27   Free Relatives

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1   Introduction

A relative clause is a clause that modifies a phrasal constituent, generally a noun phrase.[1] We call the noun phrase that is so modified the head of the relative clause. There are two main positions in which the head can be found with respect to the modifying clause: internal and external. In internally headed relatives, the head NP is inside the relative clause in the position it is expected to have according to the laws governing the syntactic behavior of elements within that clause. This is so despite the fact that the same NP must also satisfy the needs of the
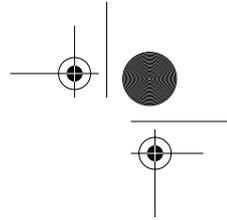
matrix clause. English and, more generally, Indo-European languages do not have any internally headed relatives (but see section 5.3 for a qualification of this statement). Japanese, however, does, as is shown in the following example from Grosu (1994):[2]

(1)   [John-ga **ronbun-o** kaita-no]-ga Linguistic Inquiry-ni notta.

In (1) the NP *ronbun-o* 'the article' is in every respect the object of the verb *kaita* 'write' in the embedded clause. But in addition, it functions as the subject of *notta* 'appear' in the matrix clause. In this respect, internally headed relative clauses are in sharp contrast with the externally headed relative clauses which are much more familiar from the Indo-European languages. The typical grammatical way of forming relative clauses in English is (2):

(2)   I returned *the book* [(that) you finished reading [e] to your children] to the library.

In (2), the head is in its matrix position, while the corresponding position inside the relative clause is empty, indicated by [e] here. There is a sense, then, in which the head has to satisfy a dual set of requirements: those of the relative clause and those of the matrix clause. How does the grammar solve this problem? In an example like (2), the answer is not immediately obvious, since all we have is a complementizer (*that*) at the beginning of the clause and a missing element inside it. But there are alternative ways of expressing the external relative that reveal what is going on:

(3)   I returned the book$_i$ [which$_i$ you finished reading [e]$_i$ to your children] to the library.

The relative pronoun *which* is the element that originates in the embedded object position.[3] The relative pronoun is moved from that position by the standard case of A′-movement, generally referred to as *wh*-movement, into the initial position of the relative clause, next to the external head. Relative clauses without an overt relative pronoun such as (2) are derived in very much the same way as (3), the only difference being that the relative pronoun is either deleted or phonologically null. The question which arises immediately is what the relation is between the head and the (overt or covert) relative pronoun. Clearly, the relation is not arbitrary. If we say that the relative element is a pronoun, what we mean is that it is a kind of place holder for, a link to, the head noun phrase. To put it differently, we say that the head is the antecedent of the relative pronoun. One of the ways in which this relation, indicated by the co-indexation of the head with the relative pronoun in (3), manifests itself is the fact that the nature of the head determines, in part, the choice of the relative pronoun. The fact that in (3) *which* must be chosen instead of *who* is a consequence of the fact that its antecedent is non-human, for example.
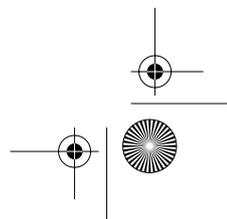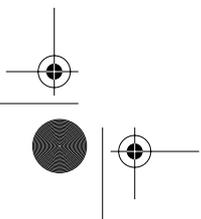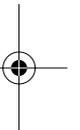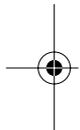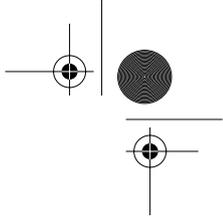
With this much as background, consider now an example like (4):

(4)   You should return *what you have finished reading* to the library.

What we seem to have here is a relative clause without a head. That is, there is neither an internal nor an external head to be found. Such relative clauses are usually called 'headless relatives' or 'free relatives', and they are the central topic of the present chapter. Before turning to a more detailed description of the main properties of free relatives (FRs), however, we must address an alternative analysis which immediately suggests itself. Why can't we say that the italicized clause in (4) is an embedded (or indirect) question? In other words, why can't we equate a sentence like (4) with a superficially similar one such as (5)?

(5)   Could you tell me *what you have finished reading*?

The difference has to do with the selectional behavior of the two matrix verbs. They differ in that *return* selects noun phrases while *could you tell me* selects questions. This becomes clear immediately if we replace the *wh*-clause with an unequivocal question (one introduced by *whether*, for example) or by a real noun phrase such as *War and Peace*:

(6)   a.   *You should return *whether you have finished your book* to the library.
      b.   You should return *War and Peace* to the library.

(7)   a.   Could you tell me *whether you have finished your book*?
      b.   *Could you tell me *War and Peace*?

Similarly, a preposition like *with* cannot take a question as its object, but an NP object is permitted and so is an FR:

(8)   a.   *I am going to swat this fly with *whether you have finished your book*.
      b.   I am going to swat this fly with *War and Peace*.
      c.   I am going to swat this fly with *what you have finished reading*.

As a preliminary conclusion,[4] we may record that questions are pure clauses, CPs, while FRs are noun phrases, that is, NPs or DPs, which contain a CP. This conclusion immediately raises a number of questions, however. If an FR is a DP, which contains a CP, then what exactly is the structure? More specifically, the obvious question to ask is if there is a head at all. In other words, is the structure essentially as in (9a) or as in (9b)?

(9)   a. $[_{DP}$ CP]
      b. $[_{DP}$ DP CP]
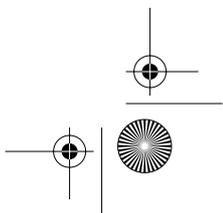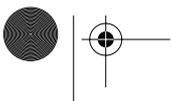
And if there is a head, as in (9b), is it entirely empty or is it phonetically realized in some way? Both options can be interpreted in a number of ways:

(10) a. Head is empty: (i)   If the DP is truly empty, then this is indistinguishable from (or identical to) (9a).

(ii)   There is an empty element in the head position – most likely PRO or pro.

  b. Head is filled: (iii) There could be a pronominal element in the head position which ends up being coalesced with the *wh*-element, e.g., *it/that + wh → what*.

(iv)   The *wh*-word (or -phrase) could be in the head position instead of being in its canonical Spec, CP-position.

We may schematically represent these options in the following manner:

(11)

		Spec, CP		
(i)	e	$what_i$	C^o	you have finished reading e_i
(ii)	PRO/pro_i	$what_i$	C^o	you have finished reading e_i
(iii)	$it/that_i$	$wh\text{-}_i$	C^o	you have finished reading e_i
(iv)	$what_i$	e_i	C^o	you have finished reading e_i

The main discussion has been about the choice between (ii) and (iii/iv). That will be the topic of section 2. The conclusion will be that, at least in many cases, the *wh*-word/phrase is in the Spec, CP position. This conclusion leads immediately to the question of whether the head position is filled by some phonetically unrealized element, as in (ii), or is entirely absent, as in (i). The general aspects of this issue are dealt with in section 3. In this discussion, one set of phenomena has played a principal role, viz. matching vs. non-matching; that is, the extent to which the *wh*-pronoun/phrase must satisfy in and by itself the requirements (selection, subcategorization, case marking) of both the embedded clause and the matrix clause. These matching effects are discussed in section 4. In determining what the nature of the missing head is, semantic considerations play a considerable role. In fact, many FRs are ambiguous. An example like (4), repeated here as (12a), can be paraphrased as either (12b) or (12c):
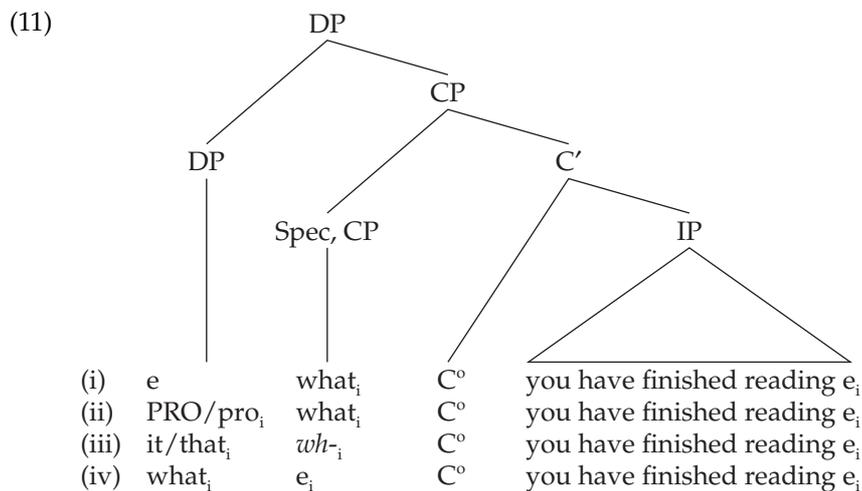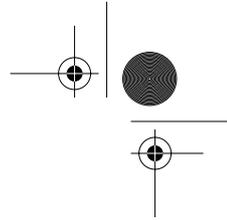
(12) a. You should return *what you have finished reading* to the library.
      b. You should return that (the thing, sc. the book) which you have
          finished reading to the library.
      c. You should return anything (whatever it is) which you have finished
          reading to the library.

These readings, and the relevance they might have for the determination of
the nature of the missing head, constitute the topic of section 5. Some of these
semantic issues reactivate the question of whether FRs and questions are really
that different, and consequently what the structural representation of FRs is. This
issue is the central topic of section 6.

2   Where is the relative pronoun?

One of the main questions that arise in the context of FRs, as stated in (9) and
(10) above, is whether the *wh*-word, or, more generally, the relative pronoun,
occupies the position of the head of the relative clause or is in its canonical
complementizer (Spec, CP) position. The former analysis, which has come to be
called the Head Hypothesis[5] (HH), came to fame by an article by Bresnan and
Grimshaw (1978). And the opposition to this hypothesis, gathered under the
name of COMP Hypothesis (CH),[6] was initiated in Groos and Van Riemsdijk
(1981).

The main reason why this debate was fairly heated and achieved a certain
notoriety is to be found in the role that it played in one of the major issues that
raged through the field in the late 1970s. This was the question of whether
unbounded processes exist in grammar. One of the results in the early 1970s, in
particular the theory outlined in Chomsky (1973), was that long-distance pro-
cesses could be decomposed into chains of successive, local steps in a derivation,
the standard example being the analysis of long *wh*-movement in terms of a
series of successive-cyclic movements from COMP to COMP. The idea that trans-
formational processes were limited to local domains was embodied in the Sub-
jacency Condition, the cornerstone of Bounding Theory. Suppose now that the
HH is correct. This would mean that an FR like the one in (12a) has a structure
roughly like that in (13):

(13) $[_{DP} [_{DP} \textit{what}_i] [_{CP} \text{you have finished reading } [e]_i]]$

Clearly, there is a relationship between the *wh*-head and the gap in the FR. This
relationship is marked here by co-indexation for expository purposes. The ques-
tion is, what is the nature of the rule responsible for this dependency? Presum-
ably, it is not movement, since the *wh*-word is in the head position and the null
hypothesis would be that, like the heads of regular headed relative clauses, it is
base generated there.[7] Bresnan and Grimshaw (1978) proposed to describe the
dependency in question in terms of a deletion rule which they call Controlled
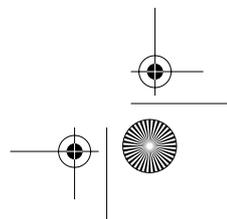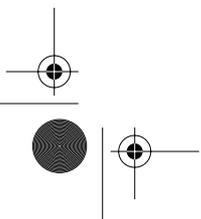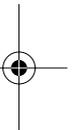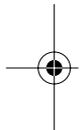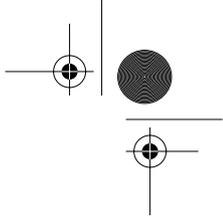
Pro Deletion. The idea of the rule is that the position of the gap in (13) is under-lyingly occupied by a pronominal element, a (resumptive) element like *it*, *him*, *them*, *then*, or *there*, which is subsequently deleted under referential identity with the head.

Observe now that this rule of Controlled Pro Deletion must be able to apply to head–pronoun pairs over an arbitrary distance, as shown in examples like (14):

(14) $[_{DP} [_{DP} \textit{what}_i]$ $[_{CP}$ you told Bill that Mary said he should have finished read-ing $[e]_i]]$

On the basis of this observation, Bresnan and Grimshaw concluded that unbounded transformational processes could not be entirely eliminated from the theory of grammar. But, of course, the conclusion depended heavily on the valid-ity of the arguments supporting the HH. These arguments have to do with one of the most salient properties of FRs: the matching effects which they exhibit.

Consider the following paradigm:

(15)   a.   We should interview the woman with whom he goes out?
       b.   *We should interview with whom/whoever he goes out?

(16)   a.   We should talk to the woman whom he dates.
       b.   We should talk to whom/whoever he dates.

(17)   a.   We should talk to the woman with whom he goes out.
       b.   *We should talk to with whom/whoever he goes out.

(18)   a.   We should talk to the woman to whom he talks.
       b.   We should talk to whom/whoever he talks.

In (15) the head of the relative clause is a DP while the *wh*-phrase is a PP. When the head is missing, the result is ungrammatical. This is due to the fact, somehow, that the verb *interview* can only take DP direct objects, not PPs. This is confirmed by the fact that in (16) the situation is reversed. Here we have a matrix preposi-tion, which takes a DP object, and the FR in (16b) indeed starts with a *wh*-phrase, which is a DP. Apparently the categorial requirements in the matrix clause and in the relative clause can be different in the case of headed relatives, but must be identical in the case of FRs. This categorial matching effect is further confirmed by (17), where the matrix preposition cannot take an FR which is introduced by a PP. On the other hand, if the two prepositions (the matrix one and the embed-ded one) are identical, the result is again (more or less) grammatical, though one of the two prepositions disappears (see section 4.1.2 for more discussion of the missing P phenomenon).

This categorial matching effect is elegantly explained if we assume the HH. The *wh*-phrase is in the head position and must, therefore, satisfy matrix requirements
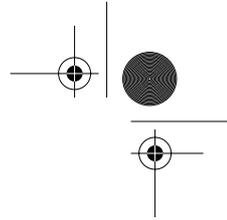
just as regular heads do. The fact that it must also satisfy the embedded requirements follows from the identity requirement on the rule of Controlled Pro Deletion. A DP-head cannot cause the deletion of a PP-pronominal, etc.

In addition to the categorial matching effect, matching can also be observed in the domain of case marking. German serves as a language which exhibits case matching. Consider the following examples:[8]

(19) a. Wer nicht stark ist muss klug sein.
      b. *Wen/*wer Gott Schwach geschaffen hat muss klug sein.
      c. *Wem/*wer Gott keine Kraft geschenkt hat muss klug sein.

(20) a. Ich nehme wen du mir empfiehlst.
      b. Ich nehme *wem/*wen du vertraust.
      c. Ich nehme *wer/*wen einen guten Eindruck macht.

(21) a. Ich vertraue wem du vertraust.
      b. Ich vertraue *wen/*wem du mir empfiehlst.
   c. Ich vertraue *wer/*wem einen guten Eindruck macht.

In (19) the FR is in the subject position, in (20) it is in a direct object position, and in (21) it is in a dative object position. In other words, the matrix case requirements are nominative, accusative, and dative respectively. The a-sentences show that the FR is well-formed if the relative clause case requirement is identical to the matrix requirement: nominative in (19), accusative in (20), and dative in (21). Whenever the relative clause case requirement does not match the matrix requirement, as illustrated in the b- and c-examples, the result is ungrammatical. That is, the corresponding meaning cannot be expressed by means of an FR – instead a headed relative clause construction must be used.

The same reasoning as was used in the case of categorial matching applies here. By assuming that the *wh*-phrase of the FR is in the head position, we explain why it must meet the matrix case requirements, while the matching with the embedded case requirements follows from the identity condition imposed on the rule of Controlled Pro Deletion.

Against this analysis of FRs and, concomitantly, against this argument in favor of the view that unbounded deletion rules exist, Groos and van Riemsdijk (1981) presented strong evidence that at least in some languages the *wh*-phrase occupies the Spec, CP position in FRs. The main argument that these authors present is based on the way in which relative clause extraposition (see chapter 25) applies to FRs. The argument is based on German and Dutch. Illustrations will be exclusively from Dutch. Consider the following placement possibilities for headed relative clauses:

(22) a. Der Hans hat [das Geld, das er gestohlen hat], zurückgegeben.
      b. Der Hans hat [das Geld] zurückgegeben, [das er gestohlen hat].
      c. Der Hans hat zurückgegeben, [das Geld, das er gestohlen hat].
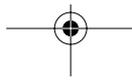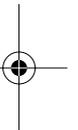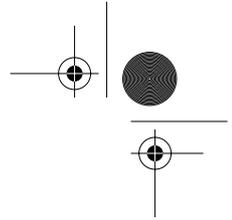
In (22a), the whole DP, including the relative clause, is in the canonical direct object position. In (22b), the relative clause is extraposed. What (22c) shows, however, is that the whole DP cannot be extraposed, a process that would generally be referred to as Heavy NP Shift. Basically, Dutch and German do not have Heavy NP Shift.[9] With this in mind, consider now the question of how we expect FRs to behave, depending on whether we adopt the HH or the CH. On the HH, we expect the *wh*-phrase to remain in situ to the left of the verb under relative clause extraposition, while the rest of the clause would extrapose. On the CH, however, we expect to find all of the phonetically realized elements together undergoing extraposition, while the empty head would remain (invisibly) in situ. The latter is what we actually find:

(23)   a.   Der Hans hat [was] zurückgegeben, [er gestohlen hat].
       b.   Der Hans hat [e] zurückgegeben, [was er gestohlen hat].

This straightforwardly shows that the HH cannot account for FR-extraposition in German (and Dutch).[10] And in view of the fact that these languages exhibit categorial matching effects in very much the same way as English does, and that German in addition is subject to full-scale case matching, we must conclude that another way must be found to derive matching effects in FRs.

There are several other considerations which favor the CH over the HH, of which one deserves to be mentioned that has to do with the absence of the complementizer in the FR on the HH. If the *wh*-phrase is in the head position, then what follows it must be the relative clause. The null hypothesis would be that this clause, as in the case of headed relatives, is a CP (an S′ in older versions). Taking things a step further, the null hypothesis would then be that the canonical positions under CP, viz. Spec, CP and C°, have the same properties as in headed relatives. In other words, we would expect the following two paradigms to be fully identical:

(24)   I put [the pie] [which/*which that/that/Ø you prepared] in the refrigerator.

(25)   I put [what] [*which/*which that/*that/Ø you prepared] in the refrigerator.

In actual fact, they are not. In the case of the FR, (25), both positions must be empty. Similarly, if the position relativized is the subject position,[11] we get a reverse paradigm, as shown in the following two examples:

(26)   [The pie] [which/*which that/that/*Ø was in the refrigerator] tasted bad.

(27)   [What] [*which/*which that/*that/Ø was in the refrigerator] tasted bad.

The bracketing given in examples (24) through (27) is, of course, that of the HH. Bresnan and Grimshaw (1978) are perfectly aware of this problem. They propose
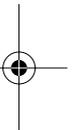
to solve it by assuming that the clause that follows the free relative head is not a full CP (in their terms: S') but rather a reduced clause, IP (in their system: S). The stipulative nature of such an assumption[12] compels us to look for a more principled solution, however.

   If, indeed, we now contrast the above examples with the corresponding bracketings under the CH, a rather different picture results:
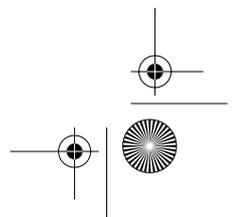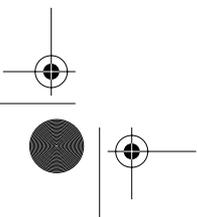
(24')   I put [the pie] [which/*which that/that/Ø you prepared] in the refrigerator.
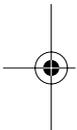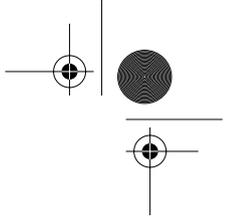
(25')   I put [—] [what/*what that/*that/*Ø you prepared] in the refrigerator.

(26')   [The pie] [which/*which that/that/*Ø was in the refrigerator] tasted bad.

(27')   [—] [What/*what that/*that/*Ø was in the refrigerator] tasted bad.

While this way of presenting the paradigm does not bring out a full parallelism between the headed and the headless relative, one perfectly natural auxiliary hypothesis will do the trick. This is to say that in a free relative, unlike in a headed relative, the *wh*-word may not be absent for reasons having to do with recoverability. Thereby, the ungrammaticality of the third and fourth options in (25') and (27') is accounted for, and full parallelism is achieved.

   These considerations make it very difficult to maintain the idea that the HH could be correct for either English or languages like Dutch and German. While this does not exclude the possibility that FRs in some other languages might be constructed according to the HH, or, in fact, that both structures might be available in some languages, two main analytical questions arise from the adoption of the CH:

(i)   What is the status of the empty head? (see section 3)
(ii)   How do we now account for matching effects? (see section 4)

3   The status of the empty head

The early work on FRs, up to Bresnan and Grimshaw (1978) and Groos and van Riemsdijk (1981), had been carried out in a framework preceding Government and Binding Theory (GB). In this pre-GB framework, traces and PRO did exist, but no systematic account of their contrasting properties had yet been given. This must be at least part of the reason why these authors are not very explicit as to the nature of the empty head on the CH. Bresnan and Grimshaw assume, without further discussion, that the structure of FRs on the CH would have to be as in $[_{DP}$ CP] (9a), while Groos and van Riemsdijk assume a structure more like (9)b, graphically shown here as (28):

(28)

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              DP
            /    \
          DP      CP
          |      /\
       ???????  /  \
               /____\
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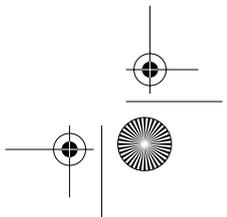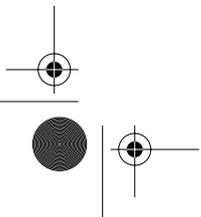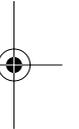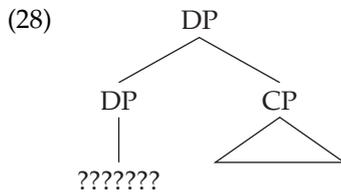
But they too largely ignore the issue of what this empty DP is like, because in their account the *wh*-phrase in Spec, CP fulfills all the functions which the head of a headed relative clause normally fulfills. Grosu (1994) calls this the "head bypass analysis." Somewhat more specific versions of this type of approach have been presented in Hirschbühler and Rivero (1981, 1983) and Harbert (1983b). But if the empty category representing the DP head has no properties at all, then it is as if the head is absent, and we are back with (9a), that is, with a structure like [$_{DP}$ CP]. But if that is the case, then why not go one step further and assume that the FR is simply a CP whose Spec is accessible to government from the outside? This is indeed a logical possibility. But the type of argument presented in section 2 concerning the distribution of FRs as opposed to regular complement or adjunct CPs suggests otherwise. If the FR as a whole can have the distribution of a DP, then how can this fact be derived in a pure CP analysis? We would have to assume that the accessibility of a DP in the Spec, CP suffices to determine the distribution of the CP, but the question is how. One way in which this could be done is explored in section 6.

It should be noted at this point that any head bypass approach is subject to one major line of criticism: any such analysis violates the theta-criterion. Consider a simple case like *I ate what you cooked*. Here *what* heads a chain whose foot is the direct object of the verb *cook*; hence the chain is theta-marked by the verb. But now, if we say that *what* (and not the whole FR or its empty head) is the target of theta-government by the matrix verb *eat* as well, that chain will be assigned two theta-roles and thus constitutes a theta-criterion violation. Groos and van Riemsdijk (1981) were not concerned about this because their analysis was pre-GB, but subsequent work tried to explore ways to avoid this problem. The three-dimensional approach, which we will return to in section 6, may well be a way out, but first we will address a number of more orthodox ways to deal with the problem.

The obvious alternative to the head bypass approach is to assume that the empty head DP in (28) is filled with an empty category of an identifiable kind. Clearly, the empty category cannot be a trace, as there is no plausible candidate for anything having been moved out of the head position. Hence the empty category must be either PRO or pro. One might think that PRO can be dismissed immediately, since the FR can occur in governed positions, and then PRO, being the head of the containing DP, would be governed. This is valid reasoning only up to a certain point. Recall that we are still assuming that Spec, CP is subject to government (for category selection and for case) from outside the DP. Now, if we
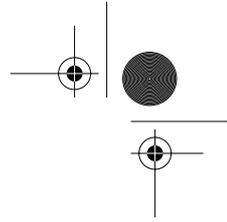
assume that the Spec, CP absorbs government entirely, the empty head of the DP would be ungoverned in all cases, and hence PRO would be tolerated. Observe first, however, that this approach will not avoid the theta-criterion problem. Furthermore, we would have to ask what the control properties of this PRO are. Since actual control by an identifiable controller does not seem to obtain, the only option is to interpret PRO as being arbitrary. As will be discussed in somewhat greater detail in section 5, FRs are either definite/specific, as in (29) or universally quantified, as in (30):

(29)   You can't make a pancake with what you bought (=with the thing(s) that you bought).

(30)   I will invite who(ever) you tell me to (=everybody that you tell me to invite).

It is an interesting question whether PRO_{arb} can be assumed to cover exactly this range of cases. The answer, at first sight, seems to be no, but so far, modulo some discussion in Grosu (1989), Harbert (1983b), and Suñer (1984b), the issue still remains to be investigated in detail.

   Turning now to the second option, could the empty head be pro? This seems a more likely road to success in that pro can occur in governed positions. Exploiting this property, we are led to assume that the pro is identified (or licensed) by some outside element, and that any sensitivity of the *wh*-word in Spec, CP to matrix influences must be mediated by this pro. This is essentially the approach that has been pursued in Suñer (1984b) and Grosu (1994). In view of the fact, however, that matching is a wide-spread phenomenon, and, moreover, that it is a phenomenon that is rather tightly linked to the morpho-phonological shape of the *wh*-words in question (cf. section 4.2.1), mediation by means of some kind of agreement relation between pro and the *wh*-word in Spec, CP seems problematic.[13]

4   Matching effects

As was shown in section 2 in connection with examples (15–18) and (19–21), matching effects are among the most salient and crucial properties of FRs. The present section will discuss the relevant phenomena in greater detail.

4.1   Category matching

4.1.1   The normal case
The discussion about the nature of the head of the FR in section 3, most notably the graphic representation in (28), was simplified in one crucial respect in that it suggested that DPs were the only potential candidates for the status of heads of FRs. In actual fact, FRs can apparently be headed by DP, AP, or PP, as shown in the following examples:
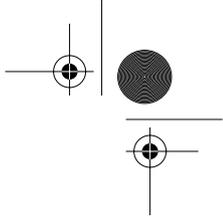
(31) a. The police arrested *who* the witness identified. (DP)
     b. They tend to live *in whatever town* their parents used to live. (PP)
     c. She will make you *however happy* your ex made you. (AP)
     d. I'll play my music *however loudly* you play yours. (AP)

Here the italicized phrases are of the matching type. That is, their category is appropriate for categorial selection both in the matrix clause and in the relative clause. In (31a) *arrest* selects a DP object, and so does the embedded verb *identify*. Similarly, the PP in (31b) is selected both by the matrix instance of *live* and by the embedded instance of this verb. And the same thing is true for the APs (adverbial or not) in (31c, d). This type of matching is absent in regular relative clauses, of course:

(32) a. The police arrested the man to whom the witness pointed.
     b. They live in the town that their parents live in.

In (32a) the head is a DP while the *wh*-phrase is a PP. As for PP, (32b) could be a non-matching case, but this is impossible to tell because we do not know whether the head is the DP or the PP. Since APs cannot head relative clauses, non-matching is impossible to illustrate. Non-matching will indeed result in ungrammaticality, as shown in (33) and (34):

(33) a. *The police arrested *who* the witness pointed.
     b. *Zij wonen waarnaast hun ouders gekocht hebben.
     c. *She will make you however happy your ex married.
     d. *I'll play my music however loudly you listen to.

(33) represents the case in which the *wh*-phrase properly satisfies the selectional requirements of the matrix, but not those of the relative clause. The ungrammaticality is caused by the following mismatches:

(33') a. matrix DP vs. RelCl PP
      b. matrix PP vs. RelCl DP
      c. matrix AP vs. RelCl DP
      d. matrix AP (adv.) vs. RelCl DP

In the PP case (33b) we encounter again the problem that we do not know whether the preposition is part of the head of the relative clause or outside it. But in a language like Dutch, in which forms equivalent to *whereby* are fully productive, this problem can be overcome. *Waarnaast* 'next to which' is a PP, properly selected by the matrix verb *wonen* 'live' but unsuitable as a direct DP object of the embedded verb *gekocht* 'bought'. In the AP cases, again, the AP is properly selected or interpreted in the matrix, but cannot satisfy the categorial selection requirements of the relative clause.
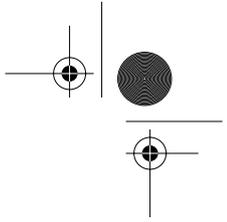
Similarly, if the *wh*-phrase is appropriate for the relative clause but not for the matrix we again get ungrammatical results, as shown in (34):

(34) a.   *The witness pointed *who* the police had arrested.
      b.   *The police arrested *to who(m)* the witness pointed.
      c.   *She will marry however happy her ex made her.
      d.   *I'll play my music whatever rock opera you are listening to.

The mismatches are as follows:

(34′) a.   matrix PP vs. RelCl DP
      b.   matrix DP vs. RelCl PP
      c.   matrix DP vs. RelCl AP
      d.   matrix AP (adv.) vs. RelCl DP

There is, nevertheless, a certain asymmetry between the DP cases on the one hand and the PP/AP cases on the other hand. This has to do with two additional restrictions that are imposed on the latter but not on the former. Recall that there are two main semantic types of FRs: definite/specific and universally quantified (cf. (29/30) and section 5.2). Observe now that the DP-FRs come quite readily in both types but that for the PP/AP-FRs there is a very strong bias in favor of the universally quantified type. In fact, when the context strongly imposes the definite/specific reading, the result tends to be quite degraded.[14] Consider (34″):

(34″) a.   ?Tomorrow I will speak to who(m) you spoke last night.
      b.   ?You can't word your letter how rudely they worded theirs.

The second restriction is that the matching requirement, if anything, seems to go beyond the identity of the head of the relative clause. Note, indeed, that in all the above examples of AP/PP-FRs the matrix verb and the embedded verb were identical. Choosing different verbs with identical categorial selection requirements also tends to result in less than fully acceptable examples:

(35) a.   ?Why don't you ever dance with whomever I come to parties?
      b.   ?She always dotes on whomever you can't count.
      c.   ?I'll keep my bedroom however dark you paint your study.

In view of these restrictions, most of the literature has concentrated on DP-FRs, with the exception of so-called 'missing P FRs', which we return to in section 4.1.2. Before doing so, however, we also need to address the question as to whether categorial matching is an absolute and inviolable requirement. The answer appears to be that it is not.
   Consider an English example like the following:

(36) a.   *On whatever mattress I sleep gives me a terrible back ache.
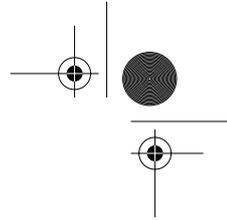
Clearly, the FR is headed by a PP and since it occupies a DP-position (the subject position) the sentence is ungrammatical. In English, the effect is quite straight-forward, partly because there is a simple way of choosing a matching variant:

(36)   b.   Whatever mattress I sleep on gives me a terrible back ache.

If we strand the preposition, we end up in Spec, CP with only the *wh*-phrase, which is a DP. But other languages don't allow preposition stranding (see chapter 51), and in such languages, sometimes, the non-matching variant corresponding to (36a) is acceptable. Consider the following example from Romanian, taken from Grosu (1994):

(37)   Cu ciene iese Maria e deobicei un om de nimic.

It should be noted, however, that even in languages that do allow such non-matching FRs, their status tends to be rather marginal and subject to several further conditions. Most importantly, non-matching seems to be largely limited to ungoverned or at least weakly governed positions. Among the latter, we may include the subject position, as opposed to the object position, for example. With pure adjuncts, of course, there is nothing in the matrix to match with, so this case is untestable. But what we do find is cases of correlatives which can often be analyzed as left- or right-dislocated FRs. (38) is an example of such a construction from Spanish, taken from Suñer (1984b):

(38)   Con quien me quiero casar, ése ni me da la hora.

Another condition mentioned in Grosu (1994) is that the *wh*-word may not be too deeply embedded within the *wh*-phrase:

(39)   Con la foto de quien Maria se fué es muy simpático.

Finally, it is noted that the best examples of categorially non-matching FRs tend to be proverbs. Grosu (1994) notes, for example, that all examples of non-matching FRs in subject position in Catalan, as provided in Hirschbühler and Rivero (1981), are proverbs, as illustrated in (40):

(40)   A qui l'adulació halaga, si la pren la paga.

For further comments on non-matching, see also section 4.2.2 below.

4.1.2   Missing prepositions
Returning now to examples like (34a), notice that you might say that a preposition has disappeared. Consider some other examples of this type:

(41)   a.   He'll remain in whatever town he has been living all his life.
       b.   Children worry about whatever their parents worry.
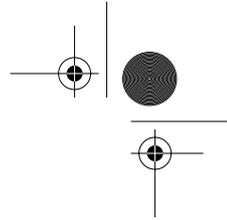
In both examples, the preposition appears to fulfill a double role in that it is required both by the matrix clause and by the FR. In (41a) both verbs (*remain* and *live*) select a locative PP, and similarly, in (41b) the *about*-phrase seems to serve as a complement both to the matrix-*worry* and to the embedded *worry*. The impression of a missing preposition is reinforced when we consider variants of (41) in which the preposition in question is actually present:

(42)   a.   He'll remain in whatever town he has been living in all his life.
       b.   Children worry about whatever their parents worry about.

From another perspective, however, the absence of the preposition in (41) is hardly surprising, since sharing is what matching is all about. If in simple FRs like *I eat what you cook* the *wh*-word is both the embedded object and the matrix object, then why can't a whole *wh*-PP have a double function in precisely the same way? The question in other words is whether such examples have structure (43a) or (43b):

(43)   a.   . . . V [$_{PP}$ P [$_{FR}$ [$_{DP}$ *wh*-word]$_i$ . . . V . . . *P* [e]$_i$ . . .]] . . .
       b.   . . . V [$_{FR}$ [$_{PP}$ P *wh*-word]$_i$ . . . V . . . [e]$_i$ . . .] . . .

In (43b) there is no missing P, or rather, there is no P that has to mysteriously disappear. On the other hand, in (43a) the ***P*** is supernumerary and has to disappear somehow. And given that we already need a mechanism to account for matching in the simple case, the most straightforward way of analyzing these cases would be to extend this mechanism to PPs.

   There is actually quite a controversy on this point, which is still ongoing. The main protagonists are Larson and Grosu. Larson (1987) defends the analysis with the missing preposition, i.e., (43a), and Grosu (1996) argues against Larson in favor of (43b). For details about this controversy, the reader is referred to these texts.

4.2   *Case matching*

As in the case of categorial matching effects, the case on the *wh*-word or *wh*-phrase must generally match; that is, the case requirements of the matrix context and those of the FR-context must be identical. The overall approach which we have been pursuing is that the *wh*-phrase is, in fact, a shared constituent: a constituent that originates inside the FR, is moved into the Spec, CP of that FR, and, in that position, serves to satisfy some matrix requirement, be it selection or case government. The phenomenon of case matching, like that of categorial matching, is directly relevant to the choice between the two main approaches to FRs, the HH and the CP, cf. (19–21).

4.2.1   *Full matching*
The full matching paradigm is exhibited in the following examples from section 2:
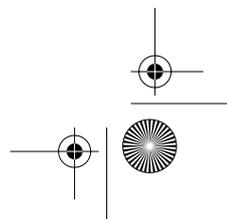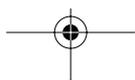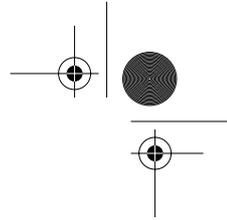
(19)   a.   Wer nicht stark ist muss klug sein.
     b.   *Wen/*wer Gott Schwach geschaffen hat muss klug sein.
     c.   *Wem/*wer Gott keine Kraft geschenkt hat muss klug sein.

(20)   a.   Ich nehme wen du mir empfiehlst.
     b.   Ich nehme *wem/*wen du vertraust.
     c.   Ich nehme *wer/*wen einen guten Eindruck macht.

(21)   a.   Ich vertraue wem du vertraust.
     b.   Ich vertraue *wen/*wem du mir empfiehlst.
     c.   Ich vertraue *wer/*wem einen guten Eindruck macht.

One may wonder, of course, how a language can get away with this tight a restriction. The richer the case system, the fewer the chances that the upstairs and the downstairs requirements can be made to match. The answer to this puzzle is twofold. First, if the *wh*-phrase is truly a shared constituent, then matching is the only option available. Second, all languages in question have the possibility of using what Citko (1999) calls a 'light-headed relative' instead. That is, mismatches can be accommodated by making use of a semantically minimally specified head, generally a pronoun. In German, demonstrative or d-pronouns are normally used for this purpose. For (19–21) the grammatical counterparts of the ungrammatical examples would then be the following:

(19)   b′.   Der, den Gott schwach geschaffen hat muss klug sein.
     c′.   Der, dem Gott keine Kraft geschenkt hat muss klug sein.

(20)   b′.   Ich nehme den, dem du vertraust.
     c′.   Ich nehme den, der einen guten Eindruck macht.

(21)   b′.   Ich vertraue *wen/*wem du mir empfiehlst.
     c′.   Ich vertraue *wer/*wem einen guten Eindruck macht.

In addition to this strategy of using 'light-headed relatives', there are a few other ways in which languages resolve the problem of case mismatches, and this is a topic which is discussed in sections 4.2.3 and 4.2.4.

4.2.2   Mismatches
As in the case of category matching (section 4.1), mismatching does occur with case marking as well. There are three main aspects to be considered here. First, there are situations in which mismatches appear to be tolerated Second, mismatches can be resolved under circumstances of syncretism (see section 4.2.3). And third, mismatches may sometimes be resolved by means of case attraction (see section 4.2.4).

   A substantial number of cases have been invoked in the literature (see among others Pittner 1995; Grosu 1994). Consider the following examples:[15]
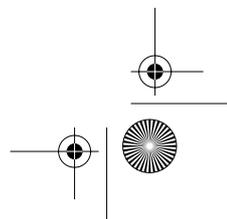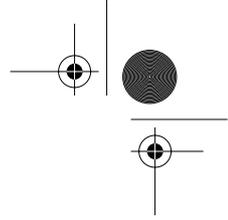
(44) a. Ich liebe^{acc} wer$_{nom}$ Gutes tut und hasse^{acc} wer$_{nom}$ mich verletzt.
   b. Ich nehme^{acc} wem$_{dat}$ immer du vertraust^{dat}.
   c. Was$_{nom}$ ein Mädchen ist von gutem Gefühl müssen dergleichen Sachen zuwider sein^{dat}.

NB: subscripts indicate the case of a form, superscripts indicate the case imposed by some predicate.

   It is quite clear that such examples constitute prima facie problems for the idea that the *wh*-phrase of the FR is a shared element. A number of remarks are in order, however. First, the data situation is rather complicated here. Some of these examples have a distinctly archaic flavor to them. To the present author, all three are fully ungrammatical. More importantly, the case system of spoken German is subject to considerable decay. Dutch has completely lost morphological case on full noun phrases. In many German dialects, surface case has been lost to varying degrees. Swiss German, for example, has lost the genitive, has a dative that is only marginally distinct from a PP, and the distinction between nominative and accusative, when present at all, is probably more a hypercorrection from Standard German than part of the language itself. Other dialects in the German-speaking countries are less radical, but the dative/accusative distinction is lost in many of them, sometimes with the dative surviving as in the Berlin dialect and sometimes with the accusative winning out as in many Bavarian dialects. This observation may well account for some of the above. If (44a) were from a speaker of Swiss German, for example, we could immediately trace the example's grammaticality to the Swiss dialect situation. In actual fact, the sentence is from Schiller, so the question remains open. Similarly, (44b) is a case of dative–accusative confusion, which may possibly be traced to dialectal factors. (44c) is from Goethe and, to the present-day ear, completely impossible. In his discussion of such examples, Paul (1920: IV, §411) repeatedly points out that such examples are rare, archaic, marked, and not part of present-day German (his grammar came out in 1920).

   The second point that needs to be made here concerns the difficulty that arises from such examples for an approach in which the *wh*-phrase is a constituent 'shared' by the matrix and by the FR. If one wants to maintain such an analysis, some way must be found to account for the asymmetry between the upstairs and downstairs environment in terms of their impact on case checking. In all three of the examples cited, the case of the *wh*-word is that imposed within the FR. And indeed, Paul (1920) notes that this is the only type of deviation from matching found in New High German. One way of looking at this would be to say that case is checked inside the relative clause and that (in certain varieties of German) it need not be checked again in the matrix environment. We will not pursue the details of such an approach here. Note, in fact, that an alternative approach in which the head is occupied by some empty element (say pro) does not fare any better, loosely speaking. On such an approach, the null hypothesis would be to say that we find the same patterns that are found with overt pronominal heads (light-headed relatives). The latter exhibit no matching whatsoever. Hence, we
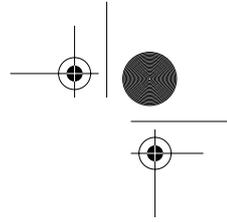
would face the task of explaining why much tighter restrictions on the agreement relation between the pronominal head and the *wh*-phrase of the FR come into play when the pronominal head is an empty category. The reader is referred to Grosu (1994) for an account along such lines.

4.2.3 Case syncretism

It is a well-known fact that in case paradigms of a certain complexity, syncretism may be found. That is, a certain morphological case form may be used for two or even more abstract case features. Take the simplex question words in German. These constitute the following paradigm:

	Masc./Fem.	Neuter
Nominative	*wer*	*was*
Genitive	*wessen*	*wessen*
Dative	*wem*	—
Accusative	*wen*	*was*

This table shows that there is syncretism in two respects: the genitive forms syncretize for gender: same form for masc./fem. and for neuter, while the nominative and the accusative forms are identical in the neuter.

If we wish to test, now, whether case matching is affected by syncretism, we must immediately conclude that the genitive syncretism (*wessen*) cannot be tested because the gender switch cannot be tolerated or forced. That is, in an example like (45) it is impossible to force an interpretation in which *wessen* is taken to be, say, feminine in the matrix but neuter in the FR:

(45)   Ich bediene mich wessen du dich erinnerst.

Due to the identity required between the head of the relative clause and the relative pronoun, here conflated into one word, the genitive object of *sich bedienen* could never be taken to be a feminine noun, while at the same time the genitive object of *sich erinnern* is interpreted as a neuter noun.

Turning to the second instance of syncretism, the test can be successfully constructed. Take the following two fully matching examples:

(46)   Was im Kühlschrank liegt ist schimmlig.

(47)   Ich esse was du gekocht hast.

In (46) *was* is a nominative subject both in the matrix and in the FR, while in (47) *was* is an accusative object both in the matrix and in the FR. Consider now, however, what happens when we invert the FRs with respect to the two matrix contexts:

(48)   Was du gekocht hast ist schimmlig.
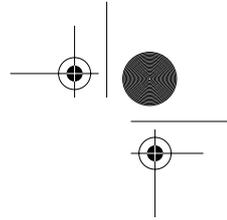
(49)   Ich esse was im Kühlschrank liegt.

Both examples are fully grammatical despite the fact that in abstract case feature terms we have a non-matching combination: matrix nominative + FR-accusative in (48), and matrix accusative + FR-nominative in (49). We must conclude that the case-matching effect is concerned with the actual morpho-phonological shape of the case form in question, not with the abstract case features that it represents in a specific syntactic context.

 With this in mind, let us go back to the main choices listed in (9):

(9)   a.   [$_{DP}$ CP]
      b.   [$_{DP}$ DP CP]

One way of characterizing the difference between these two analyses is to say that in (9a) the *wh*-element in Spec, CP is 'shared' between the relative clause structure and the containing matrix structure, while in (9b) the DP-head is part of the matrix and the Spec, CP is part of the relative clause, the relation between the two being mediated by agreement. Accordingly, we may call the former hypothesis the Shared Structure Hypothesis (SSH) and the latter the Distributed Structure Hypothesis (DSH). The case syncretism phenomena just discussed have considerable relevance for the choice between the SSH and the DSH. On the DSH one would not expect the actual morpho-phonological shape of the *wh*-word to play any role, since agreement processes such as those found between the head of a relative clause and the *wh*-word of the relative clause are in terms of features, not in terms of phonetic identity. Agreement as we understand it works in terms of morphosemantic features, not in terms of phonetics.[16]

4.2.4   *Case attraction*

If case matching is the norm, then the richer a case system, the poorer the options for FRs. In other words, if a language has *n* cases, there are n^2 possible combinations out of which only *n* yield a grammatical output (modulo syncretism). Again, this is not tragic, since a light-headed relative clause construction can always be chosen to avoid the case-matching restriction. But actually there is another way in which languages can, sometimes, escape this case-matching restriction: case attraction. Consider again the examples discussed under the heading 'case mismatches' in (44). In these examples, the case of the *wh*-word is the case imposed within the relative clause. But sometimes the case required by the matrix context is, as it were, superimposed on the *wh*-word. This is a pattern found in Classical Greek, as shown in Hirschbühler (1976a), whose data have been amply used in the later literature. Consider the following:[17]

(50)   a.   deitai sou touton ekpiein sun hois$_{dat}$ malista phileis.
      b.   deitai sou touton ekpiein sun toutois hous malista phileis.

(51)   a.   par' hôn$_{gen}$ boêtheis ouch apoleipsei charin.
      b.   par' ekeinôn$_{gen}$ hois$_{dat}$ boêtheis ouch apoleipsei charin.
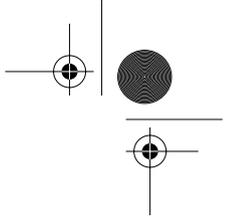
The b-examples show the corresponding light-headed relative with the distributed case forms. As the a-examples show, the matrix case wins: in (50a) the FR-accusative is superseded by the matrix dative, and in (51a) the FR-dative is superseded by the matrix genitive. The way this is generally expressed is to say that the case of the relative pronoun is attracted to the case of the matrix (the head). From this perspective, we might be tempted to reinterpret the mismatches discussed in section 4.2.2 as constituting the direct counterpart of the attraction cases in (50) and (51). We might then say that in cases like (50) and (51) attraction is downward, while in the cases shown in section 4.2.2. attraction is inverse or upward. By this we mean that the matrix case is imposed (attracted) in a downward direction to the *wh*-element in the FR, or transmitted (attracted) upward from the FR into the matrix context.

If we try to interpret these phenomena from the point of view of the two main hypotheses that we are comparing, the Shared Structure Hypothesis (SSH) and the Distributed Structure Hypothesis (DSH), a certain amount of stipulation seems to be required on both views. On an SSH view, we have to say that two independent structures are glued together in the shared element, but that these two structures are not equivalent: one is dominant and the other is recessive. This is feasible, and comparable phenomena can be found in other areas of grammar, for example case attraction under long *wh*-movement in Hungarian. On the alternative DSH view, we have to say that the agreement process applying between the (empty) head and the *wh*-element in the FR sometimes does not require full identity of cases but that sometimes the head wins, sometimes the *wh*-element.

It must be recognized, however, that the latter view (the DSH) receives considerable support from the fact that the attraction phenomena just shown are also attested in headed relative clauses. Downward attraction is attested in the following example from Classical Greek, where the b-example shows what the unattracted version would be:[18]

(52) a. Phoboimen an tôi hegemoni$_{dat}$ hôi$_{dat}$ doiê hepesthai.
      b. Phoboimen an [tôi hegemoni$_{dat}$ [hon$_{acc}$ doiê]] hepesthai.

Upward attraction, though reported to be rarer in Classical Greek, is also found:

(53) a. Tên ousian$_{acc}$ hên$_{acc}$ katelipe ou pleionos aksia$_{nom}$ estin ê tettarôn kai deka talantôn.
      b. Hê ousia$_{nom}$ hên$_{acc}$ katelipe ou pleionos aksia$_{nom}$ estin ê tettarôn kai deka talantôn.

Similar examples of upward attraction are also found in Latin:[19]

(54) a. Naucratem$_{acc}$ quem$_{acc}$ convenire volui in navi non erat.
      b. Naucrates$_{nom}$ quem$_{acc}$ convenire volui in navi non erat.

Upward attraction appears to be rather exceptional (cf. note 18) but downward attraction is frequent enough to permit some generalizations. In particular, it
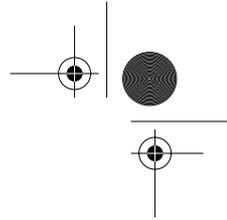
appears that the more marked case must win. In other words, if the matrix case is, say, a dative and the case on the *wh*-word is a nominative, then downward attraction is possible, but not vice versa. Grosu (1994: 108) formulates the case hierarchy as follows:

(55)   NOM < ACC < DAT < GEN < . . . < P-CASE

Here, P-Case can be extended to various highly oblique cases in richly case-marking languages. The idea is that a case lower on the hierarchy can replace a case higher on the hierarchy under downward attraction, but not the other way around. As Hirschbühler (1976a) notes, however, there may be asymmetries within one language. In particular, he notes, in Classical Greek[20] attraction is more lib-eral in FRs than in headed relative clauses. In his formulation, an accusative may be attracted to a genitive or dative in headed relatives, but in FRs, neuter nominatives, accusatives, and datives may be attracted to datives or genitives.

5   Types of free relatives

5.1   *Questions vs. free relatives*

Since FRs are clauses with an initial *wh*-word, they look like questions. As was pointed out in the introduction (examples (5) ff.), FRs can generally be distinguished from questions without any problems since they differ in their subcategoriza-tional properties. Nevertheless, when an FR occurs in a non-subcategorized position, say as an adjunct, then the distinction tends to be blurred. Consider:

(56)   *Whatever Bill says*, it always comes out wrong.

Is the italicized part of this example a question or an FR? Subcategorization is not a factor here. The presence of *-ever* would seem to suggest that this is an FR, since embedded *wh*-questions do not take *-ever*. On the other hand, a close paraphrase of (56) has *no matter* prefixed to the *wh*-word, which is generally impossible in argument FRs:

(57)   a.   No matter what Bill says, it always comes out wrong.
        b.   [?]*This dog attacks no matter who crosses its path.

Furthermore, *whether* can occur in this type of clause, and *whether* is normally limited to questions and excluded in FRs:

(58)   (No matter) whether Carl talks or not, he will be convicted.

Semantically, such subordinate clauses appear to be a special subtype of conces-sive clauses, which does not help much if we try to determine whether they are questions or FRs.
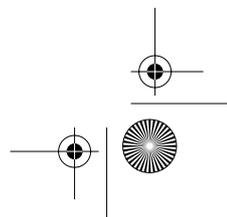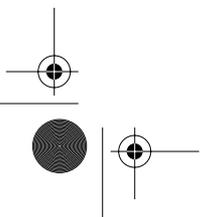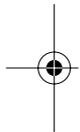
There are, indeed, a number of other indications that FRs are closer to questions than headed relative clauses are. Consider first the fact that adjunct clauses like the ones above can sometimes contain multiple *wh*-phrases:

(59) a. Whichever CD you buy in whatever store, you always pay too much.
      b. *This dog attacks whoever crosses whatever street.
      c. *a person who crosses what street.
      d. Who crossed what street?

As these examples show, there are multiple questions (59d) but no multiple relative clauses (59c), but multiple *wh*-phrases in the concessive clauses under consideration are possible.[21]

More generally, a second indication that FRs are closer to questions than headed relatives comes from the choice of pronoun that we find in them. In some languages such as German, questions are constructed by means of *w*-words, while headed relatives clauses make use of *d*-words (demonstrative pronouns):

(60) a. Peter fragte wen ich vorziehe.
      b. Peter hasst den Mann den ich vorziehe.
      c. Peter hasst wen ich vorziehe.

As (60c) shows, FRs pattern like questions and not like headed relative clauses in that they uniformly take *w*-words.

In German, what is at stake is essentially a morphological choice,[22] but there are languages in which the syntax of relative clauses and questions is more radically different. This is the case, for example, in Swiss German. Swiss German forms relative clauses by means of an invariable complementizer element *wo* and a resumptive personal pronoun in situ, which is sometimes deleted (cf. van Riemsdijk 1989b). Questions, on the other hand, are formed by means of *w*-phrases that are moved to the front of the clause in the same way as in English or Standard German. Again, we find that FRs pattern with questions in this respect:

(61) a. De Peter wet wüsse mit wem s Susi redet.
      b. De Peter redet mit em maa wo s Susi mit em redet.
      c. De Peter redet mit wem s Susi redet.

In conclusion, there is a variety of phenomena that suggest that FRs as a construction occupy a position somewhat intermediary between questions and (headed) relative clauses.[23]

5.2   *The interpretation of free relatives*

The main distinction among different types of headed relatives that comes to mind is the one between restrictive relatives on the one hand and non-restrictive or appositive relatives on the other. But this distinction is not helpful in coming
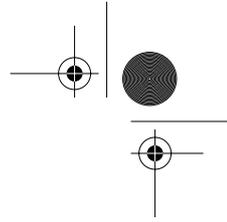
to grips with the essential semantics of FRs.[24] It is more helpful to contemplate what types of (pronominal) heads we use when we paraphrase FRs. Consider the following examples with their paraphrases:

(62)   a.   I ate what the waiter put on my plate.
       b.   I ate the thing that the waiter put on my plate.

(63)   a.   I will eat whatever the waiter will put on my plate.
       b.   I will eat anything/everything that the waiter will put on my plate.

It appears, then, that there are two main subtypes of FRs, definite FRs and universally quantified FRs. Note that the addition of *-ever* to the *wh*-word tends to disambiguate potentially ambiguous examples, since *-ever* pretty much forces the universally quantified reading. The opposite is not true, however. *Wh*-words without the suffix *-ever* can nevertheless have universal force, as in:

(64)   I will eat what happens to be on the menu.

On closer inspection, in fact, even an example like (62a) can be interpreted with universal force: at that time my condition was such that I would eat whatever the waiter put on my plate. Furthermore, as the two alternatives in (63b) show (everything vs. anything), there is some question as to the precise nature of the type of universal quantification that is involved. By (63a) we mean either that I will eat all the food items that the waiter puts on my plate, or that I will eat any item from a larger set of items that the waiter chooses to put on my plate. The latter interpretation is often referred to as 'free choice *any*'. This observation also leads us to re-evaluate the above statement that *-ever* forces the universally quantified meaning, since a *wh-ever* FR sometimes also has a meaning that comes close to that of a definite noun phrase, but one that the speaker of the sentence is not able to identify at the point of speaking. This is illustrated in (65):[25]

(65)   Everyone who went to whatever movie the Avon is now showing said it was very boring.

As noted in Jacobson (1995), this differentiates such an FR from truly universally quantified noun phrases, since the latter cannot be referred to by *it*:

(66)   *Everyone who went to every movie the Avon is now showing said it was very boring.

   The observation that the two subtypes of FRs are, at least sometimes, quite close to each other invites the question as to whether it is possible to unify the two. Jacobson (1995), which the following account paraphrases closely, suggests that this can be done by means of the notion of a maximal plural entity. It is important that the term *plural* is used in a broad way here: if in a given domain
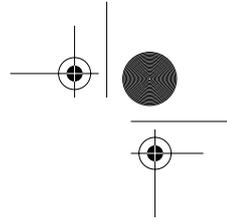
there is only one atomic individual with a given property, then the maximal plural entity with that property is the one consisting of just this atomic individual. We may then assume that an FR like *what Mary recommended* denotes the set of maximal plural entities that Mary recommended (rather than any set of individuals that Mary recommended). Given the fact that this set may be limited to a single atomic entity, we now have an account for the fact that FRs at times seem to be singular definites and at times universals: we always have a singleton set. If there is only a single entity that Mary recommended, then the FR will be equivalent to a singular definite. And if there is more than one entity, then the FR will denote the single entity composed of all entities that Mary recommended, which amounts to a universal interpretation.[26]

5.3 *Transparent free relatives*

Intuitively speaking, we may say that the *wh*-element in a FR constitutes the link between the relative clause CP and the containing matrix structure. This is true regardless of whether this link is mediated by some empty pro-head or by anything else. There is, however, a very special type of free relative in which the initial *wh*-element (always *what*) is almost like a dummy element, while the relative clause contains a small-clause predicate that has most of the properties of the pivotal element, the element that provides the link between the relative clause CP and the matrix structure. Without prejudice to the formal analysis of such free relatives, which will be discussed in section 6, I will call this pivotal or link element the 'shared element' or 'shared structure'. This type of relative clause, which has been dubbed 'transparent free relative' (TFR) by Wilder (1999), can be exemplified by (67):[27]

(67) *What appeared to be **a jet airliner*** had landed on the freeway.

The TFR is in italics, and the boldfaced noun phrase is the shared constituent. TFRs are different from regular FRs in a variety of ways, and most of the differences have to do with the presence of a shared element that is distinct from the *wh*-element. The following is a succinct list of such properties:[28]

  (i) **Indefinites allowed.** FRs are either definite or universal (cf. section 5.2), but an indefinite predicate nominal expression can turn a TFR into an indefinite. (67) does not mean 'the thing that looked like a jet . . .' but rather 'something that looked like a jet . . .' or even, more directly, 'a jet airliner had landed on the freeway'. That this is so is demonstrated further by the fact that TFRs are permitted in contexts that are diagnostic for indefinites, such as *there*-insertion constructions:

(68) a. There was a jet on the freeway.
      b. *There was the jet on the freeway.
      c. *There was what had incurred extensive engine failure on the freeway.
      d. There was what appeared to be a jet on the freeway.

360   *Riemsdijk: Free Relatives*
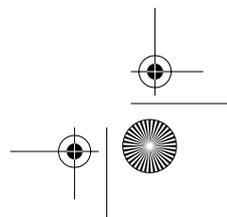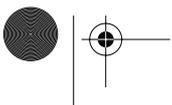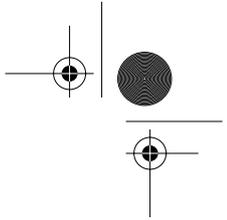
(ii)   **Intensional modifier.** The meaning of the TFR minus the shared constitu-
ent is that of a hedge or an intensional modifier. In that sense, the TFR is similar
to that of adjectives like *alleged*:

(69)   a.   They served me what they euphemistically referred to as a steak.
       b.   They served me an alleged steak.

Both (69a) and (69b) leave open the possibility that the entity in question is not
what the noun says it is. That is, in both cases this entity may well not be a steak.

(iii)   ***-ever.*** As is to be expected on the basis of property (i), *-ever* cannot be
suffixed to the *wh*-element in a TFR:

(70)   *There was whatever appeared to be a jet on the freeway.

(iv)   **Plural agreement.** When used as a subject, the *what* of a TFR can trigger
plural agreement on the verb, which it can never do in regular FRs:

(71)   a.   What *seems/seem to be several jets *was/were landing on the
            freeway.
       b.   What pleases/*please me most adorns/*adorn the living room wall.

(v)   **Reference to [+human].** In TFRs, *what* can refer to humans, which is
impossible in regular FRs:

(72)   a.   She invited what I took to be a policeman to stay overnight.
       b.   *She invited what was carrying a baton and a gun to stay overnight.

(vi)   **No island sensitivity under extraction.** Extraction, for example by *wh*-
movement, out of some constituent contained in a headed relative or a FR is
prohibited by island constraints (specifically, the Complex Noun Phrase Con-
straint subsumed under Bounding Theory). However, extraction out of a TFR is
acceptable or only weakly deviant:[29]

(73)   a.   *Who did you order a picture that represented the sole possession of?
       b.   *Who did you order what represented the sole possession of?
       c.   Who did you order what was advertised as a first-rate picture of?

(vii)   **Conjunction of (un-)likes.** As is well known, only constituents of iden-
tical categorial status can be conjoined under coordinate conjunction. Consider
now a TFR with a predicate adjective. If we interpret such a relative clause from
the point of view of a regular FR, the categorial status will be determined by the
wh-word (*what*); that is, it will count as a noun phrase. But if the predicative
adjective determines the categorial status, the clause will have the distributional
properties of an AP. With this in mind, consider (74):
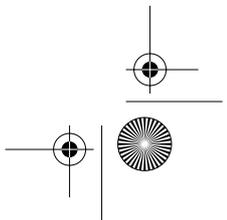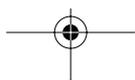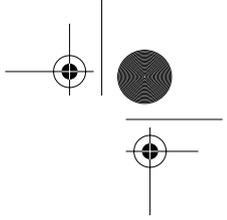
(74) a. *He dislikes trains and what I consider inconvenient.
    b. He dislikes trains and what I consider an equally inconvenient alternative.
    c. He dislikes trains and what the government proposes to replace them with.

(74a, b) are TFRs, while (74c) is a regular FR. On the assumption that it is the predicate that counts, (74b) is OK since two noun phrases are conjoined, while (74a) is ungrammatical because an NP is conjoined with an AP. Note, in fact, that (74a) can, with some difficulty, be interpreted as a regular FR: he dislikes trains and anything that I consider inconvenient. While such a reading may not be the most plausible one, (74a) is grammatical on that reading. There is a complication here, however. The verb *dislike* subcategorizes NPs and not APs. Hence, on the TFR-reading, (74a) is ungrammatical regardless of conjunction of unlikes because it includes the substatement **he dislikes inconvenient*. This is important in its own right, of course, but the full force of the 'conjunction of unlikes' argument can be seen in an example like the following:

(75) a. *The creature changed from a frog and slimy into a prince and radiant.
    b. *The creature changed from a frog and what can only be termed slimy into a prince and what truly deserves to be called radiant.
    c. The creature changed from a frog and a slimy abomination into a prince and a prospective lover.
    d. The creature changed from a frog and what can only be termed a slimy abomination into a prince and what truly deserves to be called a prospective lover.

(viii) **Idiom chunks.** The small-clause predicate in the TFR can be an idiom chunk that is part of a matrix idiom expression:

(76) a. $Nick_i$ lost what according to the dictionary are called his_i marbles.
    b. (*)$Nick_i$ lost what his_i marbles cost in the store.

Note that (76b) is in principle grammatical as a regular FR, but the idiomatic reading disappears completely.

(ix) **Bound anaphors.** Similarly, bound anaphors that are part of the small-clause predicate can be bound by an antecedent in the matrix structure, which is impossible in regular FRs:

(77) a. $They_i$ live in what is often referred to as each $other's_i$ backyard.
    b. *$They_i$ live in what Fred uses each $other's_i$ backyard for.

(x) **Case matching.** While in regular FRs it is the *wh*-word/phrase that is subject to case-matching requirements (cf. section 4.2), in TFRs it is the predicate nominal in the small clause that is subject to such a restriction. Predicate nominals only occur in the nominative and in the accusative, hence dative and genitive play no role here:
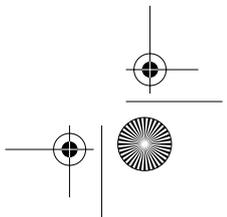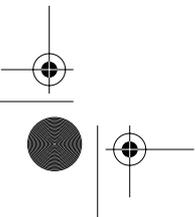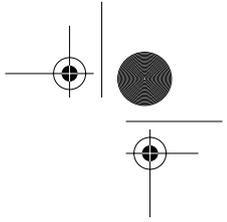
(78) a. Gestern ist was als ein_{nom} Meteorit identifiziert $wurde^{nom}$ bei uns $eingeschlagen^{nom}$.

b. Gestern ist was Experten als als $\begin{Bmatrix} *ein_{nom}\ Meteorit_{nom} \\ ??einen_{acc}\ Meteoriten_{acc} \end{Bmatrix}$ identifiziert $haben^{acc}$ bei uns $eingeschlagen^{nom}$.

c. Wir haben was als $\begin{Bmatrix} ??ein_{nom}\ Meteorit_{nom} \\ *einen_{acc}\ Meteoriten_{acc} \end{Bmatrix}$ identifiziert $wurde^{nom}$ $gesehen^{acc}$.

d. Wir haben was Experten als $einen_{acc}$ $Meteoriten_{acc}$ identif. $haben^{acc}$ $gesehen^{acc}$.

(79) a. Gestern ist was als $eine_{nom}$ Sternschnuppe identifiziert $wurde^{nom}$ bei uns $eingeschlagen^{nom}$.

b. Gestern ist was Experten als $eine_{nom/acc}$ Sternschnuppe identifiziert $haben^{acc}$ bei uns $eingeschlagen^{nom}$.

c. Wir haben was als $eine_{nom/acc}$ Sternschnuppe identifiziert $wurde^{nom}$ $gesehen^{acc}$.

d. Wir haben was Experten als $eine_{acc}$ Sternschnuppe identifiziert $haben^{acc}$ $gesehen^{acc}$.

In (78a, d) the matrix and the TFR case requirements (both indicated by superscripts on the verbal complex) are identical. Hence, matching is satisfied. In (78b, c) we have conflicting requirements. No matter what case we have on the predicate nominal, the result is degraded. There does seem to be a contrast, however in that the TFR requirement is absolute, while non-matching in the matrix yields only mild deviance.[30] (79) contrasts minimally with (78) in that the masculine noun *Meteorit* has been replaced by the feminine noun *Sternschnuppe*. In the feminine paradigm, there is no distinction between the nominative and the accusative forms. In other words, we have case syncretism. As observed before for regular FRs, syncretism resolves the case conflict, and hence we have a grammatical result for all examples.

(xi) **Inflection.** The predicate constituent in the TFR sometimes inflects as if it were part of the matrix rather than part of the relative clause. A straightforward case of this phenomenon is found with adjectives in Dutch. Predicate adjectives in Dutch are uninflected, but attributive adjectives must be inflected. Roughly speaking the rule is that an attributive adjective must be inflected by the suffix *-e* ([ə]) unless the noun it modifies is indefinite neuter singular:

(80) a. Deze auto is duur/*dure.
b. een *duur/dure auto

This pattern shows up in identical fashion in TFRs:[31]

(81) a. Deze auto is wat je duur/*dure zou kunnen noemen.
b. een wat je zou kunnen noemen *duur/dure auto.
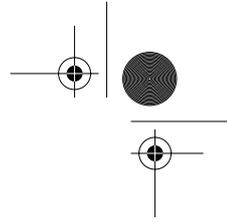
From the point of view of adjectival inflection, then, we may say that the adjective, which is ostensibly inside the relative clause, acts as if it were fully a constituent of the matrix structure. Observe, however, that the adjective must also be a constituent of the relative clause, because otherwise the relative clause is incomplete: [*what you could call *(expensive)*]. This then is another simple, straightforward piece of evidence that the small-clause predicate in a TFR is 'shared' between the matrix and the relative clause.

6 Matching and the syntactic representation of free relatives

Matching phenomena are among the most salient properties of FRs (cf. section 4), and accordingly one of the main analytical questions is how these matching phenomena are to be accounted for. Perhaps the most salient issue here is whether the link between the relative clause and the matrix is a direct one or an indirect one. Consider a simple example (cf. (4)):

(82) You should return *what you have finished reading* to the library.

On the direct approach, the *wh*-word/phrase of the relative clause is at the same time part of, or at least accessible to, whatever syntactic and semantic requirements the matrix clause imposes, in this case subcategorization of a direct object and accusative case. The alternative is to assume that there is an empty head, which acts as an intermediary between the relative clause and the matrix. As before (cf. section 4.2.3), we may call the former type of analysis the Shared Structure Hypothesis (SSH) and the latter type the Distributed Structure Hypothesis (DSH). On the DSH, the relevant properties of the *wh*-element (category, case, person, number, etc.) are present as features on the empty head, and it is the empty head which is responsible for any checking or licensing processes that are relevant for the matrix structure. On the SSH, the empty head plays no such role and may well be entirely absent in that the *wh*-element is directly accessible to any checking or licensing imposed by the matrix. Both hypotheses can be defended and have been defended, as was shown in section 3.

 The existence and the properties of TFRs, which were discussed in section 5.3, shed new light on this issue, however. As was shown, it is the small-clause predicate which constitutes the link with the matrix environment, whereas the clause-initial *wh*-element is, in a sense, a dummy element, which plays no role in the matching process. The question then is whether it is plausible to assume that there could be a relation, a kind of agreement process, between the small-clause predicate and the empty head of the TFR. If we examine again the various properties of TFRs listed in section 5.3, we immediately see that such an indirect approach is quite implausible. Perhaps the single most impressive argument
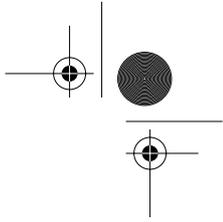
comes from the fact that the small-clause predicate can be inflected like a matrix element, as shown in (81). Without further discussion, we will therefore assume that the SSH is to be preferred for TFRs. Furthermore, given that we have to find a way to implement the SSH, we will also assume that regular FRs are to be accounted for in terms of the SSH.[32] A further extension of the SSH, and of the insights derived from TFRs in particular, is that internally headed relatives may now be directly interpreted as relative clauses in which the internal head is shared with the matrix structure (cf. (1)).[33]

The implementation of the SSH is far from trivial. In order to see this, consider the case of a TFR with a shared attributive adjective such as the one in (81), repeated here for convenience:

(81)   a.   Deze auto is wat je duur/*dure zou kunnen noemen.
       b.   een wat je zou kunnen noemen *duur/dure auto.

The DP in (81b) consists, linearly, of the following constituents:

(83)   [$_{DP}$ D^o CP N]

But what is missing here is the fact that the noun in (81b) is modified by an attributive adjective. Hence, perhaps the correct way of describing the structure is (84):

(84)   [$_{DP}$ D^o CP AP N]

But both of these structures are very problematic. First, both assume that full, finite CPs are permissible in the prenominal position, even though in the languages in question (English, Dutch, etc.), regular relative clauses always have to follow the noun. Second, as we have seen, there is an AP missing in (83), whereas in (84) the AP, that is, the small-clause predicate in the TFR, is missing inside the CP, which is therefore incomplete and should be as ungrammatical as, say, *a man whom Mary described as*.[34] One way to put this problem is that from the point of view of the DP, the CP should be invisible (except for its AP), whereas from the point of view of TFR (the CP), the AP should not be missing. That is, we have a classical case of conflicting tree structures here, and one way to resolve such conflicts is to assume that, just as in the case of reanalysis, we must assume that a single string of terminal elements (words) can be associated with more than one tree structure.[35]

Pursuing this idea, consider the following TFR, adapted from an example by Kajita (1977):

(85)   He carried what the crew took to be a can of gasoline.

Such a TFR could then be represented by the following 'multidimensional' tree structure:

(86)

```
                              IP
                  ┌────────────┴────────────┐
                 DP                          VP
                  │                 ┌─────────┴─────────┐
                  │                 V                   DP
                  │                 │                  ╱╲
                 he              carried              ╱  ╲
                                                     ╱    ╲
                                              a can of gasoline
                                                     ╲    ╱
                                                      ╲  ╱
   whatᵢ    the crew      took        eᵢ       to be   ╲╱
     │          │           │          │          │    DP
     │          │           │          │          V    │
     │          │           │          │       ┌──┴─────┘
     │          │           │          │      DP        VP
     │          │           │          │       └────┬───┘
     │          │           V          │            IP
     │          │           └────┬─────┘
     │          │               VP
     │         DP        ┌───────┘
     │          └────┬───┘
     │              IP
    Spec    ┌────────┘
      └─────┤
           CP
```


The arguments for such an approach have been explored in van Riemsdijk (1998d, 2000, 2001). In these works, a terminology is also suggested to describe complex tree structures such as (86). For this purpose, the botanical metaphor of 'grafting' has been used. Accordingly, we can call the shared constituent the 'callus', the host tree is called the 'stock', while the subtree which is grafted onto the stock is called the 'graft' or the 'scion'. Graphically:

(87)

Needless to say, a proposal along such lines is far from unproblematic. First of all, a more formal theory of such representations must be developed. It is believed that a framework such as that presented in Moltmann (1992) would be a likely candidate for this task. The formalism which is chosen will then have to form the basis for substantive restrictions on the types of representations that are allowed under such a theory of grafting. Among many other considerations, it is important to recognize that there is an asymmetry between the stock and the scion, in that the former constitutes the matrix structure and the latter the embedded insert. One important aspect of this asymmetry shows up when we consider linearization. Indeed, if we look at a structure like (86), the question immediately arises as to how the conflicting lines of terminals should be linearized: the upper before the lower or vice versa? The answer has to be that the terminal elements constituting the scion are pronounced adjacent to, that is, directly before and after, the callus.

A second aspect that must be taken into account is the fact that matching is sometimes not fully realized. The simple assumption would be that for two syntactic trees to be grafted together by the 'fusion' of two substrings of terminal elements, the terminals in question have to be fully identical. But that is too simple. Consider again, for example, the Dutch example (81). In (81b) we have an apparent mismatch in that the stock (the matrix) requires the inflected form of the attributive adjective (*dure*), while the scion (the TFR) requires the uninflected form of the predicative adjective (*duur*). But in this case, we might be able to solve the problem by taking into account the morphological structure. Suppose the relevant part of the stock has a structure something like $[_{DegP} [_{AP}$ *duur*$] [_{INFL}$ *-e*$]]$. We might then say that the predicative adjective in the scion has the structure $[_{DegP} [_{AP}$ *duur*$] [_{INFL}$ *-q*$]]$ and that the grafting process affects just the AP, not the DegP, leaving the INFL markers in the respective substructures. Needless to say, this would only be possible if one of the two morphological markers is -q. It is unlikely, however, that the cases of imperfect matching in which either the stock or the scion is dominant in imposing its morphology, as discussed in section 4.2.2 as well as in connection with example (78) and note 29,

can all be accounted for in this manner. It is important to recognize, though, that such cases of imperfect matching require stipulative solutions on the alternative analysis according to the DSH. See van Riemsdijk (forthcoming) for more discussion.

But once we have taken the radical step of adopting the grafting approach, it is natural to extend the theory of grafting to regular FRs as well, thereby implementing the Shared Structure Hypothesis for FRs. A simple FR such as (88) will then be represented as in (89):[36]

(88)   John will eat what Mary cooks.

(89)
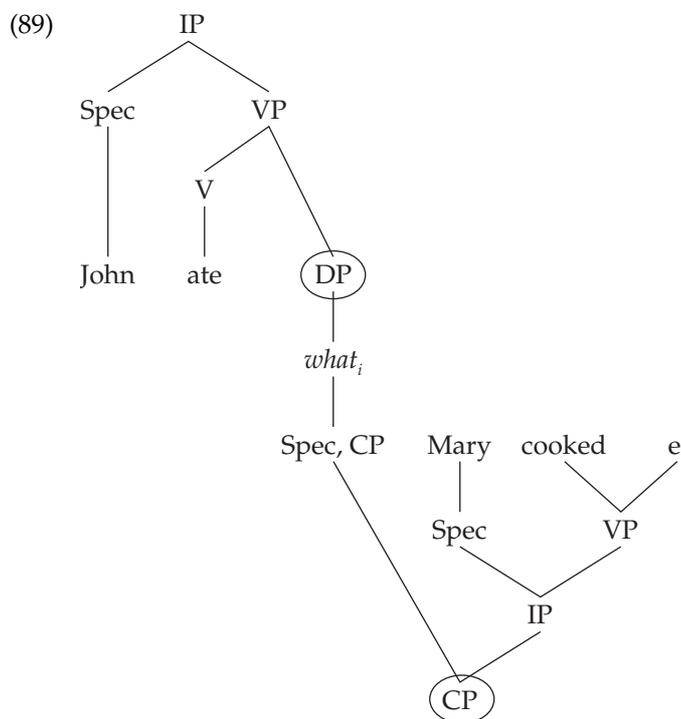
7   Conclusion

Free relatives exhibit a considerable number of properties that deserve the attention of syntacticians. The most salient of these is a variety of types of matching phenomena which raise a number of fundamental questions as to whether they have a head at all, and, if they do, what the nature of that head is. Depending on the answer to this question, we may be led to revise the theory of phrase structure in such a way that grafted structures with multiple connected trees such as those discussed in section 6 must be permitted to exist.

NOTES

1 Within certain limitations, PPs, CPs, and APs can also be modified by a relative
   clause, as in:

   (i)   They left the books downstairs, which is not the safest place for them to be.

   (ii)   John wondered whether to trust the FBI, which is a rather stupid thing to ask
          yourself.

   (iii) Bill turned out to be quite intelligent, which is a quality not often found in his
          family.

   Note, however, that these are constructed most easily if the relative clause contains a
   noun (here: *place* and *quality* respectively) which, in a sense, translates the PP or AP
   into an NP. Furthermore, relative clauses of this kind are always non-restrictive. Free
   relatives (FRs), on the other hand, can be formed on NP/DP, AP, and PP, though
   various restrictions apply there as well (see, for example, section 4).

2 It should be noted, however, that this is not the only way to construct relat-
   ive clauses in Japanese. In fact, internally headed relative clauses are rather
   restricted in their use. See, among many others, Kurosawa (2003) for discussion and
   references.

3 In other languages, the embedded position is occupied by a so-called resumptive
   pronoun, and there is no special pronoun which is moved to a position adjacent to
   the head of the relative clause (see chapter 55).

4 In actual fact, the distinction between questions and FRs is not quite as unproblematic
   as the text argument suggests. See section 5.1 for more discussion.

5 The Head Hypothesis has precursors in Bresnan (1973a) and Hirschbühler (1976b).
   Rooryck (1994b) points out that the term 'Head Hypothesis' is potentially misleading,
   since it might suggest that the head is a category of type X^o rather than XP; in the
   present text we will continue to use the term Head Hypothesis, however.

6 The COMP Hypothesis was first introduced in Kuroda (1968). It was also defended in
   Hirschbühler (1978) and received further support in Rooryck (1994b), and in Jacobson
   (1995) and earlier unpublished materials by the same author cited there. This hypo-
   thesis has been adopted most frequently in the current literature.

7 If a raising analysis of relative clauses is assumed, this assumption is challenged.

8 The examples are taken from Groos and van Riemsdijk (1981: 177). In these examples,
   genitives have not been included because of the severe limitations on their occurrence
   in modern German.

9 Things are slightly more complex in that it might be better to say that Heavy NP Shift
   does exist but is limited to stylistically highly marked contexts. The text argument is
   not affected by this complication, however, since the extraposition of FRs is not
   stylistically limited in any way.

10 It might be objected that (23a) is ungrammatical for independent reasons, namely the fact that the extraposed relative clause lacks a complementizer. That is, (23a) could be ungrammatical for the same reason as (ib) without *that* is:

(i) a. I'll take the book (that) you gave me into consideration.
     b. I'll take the book into consideration *(that) you gave me.

Note, however, that the argument rests primarily on the grammaticality of (23b), and note furthermore that the obligatory absence of the complementizer in FRs on the HH is a puzzling aspect of that analysis in the first place, as will be discussed in the text directly.

11 This was pointed out in Groos and van Riemsdijk (1981). See also Grosu (1994) for discussion.

12 The relevance of this particular consideration in the present context is attributed in Grosu (1994) to an unpublished talk by Polly Jacobson.

13 For a much more differentiated and detailed discussion, see Grosu (1994).

14 I am using a single question mark here to accommodate the more liberal speakers, but in actual fact many speakers would find '?*' or even "*" more appropriate. Furthermore, languages tend to differ considerably with respect to the extent to which such restrictions are imposed. See Grosu (1994) for an overview of a range of languages including German, Hebrew, French, and Romanian.

15 The examples given here are cited in Grosu (1994). (44a, c) are taken from Paul (1920).

16 One might object that the lexical representation of a form like *was* could be an under-specified feature matrix. Suppose, for example, that nominative and accusative are [−oblique] in German, as opposed to genitive and dative. Suppose furthermore that there is a second feature, say [accusative], that distinguishes the nominative and the accusative. A form like *wer* would then be [−obl, −acc], but *was* could be underspecified and have the representation [−obl]. By non-distinctness, [−obl] would satisfy both nominative and accusative contexts. An approach along such lines is questionable, however, for a number of reasons. To mention just one, *was* must be fully specified for the purposes of subject–predicate agreement, as shown by the following contrast:

(i) a. Was_{nom} ist ein_{nom} guter Wagen?   a'. *Was_{nom} ist $einen_{acc}$ guten Wagen?
          what is a good car
     b.   *Was_{acc} nennst Du ein_{nom} guter   b'. Was_{acc} nennst du $einen_{acc}$ guten Wagen?
          Wagen?
          what call you a good car

Beyond such considerations, theoretical questions may be asked about the degree of language specificity of the feature systems involved in case morphology, about the compatibility of underspecification with checking and/or assignment approaches to case features, etc. But such considerations are beyond the scope of the present survey.

17 The examples from Classical Greek in this section are cited from Hirschbühler (1976a). The sources he gives are as follows. (50) is X.A.1.9.25, cited from J. Hadley and F. Allen, *A Greek Grammar*, New York 1912, section 996, a, 2. (51) is Aesch. 2,117, cited from W. Goodwin, *A Greek Grammar*, Ginn 1892, § 1033. (52) is X.A.1.3.17, cited from H. Smyth, *Greek Grammar*, Cambridge: Harvard University Press 1956, § 2522, b. And (53) is L.19.14. cited from Goodwin, *Greek Grammar*, § 1035. The Latin example

(54) I have taken from Grosu (1994), who cites it from F. Schwyzer, *Griechische Gram-matik*, Munich 1950, section II, 641.

18   See note 17.

19   See note 17. Grosu (1994) also cites some examples from what he calls archaic German, the examples again being taken from Schwyzer, *Griecische Grammatik*, 16, as well as from H. Paul, *Mittelhochdeutsche Grammatik*, Tübingen 1904, § 345. Without going into details, these examples are indicative of the limitations that such cases of upward attraction are subject to. Four of the five cases are correlative in nature, which means that it is the correlative pronoun which occupies the matrix position and has the appropriate, i.e., unattracted, case. The head of the relative clause is correspondingly a kind of left-dislocated noun phrase and much freer to have its case determined by outside forces. Also, in four of the five cases the competing case is the nominative.

20   Interestingly, the sensitivity of subject–predicate agreement noted in note 16 is also found in cases of downward attraction. An instructive example is discussed in Quicoli (1972), who took it from Andrews (1971). The importance of such examples for the theory of FRs was discovered in Hirschbühler (1976a). Consider the following example (P.C. 50, a, cited in Smyth, *Greek Grammar*, 16:

(i)   a.   emmenomen hois$_{dat}$ hômologêsamen dikaiois$_{dat}$ ousi$_{dat}$ ê ou
          we abide   by- those we-have-agreed just being   or not
          'Do we abide by those things which we consider just, or not?'
      b.   emmenomen toutois$_{dat}$ ha$_{acc}$ hômologêsamen dikaia$_{acc}$ onta$_{acc}$ ê ou

It would appear that any analysis in which the case on the relative pronoun starts out as an accusative and is then attracted to a dative under influence of the matrix structure must be problematic, because subsequent (re)application of case agreement between that *wh*-element (or its trace) and the predicative modifier will flagrantly violate the strict cycle condition, or what replaces it in more recent syntactic frameworks.

21   More generally, as argued in Izvorski (2001), such concessive free relative clauses have the status of free adjuncts. Izvorski argues that these should be analyzed as bare CPs, thereby accounting for the possibility of multiple *wh*-elements, which are absent in other types of FRs. It should be noted here that under an analysis in terms of grafts, as suggested in section 6, and in particular in connection with (89), all FRs are con-sidered to be bare CPs. The difference would then be that free adjunct FRs, unlike the other types of FRs, do not have their *wh*-word grafted onto some XP-position in the matrix clause.

22   See Wiltschko (1998) for some related discussion.

23   There are several other distinctions between headed relative clauses and FRs that deserve to be mentioned. First, the structure of the *wh*-phrase tends to be more lim-ited in FRs than in headed relatives. For English, such differences are minimal, but in Dutch and German, for example, only simplex *w*-words can introduce an FR. The following examples are from German:

(i)   Ich esse was/*welche Speisen   Maria mir serviert.
      I eat   what/whichever dishes Maria me serves
      'I eat whatever (dishes) Maria serves me.'

A second remarkable difference concerns the finite vs. infinitival distinction. In many languages, including English, relative clauses can sometimes be infinitival. FRs how-ever, at least in English, cannot be infinitival, as shown by the following contrasts:
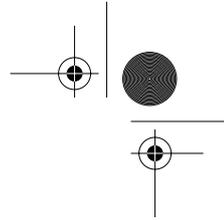
(ii) a. The books that/which you should read are lying on the table.
The books (*that/*which) (for you) to read are lying on the table.
What/whichever books you should read is/are lying on the table.
*What (for you) to read is lying on the table.

24 There is a second distinction that is more or less tangential to our main concern, viz.
the distinction between realis FRs and irrealis FRs (cf. Grosu and Landman 1998). This
distinction is not found in English or any of the other Germanic languages, which
only have the normal, realis, type of FR, but it does exist in Romance, Slavic, and
Semitic. Irrealis FRs look like normal FRs except that they exhibit an irrealis verb
form. (i) is an example from Romanian, example (78b) in Grosu and Landman (1998):

(i) Nu mai avem   ce locuri moi   s| vizit| m.
not more have-we what places new SUBJUNCTIVE visit
'There are no longer any places for us to visit.'

Grosu (1994) argues that irrealis FRs differ in a number of significant ways from
ordinary FRs:

• There are no matching effects such as those found in regular (realis) FRs; cf.
section 4.
• Unlike realis FRs, irrealis FRs allow multiple *wh*-phrases (and in this sense the
adjunct FRs discussed in section 5.1 are perhaps more like irrealis FRs):

(ii) Nu mai avem   pe cine   cu cine   împerechia.
not more have-we ACC who with who to-match
'We no longer have any pairs to match.' (said by an unsuccessful matchmaker)

Note, finally, that the absence of infinitival FRs remarked upon above does not extend
to irrealis FRs. This is shown in (ii), and a French example such as (iii) may also be
an instance of an irrealis FR:

(iii) Je n'ai pas où   aller.
I   have not where go
'I do not have any place to go to.'

25 The main references for the semantics of FRs are Jacobson (1995) and Grosu and
Landman (1998).
26 Grosu and Landman (1998) build on this proposal and extend it to an overall typo-
logy of relative clauses. More specifically, they define a type of relative clause which
they call *maximalizing relatives* and which they show includes degree or amount rela-
tives, free relatives, (certain) internally headed relatives, and correlatives. Dayal (1995,
1997) further argues that definite FRs (identity FRs) and universal FRs (free-choice
FRs) are both definite, and that *-ever* contributes a modal dimension to the interpreta-
tion of the definite description by ensuring that it denotes a generalized quantifier
that includes only those properties that are true of the bearer, regardless of identity.
27 The special status of TFRs has apparently first been noticed by Nakau (1971). Further
discussion can be found in Kajita (1977), McCawley (1988), Wilder (1998, 1999), van
Riemsdijk (1998d, 2000, 2001), and Grosu (2002).
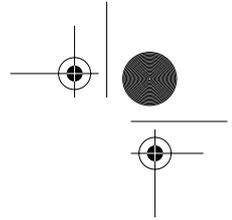
28 Properties (ii) and (vii) are from McCawley (1988) and Kajita (1977) respectively. Properties (i) and (iii–vi) are from Wilder (1998, 1999), while properties (viii–xi) are from van Riemsdijk (2000, 2001).

29 A similar and in certain ways even more instructive case concerns rightward detachment of PPs out of noun phrases in Dutch, a necessary condition in order for extraction of *wh*-elements out of such a PP to be possible. In other words, in order for extraction to be possible in (ia), the PP must be detached as in (ib), while extraction in (ic) is prohibited. See van Riemsdijk (1997b) for discussion:

(i) a. Waar heb je   de conceptversie (gisteren)   ___ van afgewezen?
         what have you the draft version (yesterday) ___ of   rejected
         'What did you reject the draft version of?'
     b. wh_i . . . $[_{NP}$ X$]$ . . . $[_{PP}$ e_i *van*$]$
     c. *wh_i . . . $[_{NP}$ X $[_{PP}$ e_i *van*$]]_{NP}$

If we apply this rightward detachment of the PP to a PP that is part of the predicate nominal in a TFR, it turns out that the landing site of the detached PP must be in the matrix structure in order for extraction to be possible, whereas extraction out of a rightward-detached PP inside the relative clause yields strongly ungrammatical results:

(ii) a. Waar heb je   [wat hij een c.v. _ noemde] gisteren van afgewezen?
         what have you what he a draft   called   yesterd. of   rejected
         'What did you reject what he called a draft version of?'
     b. *Waar heb je [wat hij een [conceptversie ___] [___van] noemde] afgewezen?

30 It is not entirely clear whether this contrast is comparable to the phenomena of imperfect matching observed in section 4.2.2, or whether the contrast is rather an illusion that stems from the fact that the apparent TFR can also be interpreted as a regular FR, in which case the *was* is the element that trivially (due to nom/acc-syncretism) satisfies the conflicting case requirements.

31 Note, incidentally, that the word order within the relative clause is different in the two cases because in (81a) the predicative adjective precedes the verb while in (81b) it follows it. As a matter of fact, in the predicative case (81a) both orders are possible, while in the attributive case only the order V-PRED is possible. There is a simple reason for this contrast. As is the case in many languages, including English, prenominal attributive adjectives must be adjacent to the noun (*the proud of his father boy*). German, which, like Dutch, is verb final, lacks this possibility of extraposing the small-clause predicate of the TFR. Consequently, attributive adjectives in German can never be modified by a TFR.

32 See Grosu (2002) for a defense of the DSH.

33 It is interesting to note that the notion of 'shared elements' also plays a central role in the analysis of Japanese (internally and externally) headed relative clauses within the framework of Dynamic Semantics presented in Kurosawa (2003).

34 Wilder (1999) proposes to adopt (84), but with a second, identical, occurrence of the small-clause predicate inside the CP. Backward deletion then applies to that small-clause predicate. Such an analysis is problematic, however (cf. van Riemsdijk 2001). One of the problems concerns the position of the deletion site. Backward deletion (like Right Node Raising, for example) is subject to the constraint that backward
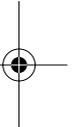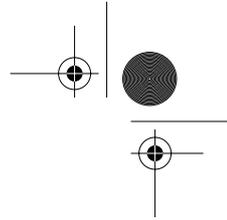
deletion can only apply to right-peripheral elements. But the shared element in TFRs need not be clause-final at all, as is shown among other things by German examples such as (78) and (79).

35   In addition to reanalysis (as frequently assumed for pseudo-passives like *this must be looked into* or *John was taken advantage of*), there are various other syntactic phenomena of this kind (see Lakoff 1974b for an early discussion of such phenomena). A simple example from Kajita (1977) illustrates a case which is quite similar to that of TFRs: the *far from* construction. In examples like (i):

(i)   a far from simple matter

simple is the semantic head, and it is also the syntactic head in that it is adjacent to the noun, as required by the general adjacency requirement on attributive adjectives. Nevertheless, if *simple* is the head, then what could *far from* be? It is a non-constituent, and it certainly looks as if *far* takes a PP-complement, as it regularly does, and that the preposition *from* takes an adjectival complement, as it is known to do. As is argued in van Riemsdijk (2001), this case can also be resolved by means of multiple tree structures being associated with a single string of terminals.

36   A proposal for a multidimensional analysis of FRs which is quite similar to the proposal sketched here is Citko (1998).

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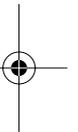
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