *generalized* Re-merger in the sense that it is not constrained by the tacit assumption that it operates only within a single bi-dimensional tree.

(3) a. [$_A$ I saw (*what*)] [$_B$ *what* you saw].
b. [$_A$ I saw (*a girl*)] [$_B$ what seemed to be *a girl*].
c. I saw [$_{DP}$ Ø [$_{CP}$ what you saw]].
d. I saw [$_{DP}$ Ø [$_{CP}$ what seemed to be a girl]].

2. The semantics of TFRs

One of the reasons invoked by van Riemsdijk (2006a,b) for analyzing the pivot as the phrasal head of the TFR is that, in his view, the (in)definite

force of a TFR reflects the (in)definite status of its pivot. This claim was supported with two kinds of data, illustrated in (4) and (5).

(4) a. He ate [*what* they euphemistically referred to as *a steak*].
b. He ate *a steak*, at least, they called it a steak.

(5) a. There is *{a, #the} virus* in this program.
b. There is [what seems to be *{a, #the} virus* in this program].

Concerning (4), it is claimed that (4b) is an essentially adequate paraphrase of (4b), and it is noted that the object of *ate* is indefinite in both cases. Concerning (5), it is noted that the well known "definiteness effect" found in the existential context *there BE __ XP*, which is illustrated in (5a), is also found in (5b), where the pivots are correspondingly (in)definite.

Concerning the kind of paraphrase illustrated in (4), it is adequate in special cases, but not in general. In the particular case of (4), if we assume that the euphemism concerns the size of the steak, in the sense that the steak 'he' ate was a huge one, (4b) may be understood as asserting more or less the same thing as (4a), namely, that he ate a steak. There are in fact constructions for which a paraphrase of the kind at issue seems even more incontrovertibly adequate, e.g., (2c), if paraphrased as in (2c').

(2) c'. He lives in St. Petersburg, at least, this is what they call it nowadays.

Crucially however, there also exist situations in which comparable paraphrases are subtly or even grossly inadequate. To see this, consider the (a) sub-cases of (6)-(10) and their purported paraphrases in the corresponding (b) sub-cases.

(6) a. He is eating [what can't possibly be *a steak*]. ≠
b. He is eating a steak, but it can't possibly be *a steak*.

(7) a. Walking in the dark, I suddenly bumped into [what seemed to me to *be Mary*], but turned out to be the neighbour's dog. ≠
b. I suddenly bumped into *Mary*, at least, it seemed to me to be Mary.

(8) a. I have just stumbled over [what can't possibly be *Mary*], I wonder what it is. ≠
b. I have just stumbled over *Mary*, but it can't possibly be her.

(9) a. She was speaking with [what seemed to be *all the people in the hall]*, but it turned out to have been only some of them. ≠

b. She was speaking with all the people in the hall, or so it seemed.

(10) a. She was speaking with [what couldn't possibly be all the people in the hall]. ≠
b. She was speaking with *all the people in the hall*, but it couldn't possibly be all of them.

The paraphrases in (6b), (8b) and (10b) are grossly inadequate and require no comment, but the paraphrases in (7b) and (9b) are also inadequate, even if perhaps more subtly. Thus, note that (7a), for example, does not assert that the speaker bumped into Mary, but the initial sentence in (7b) does, and is then followed by a hedge compatible with the possibility that the assertion may have been false; crucially, (7a) does not include the withdrawal of an initially made assertion, in particular, the assertion that Mary was bumped into, since such an assertion is not made at any point. This subtle distinction between (7a) and (7b) is arguably traceable to the fact that the parenthetical addendum in (7b) is *appositive*, while the TFR minus the pivot does not have appositive status.

The problem with paraphrases of the kind suggested by van Riemsdijk is that they assume the pivot is construed both at the intensional indices of the matrix and at those of the relative, when in fact it needs to be construed *only* at the indices of the relative-internal intensional operator. Importantly, not only the NP part of the pivot, but its Determiner as well, needs to be construed at relative-internal indices, in view of the inadequacy of the paraphrases in (9b)-(10b). For the sake of clarity and in order to avoid possible misunderstandings, I note that the characterization of the felicity conditions on TFRs that I provided does not exclude the possibility that the indices of the relative may happen to coincide with those of the matrix, so long as there exist distinct additional indices that are contextually taken into account, hence, the adequacy of (2c') as a paraphrase of (2c). But what matters for present purposes is that such paraphrases are not always adequate, in particular, in cases like (6)-(10).

In (11a-e), I provide what I view as essentially adequate paraphrases of the (a) sub-cases of (6)-(10). Note that the adequate paraphrases are invariably indefinite, *irrespective of* the (in)definiteness of the pivot, and more generally, of its quantificational force. This state of affairs has a perfectly natural explanation under the view of TFRs I proposed.

The *raison d'être* of TFRs is, as already indicated, to impose a binary partition on the set of intensional indices that are contextually taken into account, such that the intensional object denoted by the TFR is defined at only one of the partition's cells, in particular, the one that consists of the indices of the relative. Lack of specification in the other cell of the partition automatically results in indefinite force for the complex DP. – As for FRs, and more generally for the larger class of necessarily definite or 'maximalizing'

relatives (which also includes correlatives, certain sub-types of internally headed relatives, and certain sub-types of externally-headed 'amount' relatives; see Grosu and Landman 1998, 2012, Grosu 2003, and pertinent references therein), I do not know of any enlightening explanation for their definiteness, and until one is found, I view this property as inherent, and thus in need of stipulation (for a recent defence of the definiteness of FRs, see Hinterwimmer 2013).

(11) a. He is eating {something, #the thing} that can't possibly be a steak.
b. I suddenly bumped into {something, #the thing} that seemed to be Mary.
c. I have just stumbled over {something, #the thing} that can't possibly be Mary.
d. She was speaking with {(some) individuals, #the individuals} that seemed to be all the people in the hall.
e. She was speaking with {(some), #the} individuals that couldn't possibly be all the people in the hall.

The facts in (6)-(11) plainly show that the pivot does *not* determine the quantificational/determinational force of a TFR, the latter's force being invariably indefinite; (6) also shows that a predicate NP within the pivot does not determine the predicative content of the TFR. What this means is that *none* of the content of the TFR is *automatically* determined by its pivot (some content properties may, of course, *happen to* be shared by the pivot and the TFR, e.g., in (6a), where the pivot and the TFR are both indefinite, or in (2c), where both the pivot and the TFR denote St. Petersburg).

This conclusion has an interesting consequence for the contrast in (1), which proponents of pivot-as-head analyses have prominently viewed as showing that the [+/-Human] property of a TFR is determined by its pivot. This is, however, not so *in general*, as can be appreciated by examining the variants of (1b) in (1b') and (1b''), which are not self-contradictory, even though the assumption that the [+/-Human] property is necessarily shared by the pivot and the TFR predicts that that they ought to be.

(1) b'. She invited [what seemed to her to be *a policeman*], but was in fact {a bear dressed as a policeman, a wooden log on which a policeman was skilfully painted}.
b''. [What Mary thought was *a policeman*] was used to stoke the fire, because it was merely a log on which a policeman was skilfully painted.

In contrast, the assumptions of under-specification and equation made by my approach are sufficient to account for the felicity of all of (1b), (1b') and (1''). Under-specification makes the TFR compatible with anything, in par-

ticular, with both human and non-human construals. In (1b), the TFR is most naturally assumed to denote a human at the matrix indices, because one normally invites humans, but one can in principle also mistakenly invite a non-human if one takes it for a human, hence, (1b') is not self-contradictory. In fact, an entity that someone mistakenly takes for a human can in principle be virtually anything, as suggested by the felicity of (1b").[3]

Turning now to the facts in (5), what of them? The factors that determine the (in)felicity of various kinds of expressions in the context *there BE __ XP* has been the object of a growing amount of research, and has yielded a large number of proposals that cannot and need not be reviewed here. Although one of the names of the restrictions that affect this construction is 'definiteness-effect', there seems to be a consensus that such constructions are infelicitous to the extent that the post-copular nominals are 'specific' or contextually 'familiar'. What matters for our present concerns is that indefinite expressions may give rise to infelicity, as illustrated by (12), which, while perhaps not as offensive as the definite version of (5a), is nonetheless not fully felicitous (see Keenan 1987).

(12) #There are *three of the boys* in the office.

Presumably, the infelicity of (12) is due to the fact that the three boys belong to a contextually identifiable larger group, and this state of affairs somehow makes them 'too specific'. I suspect that the infelicity of the definite version of (5b) may also be attributable to the denotatum of the TFR being too specific, possibly because it is a *counterpart* of a contextually identifiable (and thus familiar) expression (see below). Be this as it may, what truly matters for the present purposes is that the infelicity of the definite version of (5b) can certainly *not* be taken to show that the entire TFR has definite force, because the essentially synonymous variant of this datum shown in (13), where the bracketed expression is incontrovertibly indefinite, is also less than fully felicitous.

(13) #There is [something that seems to be the virus] in this program.

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[3] In the introduction, I alluded to a proposal made in my earlier work on TFRs to the effect that certain properties of the pivot may be conveyed to the TFR via the 'channel' created by equation and under-specification of *what*. I still think this view is essentially on the right track for a variety of syntactic effects, and I return to this point in the penultimate paragraph of section 2 (for an alternative mechanism within HPSG, see Eun-Jung Yoo 2008), but I also believe the idea should not be extended to semantic properties like 'being human', to avoid construing data like, e.g., (1b'), as 'she invited a human individual that seemed to her to be a policeman, but was in fact a {bear, log}.'

In view of these considerations, I conclude that the facts in (5) do not endanger the conclusion reached on the basis of (6)-(11), namely, that TFRs have invariably indefinite force, and will now proceed to sketch the principal steps in the compositional derivation of an abbreviated version of (7a), shown in (14), within the approach I am assuming.

Let *i,, i'*, *P* and *x* be variables over, respectively, intensional indices, properties, and individual concepts, *i* being the current index. Furthermore, let C be the set of contextually salient individual concepts that are counterpart functions according to C. A counterpart function according to C maps indices onto objects that are – according to C – counterparts of each other at their respective indices (see Lewis 1968). The idea is that, according to C, counterparts x(i) and x(i') count as 'the same thing', even though the former is in i and the latter, in i'. x(i) and x(i') count as the same object according to C if, for instance, C presents both of them deictically as 'this' or 'the object I am pointing at.'

Translations of the relative clause, the TFR, and the entire sentence in (14) are shown in (15)-(17) (with temporal operators omitted for simplicity). In plain English, (17) says: I suddenly bumped into the real-world value of an individual concept whose counterpart at the indices of what seemed to be the case was identical with Mary; this seems to convey the intuitively perceived meaning of this example. [4]

(14) I suddenly bumped into [what seemed to be Mary].

(15) $[[CP]] = \lambda x.\ C(x) \ \&\ \forall i' \in \text{SEEM}(i)\text{: } [x(i') = m]$

(16) $[[DP]] = \lambda P \exists x[C(x) \ \&\ \forall i' \in \text{SEEM}(i)\text{: } [x(i') = m] \ \&\ P(i)[x(i)]$

(17) $[[IP]] = \exists x[C(x) \ \&\ \forall i' \in \text{SEEM}(i)\text{: } [x(i') = m] \ \&\ [\text{I SUDDENLY BUMPED INTO}](i)[x(i)]$

Note that the individual concept is not characterized at the matrix index *i*, thereby accounting for the indefinite force of the TFR, and thus making (14) essentially synonymous with *I suddenly bumped into something that seemed to be Mary*, whose translation is presumably as shown in (17'), where v is a variable over entities.

(17') $[[IP]] = \exists v \exists x[C(x) \ \&\ \forall i' \in \text{SEEM}(i)\text{: } [x(i') = m] \ \&\ [\text{I SUDDENLY BUMPED INTO}](i)(v) \ \&\ v = [x(i)]$

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[4] I am most grateful to Fred Landman for pointing out to me the need to restrict the individual concepts denoted by TFRs to ones whose values are counterparts of each other. Note that without this restriction, (17) would mean 'I suddenly bumped into something, and something seemed to be Mary', which is far too weak.

For completeness, I note that the counterpart approach needs to be generalized to encompass the cross-indexical reification of properties, as in (ia) of footnote 5, and to indices other than worlds, as in (2b,c).

As for the application of Existential Closure to the *x* variable in (16), I opted for this operation because it entails minimal assumptions about the individual concept(s) used to characterize the semantics of this construction.

An anonymous reviewer (whom I will call Reviewer 1) asks whether it is not possible to view the individual concept variable as bound by a definiteness operator, with a view to minimizing the analytical difference between FRs and TFRs and reducing it to the assumption that *what* is less specified in TFRs than in FRs. This suggestion might seem *prima facie* attractive, because the under-specification of TFRs proposed in Grosu (2007, 2010) involves two distinction assumptions, i.e., the under-specification of *what* and the non-specification of the TFR for definiteness, and giving up one of these is, *ceteris paribus*, a conceptually desirable step. However, this step brings about no semantically significant unification of FRs and TFRs, because, as has often been pointed out in earlier literature, TFRs are in principle homophonous with *what*-FRs, and this is certainly true of *what*-FRs with an intensional operator within the relative, such as (14). To see this, assume that instead of uttering (14) without any prior assumptions, the speaker of (14) has in mind two skilfully sculptured wooden poles, one of which looks strikingly like Mary and the other, strikingly like Bill, and (s)he wishes to convey the message that (s)he bumped into the former. Under these circumstances, (14) is naturally paraphrased as *I suddenly bumped into the thing that seemed to be Mary*, and its translation is not (17) or (17'), but rather (17").

(17") $[[IP]] = [\text{I SUDDENLY BUMPED INTO}](i)\ \sigma(\lambda v.\exists x[C(x)\ \&\ \forall i' \in \text{SEEM}(i): x(i') = m\ \&\ x(i) = v]$

It can thus be seen that the definite-indefinite contrast between FRs and TFRs is ineliminable, and that the meaning of the two constructions is in no way affected by the definite or indefinite status of the individual concept. In view of this state of affairs, I prefer to retain the simpler (default) assumption that the individual concept variable undergoes Existential Closure.

Having established the principal semantic properties of TFRs and the manner in which they can be compositionally derived from the structure illustrated in (3d), I wish to point out some important consequences of the counterpart restriction imposed on the individual concept function. Note that without this restriction, (14) would be assigned a translation with the import of "I bumped into something, and something seemed to be Mary", which is obviously too weak. Thus, while the denotatum of the TFR can in principle be anything (as well as identical to the extension of the pivot; see (2c)), it is nonetheless not entirely independent of the pivot, in the sense that it needs to be construed as a cross-indexical counterpart of it. I earlier suggested that this fact may be responsible for the effects in (5), and I submit it is also very plausibly responsible for the intuition that the non-subject of the relative-internal copular/small-clause construction is the *pivot* of the TFR.

Let us now ask whether the semantic properties of TFRs can also be naturally and compositionally derived from structures in which the pivot is a CP-external head, and in particular, from the grafting structure in (3b). To the best of my knowledge, this question has not been seriously addressed by any proponent of a pivot-as-head analysis. One thing seems clear: It is not possible to exploit the resources made straightforwardly available by a grafting structure, i.e., to view the pivot as an intensional object that can receive different values in the relative and the matrix, because we have already seen that the pivot must not be interpreted in the matrix. Note, in this connection, that if we analyse *Mary* in (7a) as denoting a non-constant individual concept, we will get the incorrect interpretation that she is herself in worlds of appearance, but is undefined in the real world, and happens to be a dog. If so, what other tack can be adopted?

Van Riemsdijk (2006a: 40, fn 9) provides the following hint: *"The analysis of TFRs discussed below draws a close parallel between TFRs and internally-headed relative clauses of the type found in languages such as Japanese."* What this means is that we must view the pivot of a TFR as a relative-internally construed DP, just like the internal heads of Japanese internally-headed relatives (IHR), which are in fact so interpreted (see Shimoyama 1999, Grosu and Landman 2012); the similarity between the two constructions goes in fact further than van Riemsdijk (2000, 2006a) assumes, because the pivots of TFRs are not restricted to predicates, but may be quantificationally closed DPs, as is illustrated in (9)-(10). If so, let us try to construct the meaning of the relevant part of (7a) (repeated below for convenience) on the basis of van Riemsdijk's grafting representation by attempting to adapt to it the semantics proposed for Japanese IHR constructions.

(7a) … I suddenly bumped into [what seemed to me to be *Mary*]….

To my knowledge, there are two kinds of proposal for such Japanese constructions:
(i) the internal head (in our case, the pivot) is the antecedent of a CP-external E-type anaphor (Hoshi 1995, Shimoyama 1999);
(ii) the internal head, which is a quantificationally closed DP, needs to be disclosed, creating a free variable that gets abstracted over and then bound by a null definite Determiner (Grosu 2010, Grosu and Landman 2012, Landman 2013).

In view of a number of fundamental problems with (i) that were pointed out by Grosu and Landman (2012) and Landman (2013), I will consider only (ii) as a basis for adaptation.

A preliminary observation is that such an adaptation requires a number of adjustments, because the IHRs of Japanese differ from TFRs in a number of ways. First, as van Riemsdijk (2006a: 40, fn 9) himself notes, the internal head of IHRs is not limited to the non-subject position of copular constructions. Second, Japanese IHRs are subject to a felicity condition known as

the 'Relevancy Condition', which is the essential converse of the one that applies to TFRs: it requires, among other things, that the intensional indices of the relative and of the matrix should overlap non-vacuously (see Grosu and Hoshi 2013, and pertinent references therein), and this condition is not met by most TFRs, e.g., those in (6)-(10). Third, Japanese IHR constructions are invariably definite (for a recent defence of this view, see Grosu and Hoshi 2013), while TFRs are invariably indefinite (see (11) and remarks thereon).

In view of all these differences, what features of the analysis of Japanese IHRs can conceivably be adapted to capture the meaning of TFRs? The analysis of the former construction that we are considering here makes use of the mechanism of 'disclosure' of the internal head, which consists in equating the variable bound by a quantified internal head with a free variable, which becomes available for abstraction at the level of the relative CP. This mechanism can in principle be used with respect to quantified pivots of TFRs, as in (9a), and can also be extended to deal with TFRs with definite referential pivots, as in (7a); specifically, the quantificationally bound variable or referential expression may be equated with the value (at the indices of the relative) of a free counterpart individual concept variable, and this free variable may subsequently undergo abstraction at the level of CP and ultimately Existential Closure in the matrix. However, in order to get the intuitively correct meaning of a TFR, it is also necessary that the pivot be left entirely un-interpreted in the matrix, or, at most, translated as an unspecified Det that triggers Existential Closure. This move is, to the best of my knowledge, *sui generis* and radically different from "reconstruction" data like *the perfect wife that John is looking for may turn out not to exist,* or *the relative of his$_i$ that every student$_i$ invited later invited him$_i$, too,* where the CP-external NP is construed as dependent on a modal or quantifier in the relative, but retains much of its content. There remains the need to assign interpretations to *what* and the remainder of the relative clause. Assuming that *what* is construed as 'some entity' and that the copular construction is viewed as equative, the translation of the relative in, say, (14), will presumably be something like 'some entity seems to be identical Mary', which is entirely redundant, given the fact that Mary is independently equated with a variable introduced by the semantic operation of disclosure. All in all, it seems possible to achieve an interpretation equivalent to (17) on the basis of the structure in (3d), but only at the cost of adopting clearly 'Procrustean' steps, which have no other obvious motivation than the decision to adopt a grafting structure for TFRs, and in particular, one which makes the pivot an element of the matrix. In contrast, the structure I proposed to assume requires none of these steps, since it makes straightforwardly available the syntactic ingredients that are needed for semantic interpretation. I believe that the artificiality of a compositional analysis based on a grafting – and more generally, a pivot-as-external-head – structure is by now sufficiently obvious to disqualify such structures from being taken seriously.

Of course, I cannot rule out in principle a semantic analysis that naturally exploits the resources of grafting structures, I am merely not imaginative enough to see what it could be. If proponents of the grafting approach can think of one, they have the inescapable duty of making it explicit. Until and unless this is done, the grafting approach to TFRs has no natural semantic analysis, and thus, no claim to adequacy. In the next section, I will argue that in addition to the semantic problem just noted, certain morphological facts are not exactly as predicted by the grafting approach, either.

Before concluding this section, I should like to note an issue of possibly lesser importance, but which nonetheless favours an indirect approach to TFRs. While the 'directness' of van Riemsdijk's grafting approach may look like a *prima facie* virtue for capturing syntactic properties of a kind that fall under point (iii) at the beginning of the Introduction, this impression does not obviously extend to semantic properties that fall under (iii) (see (1b', b"), nor to the properties in (i)-(ii), namely, that TFRs have the exact appearance of FRs in the languages in which they are attested, that the pivot is the non-subject of an equational copular construction or small clause, that the subject of this construction is the trace of a *wh*-phrase, and that the *wh*-phrase is exclusively *what*.

Concerning the superficial homophony of TFRs and *what*-FRs, van de Velde (2011) and de Smet and van de Velde (2013) provide rich and convincing historical support for the thesis that TFRs, at least in English and Dutch, evolved out of FRs by re-analysis. This state of affairs is consistent with reanalysis either by assignment of external head status to the pivot or by de-specification of *what* and of the CP-external Det. These writers adhere to the former type of reanalysis, and I believe I have offered solid support for the latter. As for the exclusive use of *what* in TFRs, this item is, as noted already, arguably the least specified *wh*-element, being compatible with multiple categories, as well as with pluralities that include humans, as illustrated in (18a) and (18b) respectively); I conjecture that historical evolution has simply taken the least costly step, i.e., de-specification of an item that is already partly under-specified.

(18) a. John is what his mother always hoped he would be: brave, a competent doctor, and in a constantly ebullient mood.
b. What do you see? Mary, a dog, and a tree.[5]

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[5] Unsurprisingly, the under-specificational properties illustrated in (18) are also found in TFRs, as shown below:

(i) a. John is [what I might call extremely brave and in a constantly ebullient mood].
b. I can see over there [what might conceivably be Mary and her dog].

As for the fact that the trace of *what* gets equated with the pivot, note that this relation straightforwardly allows the chain headed by *what* to acquire the value represented by the extension of the pivot at relative-internal indices and a different value in the matrix, thereby fulfilling what I take to be the *raison d'être* of TFRs. Furthermore, there is independent evidence that an equational configuration automatically licenses the transfer of syntactic number from a post-copular DP to a subject *what* (see Grosu 2003, section 7.4, and in particular, example (113)), and it seems plausible that in the absence of any inherent categorial specification of *what*, this item acquires categorial specification via equation.

For completeness, I note that Van Riemsdijk (2000, 2006b) attempts to provide a rationale for the fact that the pivot needs to be the non-subject of a copular construction or small clause by suggesting that the pivot is a predicate, rather than a closed DP, because if the latter were the case, a Theta Criterion-violation would result. However, the pivot is by no means restricted to predicate status, as can be gathered from (7)-(8) and (9)-(10), where it is a proper name and a universally quantified DP respectively. In fact, it seems reasonable to assume that the pivot is not a predicate in data like (4) or (6) either, but rather, an existentially closed nominal.

3. Case effects in FRs and TFRs

It is well-known that nominal FRs in many languages exhibit restrictions on the extent to which the case of the *wh*-phrase may differ from that assigned to the complex DP, such restrictions varying in severity cross-linguistically, cross-dialectally, and cross-idiolectally. These restrictions are widely known as 'matching effects', a somewhat misleading term in seeming to require full matching in general, but we will nonetheless retain it, because the possibility of deviating from full matching in some languages, dialects and idiolects is well known, so that no confusion is likely to arise.

Under the direct approach, one may expect comparable restrictions in relation to the Case of TFRs and their pivot. Under the indirect approach, nothing of the kind is expected. In his studies mentioned earlier, van Riemsdijk repeatedly asserted that this expectation is fulfilled in standard German. Prior to discussing the data he offers in support, I will briefly outline the cross-idiolectal variation that is found with respect to the FRs of German, to facilitate comparison with TFRs.

Thus, all speakers of German allow mismatches between the abstract Case assigned to the *wh*-phrase and the Case required by the FR, so long as

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To handle the semantics of data like (ia), one would have to use, instead of individual concepts, properties whose values vary with indices (e.g., what counts as brave for me might not count as brave for you)

the (morphological) case of the *wh*-phrase is compatible with both abstract Cases. An illustration is provided in (19a), where *was* 'what' is compatible both with nominative and with accusative Cases.

Some speakers, but not all, tolerate morphological case mismatches, so long as the Case of the *wh*-phrase is 'higher' than the one assigned to the complex DP in an *Obliqueness Hierarchy*, which is partially shown in (20).

Many similar examples, accepted by some speakers, are documented in Bausewein (Pittner) (1990); one of them is shown in (19b) (the symbol '%' indicates that only a percentage of speakers find it fully acceptable). I note that Henk van Riemsdijk is one of the speakers who do not accept such data, and who find any mismatch in morphological case deviant (p.c.).

Almost all speakers disallow morphologically mismatched FRs that do not conform to the *Obliqueness Hierarchy* in (20), as, e.g., in (19c). The parenthetical in the full version of this example was added at Volker Struckmeier's suggestion (p.c.), who kindly pointed out to me that the reduced version of this example might improve if uttered 'in one breath', as though it were a proper name (comparable to *you know who* in *Harry Potter*). The parenthetical eliminates this option and reveals the complete unacceptability of counter-hierarchical mismatching.

(19) a. Sie isst, [$_{CP}$ was übrig bleibt]$_{ACC}$.
she eats what.NOM left over remains
'She eats what is left over.'

b. %Sie lädt ein, [$_{CP}$ wem sie zu Dank
she invites who.DAT she to thanks

verpflichtet ist]$_{ACC}$.
obligated is
'She invites whom(ever) she owes thanks.'

c. *Er tötet, [$_{CP}$ wer ihm (-- dem Mafiaboss --)
he kills who.NOM him.DAT (the-DAT mafia boss)

über den Weg läuft]$_{ACC}$.
across the way runs
'He kills who(ever) crosses his way (him being the mafia boss).'

(20) *Obliqueness Hierarchy*
Nom < Acc < Dat

For completeness, I note that the hierarchically based constraint revealed by (19) is also found in a variety of additional constructions. In particular, the *Obliqueness Hierarchy* in (20) constrains: (i) 'Case attraction' in the

FRs of languages where this operation is allowed, as illustrated in (21) with Romanian data (for comparable data in Gothic, see Harbert 1983); (ii) overtly headed relative constructions with a null relative pronoun, as in the Bavarian German data in (22) (from Bayer 1984); (iii) comparative constructions with an overt nominal constituent in the matrix and a null 'counterpart' in the comparative clause, as in the Romanian data in (23).

Romanian

(21) Sunt recunoscător [$_{CP}$ *cui* /**cine* mă ajută]$_{DAT}$.
be.1SG grateful who.DAT /*who.NOM me helps
'I am grateful to who(ever) helps me.'

Bavarian German (Bayer 1984)

(22) a. I sog's *dem* *Mo*, [$_{CP}$ (der) wo im
I said it the.DAT man who.NOM COMP in.the

Gartn arwat].
garden works
'I said it to the man who works in the garden.'

b. *Das* *Kind*, [$_{CP}$*(dem) wo wir an Apfe schenka …]
the.NOM child who.DAT COMP we an apple gave
'The child to whom we gave an apple…'

Romanian

(23) a. Dan s-a adresat mai multor persoane
Dan RFL-has addressed more many.DAT people

decât ∅ erau gata să-l primească.
than NOM were ready SBJ-him receive
'Dan approached more people than were ready to receive him.'

b. Dan s- a adresat mai multor personae
Dan RFL-has addressed more many.DAT people

decât cunoaşte ∅ Ion.
than knows ACC Ion
'Dan has approached more people than Ion [personally] knows.'

c. *Dan a cunoscut mai multe persoane
Dan has known more many.DAT people

decât s-a adresat ∅ Ion.

than RFL-has addressed DAT Ion
'Dan has met more people than Ion has approached.'

Having established the matching requirements that apply to FRs, we may now examine the kind of data provided by van Riemsdijk in support of his claim that comparable restrictions are found in TFRs. A sample of his data (with inconsequential adaptations) is provided in (24).

German

(24) a. Ich werde mir kaufen [$_{CP}$ was du als
I will me buy what.ACC you as

einen passenden Wagen bezeichnen würdest]$_{ACC}$.
a.ACC suitable.ACC car characterize would
'I will buy myself what you would characterize as a suitable car.'

b. Ich werde mir kaufen [$_{CP}$ was als *ein*
I will me buy what.NOM as a.NOM

passender Wagen bezeichnet werden
suitable.NOM car characterized be

kann]$_{ACC}$.
can
'I will buy myself what may be characterized as a suitable car.'

c. *Ich werde mir kaufen [$_{CP}$ was als *einen*
I will me buy what.ACC as a.ACC

passenden Wagen bezeichnet werden kann]$_{ACC}$.
suitable.ACC car characterized be can
'the same'

Van Riemsdijk (2006a) stars data like (24b), making no explicit distinction between them and data like (24c) (see his (18b)). Note that under his view of TFRs, (24b) is expected to be severely deviant, since it violates the hierarchical option provided by (20), just like (19c).

Over the years, I have checked the acceptability of data like (24) with numerous native consultants speaking a wide variety of native dialects (by now, their number exceeds eighty), and not a single one has corroborated van Riemsdijk's judgments. Rather, they all found (24b) grammatical, and in stark contrast with the completely ungrammatical (24c), in which rela-

tive-internal requirements are not observed, a state of affairs that points to the conclusion that there is no interaction between the case of the pivot and the case of the TFR[6]. Van Riemsdijk (2006a, section 5) suggests that the differences between his judgments and those of my consultants constitute dialectal variation, traceable to the lack of morphological case distinctions in certain non-standard dialects, and it is asserted that "the fact remains, however, that there is a discernible matching effect here." I find the suggestion of dialectal variation implausible, given the number and the variety of native dialects of my consultants involved, but I nonetheless took van Riemsdijk's conclusion seriously, and attempted to get a grip on the detectable difference he claimed exists.

After an extended search, I managed to find one speaker who, like Henk van Riemsdijk, feels that (24b) is slightly degraded relative to (24a), albeit in a decidedly more subtle way than (24c) or (19c); more exactly, this speaker characterized both (24a) and (24b) as grammatical, but indicated that (24a) gets a slight upgrade over (24b). The speaker in question is Josef Bayer, who shares with Henk van Riemsdijk a dislike for any morphological mismatching in FRs, and a native dialect from the Southern area of the German Sprachraum (but the latter fact may not be significant, because Reviewer 1 indicated that his/her dialect also belongs to the Southern area). It would undoubtedly be highly desirable to check the data presented in this section with as large a number of native speakers as possible under controlled experimental conditions, but I have not managed to implement this project so far. Pending such experimentation, I confine myself to a discussion of Bayer's and van Riemsdijk's judgments.

If considered in isolation, the judgments just noted may seem to provide some *prima facie* support for van Riemsdijk's analysis of TFRs. However, if considered together with additional information provided by Bayer, they end up providing no support for it, and in fact some support for my own analysis of TFRs. Thus, Bayer reports that the slight degradation he detects in (24b) relative to (24a) also exists in (25b) relative to (25a), but not in (26b) relative to (26a).

(25) a. Ich bin bereit zu kaufen [$_{CP}$ *was immer* du als *einen*
I am ready to buy what-ever you as a.ACC

passenden *Wagen* bezeichnen würdest]$_{ACC}$.
suitable.ACC car characterize would
'I am ready to buy whatever you would consider a suitable car.'

[6] For completeness, I note that Reviewer 1, who defined himself/herself as a native speaker of German, fully corroborated the judgments of my earlier consultants.

b. Ich bin bereit zu kaufen [$_{CP}$ was *immer* als *ein*
I am ready to buy what-ever as a.NOM

passender *Wagen* bezeichnet werden kann]$_{ACC}$.
suitable.NOM car characterized be can
'I am ready to buy whatever can be characterized as a suitable car.

(26) a. Ich werde mir *etwas* kaufen [$_{CP}$ w*as*
I will me something buy what.ACC

/das du als *einen* passenden *Wagen*
/that.ACC you as a.ACC suitable.ACC car

bezeichnen würdest]$_{ACC}$.
characterize would
'I will buy myself *something* that you would characterize as a suitable car.'

b. Ich werde mir *etwas* kaufen [was/
I will me something buy what.NOM

das als ein passender *Wagen*
that.NOM as a.NOM suitable.NOM car

bezeichnet werden könnte]$_{ACC.}$
characterized be can
'I will buy myself *something* that may be characterized as a suitable car.'

Now, the relevant structures in (25) are incontrovertibly FRs that are minimally different from the TFR in (24a), and the relevant structures in (26) are minimally different constructions with an incontrovertibly overt head. In other words, what we may call the 'Bayer-effect' distinguishes between FRs and TFRs, on the one hand, and overtly headed relatives, on the other. These two sub-classes correspond to no natural sub-classes within van Riemsdijk's analysis, but do belong to natural sub-classes within mine, in particular, to DPs headed by a null DET and to DPs headed by an overt full nominal, respectively.

Importantly, it turns out that Josef Bayer's judgments concerning the parallelism between (24a-b) and (25a-b) are fully shared by Henk van Riemsdijk (p.c.). Both scholars also report that the distinction between the (a) and (b) sub-cases of (24)-(25) becomes sharper if the relative clauses, which occur in 'extraposed' position in these examples, are placed after the matrix element *bereit*, and I will tentatively assume on this basis – and

pending further investigation with additional consultants – that we are dealing with a common effect. What can be the explanation for this effect? I offer the conjecture that the following factors may be jointly responsible for it: (i) both FRs and TFRs, but not externally-headed relatives with overt relative pronouns, are subject to Case-matching requirements insofar as their *wh*-phrase is concerned; (ii) although all of (24a-b) and (25a-b) are matching constructions, speakers who exhibit what we may re-name the Bayer–van Riemsdijk-effect may prefer to have matching 'reinforced' by an item with a completely unambiguous Case-marker; (iii) as observed earlier, the equational structure within a TFR coupled with the featural underspecification of *was* 'what' may be viewed as giving rise to a transparent transmission channel, and a comparable channel may be assumed for minimally different FRs insofar as features that are unspecified in *was* are concerned. I conjecture that the channels posited in (iii) make it possible for the Case of the pivot to satisfy the preference in (ii) in (24a) and (25a), but not in (24b) and (25b); hence, the effect at issue. No such effect is detectable in (26) because there are no matching requirements (see (i)).

This conjecture may or may not be on the right track, but irrespective of this, what matters in the present context is that the Bayer–van Riemsdijk-effect can provide no support for van Riemsdijk's analysis, while it can in principle provide support for mine, in view of its correlation with posited structures. And be this as it may, van Riemsdijk's analysis continues to be seriously challenged by the judgments of my other consultants, in particular, by their insensitivity to counter-hierarchical mismatches in TFRs, and their sensitivity to such mismatches in FRs and elsewhere.

An additional fact that is potentially pertinent in the present context is that van Riemsdijk (2012, section 3.3), in discussing data like (27)-(29), which were originally brought up in Grosu (2007) for a different reason (to which I return below), fails to contest the acceptability of (28b).

For completeness, I note that Josef Bayer kindly informed me he has no objection to this example, although he finds data that satisfy his preference for unambiguous Case markers, such as (30), even better.[7] In any event, what matters in the present context is that the TFR in (28b), as analyzed by van Riemsdijk, violates the *Obliqueness Hierarchy*, just like the FR in (31),

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[7] Reviewer 1, who, recall, reported that s/he does not get the Bayer–van Riesmdijk-effect in (24a-b) and (25a-b), also reports that s/he finds (28a-b) slightly degraded, although not nearly as bad as (24c), (29a-b), or (31), and that two other native speakers corroborated this judgment.

I have at the moment no explanation for this effect, and can only hope that the large-scale experimental project I referred to will, if carried out, shed some light on this matter as well. For present purposes, I confine myself to noting that this effect, just like the Bayer–van Riemsdijk-effect, does not distinguish between FRs and TFRs, and thus poses no threat for the analysis of TFRs I have argued for in the text.

and the strong contrast in acceptability between the two examples constitutes a serious problem for the Grafting-analysis.

(27) a. Mit was hat er noch nicht gerechnet?
with what has he yet not counted
'What hasn't he calculated with?'

b. **Was* hat er widersprochen?
what has he contradicted
'What has he contradicted?'

(28) a. *Free Relative*
Er hat mit [$_{CP}$*was* du gesagt hast] nicht
he has with what you said have not

gerechnet]$_{DAT}$.
calculate
'He did not reckon with what you said.

b. *Transparent Free Relative*
Sie spricht mit [$_{CP}$ *was* ich *einen Idioten*
she speaks with what.ACC I an.ACC idiot.ACC

nennen würde]$_{DAT}$.
call would
'She speaks with what I would call an idiot.'

(29) a. *Free Relative*
*Er hat [$_{CP}$ *was* du gesagt hast] $_{DAT}$ nie
he has what.ACC you said have never

widersprochen].
contradicted
'He has never contradicted what you said.'

b. *Transparent Free Relative*
*Sie hat [$_{CP}$ *was* ich *einen totalen*
she has what.ACC I an.ACC total.ACC

Idioten nennen würde]$_{DAT}$ soeben widersprochen.
idiot.ACC call would just contradicted
'She has just contradicted what I would call a total idiot.'

(30) Sie spricht mit [$_{CP}$ *was* *einem Idioten* ähnlich
she speaks with what.NOM an.DAT idiot.DAT similar

ist]$_{DAT}$.
is
'She speaks with what looks like an idiot.'

(31) *Sie spricht mit [$_{CP}$ *wen* du mir, als Kenner,
she speaks with who.ACC you me as connaisseur

gezeigt hast]$_{DAT}$.
pointed_out have
'She speaks with whom you (as a connoisseur) pointed out to me.'

I will conclude this section by examining what van Riemsdijk (2012) had to say about data like (27)-(29). (27) partly illustrates an effect reported by Gallmann (1990), which consists in the observation that *was* (and a number of additional lexical items not relevant here) are compatible with dative case assigned by a preposition, but not by a verb (I note that the preposition *mit* 'with' and the verb *widersprechen* 'contradict' both assign dative Case to full-fledged DPs). In Grosu (2007, 2010), I brought up data like (28)-(29), which, I noted, show that FRs and TFRs behave alike with respect to the 'Gallmann-effect', an unsurprising state of affairs under the assumption that FRs and TFRs have the same configurational structure. Van Riemsdijk (2006, section 5) argues that such data are also compatible with his analysis of TFRs, and thus provide no support for my own. Basically, he proposed that the Gallmann-effect belongs to the PF component of the grammar, which, within his theory, consists of linearized representations in which the factors responsible for the Gallmann-effect cannot distinguish between FRs and TFRs.

Before commenting on van Riemsdijk's proposal, I wish to note that even if the facts in (28)-(29) do not directly support my line of analysis, what was shown earlier in this section largely suffices for concluding that TFRs are not subject to the kind of matching requirements that affect FRs, both in idiolects that do not exhibit the Bayer–van Riemsdijk-effect and in idiolects that do. With respect to van Riemsdijk's proposal, I wish to note that there are good grounds for assuming that the constraints on Case found in FRs and in data like (21)-(23) also need to be handled in PF, since matching requirements are sensitive to morphological case, not to abstract Case, and case attraction would deliver the 'wrong' Case to LF if it were operative in narrow syntax (assuming that Case plays some role in constraining possible thematic relations). If so, it seems to me that van Riemsdijk owes us a more explicit account of why the Gallmann-effect is blind to hierarchical structure and case matching is not. In particular, one may wonder how the matching effects he attributes to TFRs, which – note – may involve arbitrarily distant elements, operate on linearized representations.

4. Summary and conclusions

It has been argued in this paper that TFRs raise (at least) two serious challenges for the multi-dimensional analysis proposed by van Riemsdijk in a number of works, and which assumes that the pivot is shared by both the relative and the matrix.

One challenge is semantic, and follows from my demonstration that the quantificational force of a TFR is invariably existential, irrespective of the quantificational force of the pivot, and furthermore that the pivot must be interpreted only within the scope of a relative-internal intensional operator[8]. The principal problem confronting proponents of the grafting analysis – as well as any syntactic analysis that views the pivot as (also) an element of the matrix – is to find a *natural* compositional semantics for TFRs that relies on the kind of structure in (3b). At the moment, it is not clear that one can be found.

The second challenge is syntactic. It consists in the need to provide a plausible reason for the fact that large numbers of informants find TFRs which, within van Riemsdijk's analysis, violate the *Obliqueness Hierarchy*, completely acceptable, even though such violations induce crashing ungrammaticality when occurring in FRs and other constructions.

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[8] This conclusion implies that TFRs with an idiom chunk as pivot, as in (i), must have this chunk interpreted within the relative, as in the paraphrase in (ii). The correctness of this view is supported by the observation that *his marbles*, while ungrammatical in isolation, is nonetheless interpretable as 'his mind', and that un-interpretable chunks are excluded in TFRs, as shown in (iii)-(iv).

(i) He lost what may be called his marbles.
(ii) He lost something that may be called his marbles.
(iii) *He kicked what may be called the bucket.
(iv) *He trips what may be called the light fantastic.

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