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FREE RELATIVES AND RELATED MATTERS

Roumyana Pancheva Izvorski

A DISSERTATION

in

Linguistics

Presented to the Faculties of the University of Pennsylvania in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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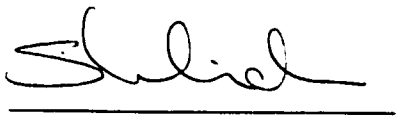

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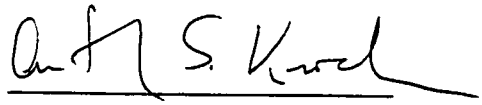

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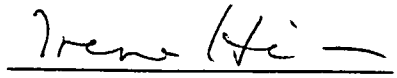

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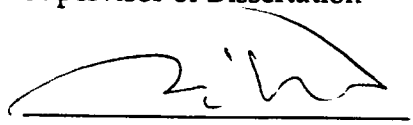

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ABSTRACT

FREE RELATIVES AND RELATED MATTERS

Roumyana Pancheva Izvorski

Supervisors: Sabine Iatridou and Anthony S. Kroch

This dissertation is a study of the syntax and interpretation of free relatives. Different types of free relatives are examined and are shown to have distinct syntactic and semantic properties. Several grammatical environments are discussed in relation to the involvement of free relatives - comparative clauses, certain existential constructions, and free adjuncts.

It is proposed that structurally, free relatives have a CP-external head only when it is overtly realized by a determiner as in, e.g., the *lo que* free relatives of Spanish. Corresponding to the DP external syntax, such free relatives have the interpretation of definite DPs. In the absence of an overt head, no phonologically covert head is posited in free relatives. These headless free relatives fall into two groups. One kind are bare CPs; these are shown to have a propositional interpretation. The free relatives of the other kind have the syntactic category of their *wh*-word and thus, the corresponding interpretation. They are derived in a move-and-project fashion, i.e., through a syntactic derivation that proceeds in a non-conventional way. Whereas it is usually assumed that after an element moves and merges with the target of movement, it is the target that projects further, here I propose that it is the moved element, the *wh*-phrase in the free relative, that projects. Thus it follows that this type of free relative would have the category and features of the *wh*-element.

The various types of free relatives pattern differently in the grammatical environments studied in this dissertation. Free adjuncts are shown to only allow bare CP free relatives. This restriction correlates with the propositional interpretation required in such an environment. Comparatives permit free relatives with overt heads or free relatives with projecting *wh*-phrases, with different interpretive results. The existential construction is expected to exclude all types of free relatives since they have the semantics of strong DPs. Here, an apparent case of a free realtive in the existential construction is given an alternative analysis in terms of an indirect question.

Contents

Chapter 1

The Syntax of Free Relatives

Free relatives have been the subject of many studies and much debate since at least the '70s, as a result of which we have a fairly good understanding of their properties. Needless to say, a general consensus has not yet been reached regarding the right linguistic analysis for this construction, and certain aspects of the phenomenon still fail to yield to an account which makes no reference to construction-specific mechanisms. This chapter addresses some of the the central issues in the study of free relatives with the goal of understanding the properties of this phenomenon, briefly presenting the various proposals made by previous authors, and developing a new analysis. The following questions are discussed:

(1) a. the structural position of the *wh*-phrase - clause- internal or external;

b. the matching effects in free relatives;

Other commonly discussed issues in the syntax and semantics of free relatives are the anti-pied-piping effects - the prohibition on pied-piping material that properly contains the *wh*-pronoun (cf. Grosu 1994) and the similarities and distinctions between plain *wh*- and *wh-ever* free relatives (cf. Tredinnick 1995, Larson 1987, Jacobson 1995, Dayal 1997, Iatridou and Varlokosta 1998, among others). These will not be discussed in this chapter.

Here I argue that free relatives need not be conceived as having CP external null heads. In addition to presenting a number of arguments against positing a phonologically covert head, I propose that free relatives may in fact be derived by projecting of the *wh*-word, after movemnt and merging to the C′ of the clause.

1.1 An Overview of the Issues

1.1.1 The Position of the *Wh*-Phrase

The central issue in the analysis of the internal syntax of free relatives has always been whether the *wh*-constituent of a free relative (cf. (2a)) occupies the same structural position as the head of a nominal phrase modified by a relative clause (cf. (2b)). As is commonly assumed, 'ordinary' relative clauses as in (2b) have CP-external heads. We will postpone for a moment the discussion of how this head is related to the gap in the relative clause.

(2) a. I read what(ever) book Nick gave me.

b. I read {the/every} book {which/that/$\emptyset$} Nick gave me.

The main views on the issue of whether essentially the same structural analysis should be given to (2a) and (2b), may be summarized as follows. Bresnan and Grimshaw (1978) have proposed that free relatives do not form a single clausal constituent. For them the *wh*-phrase in (2a) is the external head of a relative clause, much like the nominal *the/every book* in (2b) is. Under this view the internal structure of free relatives is as in (3).

(3) I read [$_{FR}$ [$_{Nom}$ what(ever) book] [$_{RelClause}$ Nick gave me]].

This approach is known as the HEAD HYPOTHESIS; it has been further supported by Larson (1987, 1998), among others. An alternative proposal has been advanced by Groos and van Riemsdijk (1979) and has been further argued for by Harbert (1983), Suñer (1983, 1984), Grosu (1989, 1994, 1996), and Jacobson (1995), among others. Although the exact details of these accounts differ, the general approach, known as the COMP HYPOTHESIS, considers the *wh*-phrase in (2a) to be in Spec, CP of the free relative. Under one version of the COMP-account, the external head corresponding to *the/every book* in (2b) is phonologically null, as in (4a) (cf. Groos and van Riemsdijk 1979, Harbert 1983, Suñer 1983, 1984, Grosu 1989, 1994, 1996); under another version, a nominal phrasal node exhaustively dominates the CP, as in (4b) (cf. Jacobson 1995). Schematically, the Comp-account can be represented as in (4).

(4) a. I read [$_{FR}$ [$_{Nom}$ $\emptyset$] [$_{CP}$ what(ever) book Nick gave me]].

b. I read [$_{NP}$ [$_{CP}$ what(ever) book Nick gave me]].

Some mixed analyses have also been proposed, e.g. by Hirshbühler (1976) and Bonneau (1990), according to which the *wh*-phrase moves from Spec, CP of a relative clause to the external head position, in the overt syntax or at Logical Form.

The issue of what the structural position of the free relative *wh*-phrase is, is in principle independent of the question of what kind of a gap is involved in free relatives. Bresnan and Grimshaw (1978) consider pronoun deletion to be responsible for the absence of a phonologically overt direct object of *gave* in (2a). This particular aspect of their proposal is, of course, not intrinsic to the HEAD-analysis of free relatives. The latter would be equally compatible with each of the following two accounts concerning the gap in the relative clause. One would be to treat the gap as a trace of an A′ movement of a relative operator to the Spec, CP of the relative clause, which is a common analysis of the syntax of restrictive relative clauses (cf. Partee 1975, Chomsky 1977, Jackendoff 1977, among many others). Another approach would be to assume the raising analysis of relative clauses (cf. Schachter 1973, Vergnaud 1974, Kayne 1994, among others) according to which the head nominal is generated within the relative clause and is then moved outside of the relative CP.

1.1.2 Meeting the Clause- Internal and External Requirements

Another much-discussed, and related, phenomenon in the morphosyntax of free relatives is the so-called MATCHING EFFECT, first considered by Grimshaw (1977). The essence of the phenomenon is a particular constraint on the morphosyntactic form of the *wh*-phrase in a free relative such that the *wh*-phrase not only has to satisfy the grammatical requirements of its own clause, but also meet those imposed externally by the embedding predicate. In particular, in many languages, the *wh*-phrase of a free relative has to be of the grammatical category appropriate for the syntactic position of the free relative clause as a whole. The same requirement holds for the grammatical case of the *wh*-phrase in languages where case is marked overtly.

The phenomenon of matching is summarized in (5). The schema in (5a) represents the requirement that if the free relative clause checks a certain case feature, e.g., [α], against a functional projection of the matrix clause, then the *wh*-phrase of the free relative must

also have the case feature [α] (while still complying with the case requirements imposed within the free relative).[1] The same applies in the case of ϕ-features, as illustrated in (5b). The schematic representation in (5c), on the other hand, illustrates the requirement that if the syntactic role that the free relative plays in the matrix clause is such that a category of a certain type XP is required (e.g., a PP, a DP, an AdvP, etc.), then the *wh*-phrase itself must be of the same category of type XP (with the free relative being internally well-formed too).

(5) The Matching Effect:

a. Case Matching: $[_{matrix}$ ... $F_1{}^0{}_{[case_\alpha]}$ $[_{FR case_\alpha}$ **wh-CASE**$_\alpha$ ...]]

b. Person/Gender/Number Matching: $[_{matrix}$ ... $F_1{}^0{}_{[\phi_\alpha]}$ $[_{FR\phi_\alpha}$ **wh-**ϕ_α ...]]

c. Categorial Matching: $[_{matrix}$ ... $[_{FR=XP_i}$ ... **wh**$_{XP_i}$ ...]]

The Categorial Matching Effect is illustrated in (6), from Serbo-Croatian. In the (a) and (b) examples in (6), the matrix and the embedded verbs have different subcategorization requirements: the verb *hire* takes a DP complement and the verb *talk* needs a PP. In order to meet the requirement of category matching, the *wh*-phrase has to be a DP, as this is the appropriate category for the complement of the matrix verb. But in order for the free relative itself to be well-formed, the *wh*-phrase has to be a PP. As a result of the conflicting constraints imposed on the category of the *wh*-phrase, (6a,b) is not acceptable. In (6a) the internal syntax of the free relatives is licit, but the category of the *wh*-phrase, a PP, does not match the one required of the matrix object, a DP. In (6b) the *wh*-phrase is a DP as needed in order to meet the category constraints imposed externally, by the matrix, but now, of course, the free relative is not internally well-formed.

When the matrix verb is changed to a one taking a PP complement, the requirement of category matching is met and the sentences are grammatical, as (6c) illustrates.

(6) a. * Unajmiću [$_{FR}$ *s kime* god budeš pričao].
will-hire-1sg with who ever be-fut talked
'I will hire whoever you talk with.'

b. * Unajmiću [$_{FR}$ *koga* god budeš pričao].
will-hire-1sg who-ACC ever be-fut talked
'I will hire whoever you talk with.'

[1] As will become clear below, the requirement is really on the morphophonological form of the *wh*-phrase, and not on the actual structural case feature it has.

c. Pričaću [$_{FR}$ *s kime* god ti budeš pričao].
will-talk-1sg with who ever you be-fut talked
'I will talk with whoever you talk.'

Next I illustrate the Case Matching Effect with examples from the same language. Consider the examples in (7). The matrix verb *help* takes a dative indirect object (or, strictly speaking, the indirect object of *help* must have dative case features which it checks in a functional projection in its clause). When the *wh*-phrase is dative, the free relative is not well-formed because it requires a nominative subject, and thus (7a) is ungrammatical. When the case of the *wh*-phrase meets the requirements of its clause, the sentence remains unacceptable, because now there is a mismatch with the case required by the matrix sentence (cf. (7b)). When the matrix and the embedded clauses have the same case requirements, the resulting sentence is grammatical (cf. (7c)):

(7) a. * Pomoći će [$_{FR}$ *kome* god dodje prvi].
help will-3sg who-DAT ever comes first
'He will help whoever comes first.'

b. * Pomoći će [$_{FR}$ *ko* god dodje prvi].
help will-3sg who-NOM ever comes first
'He will help whoever comes first.'

c. Pomoći će [$_{FR}$ *kome* god oni pomognu].
help will-3sg who-DAT ever they help
'He will help whoever they help.'

Like Serbo-Croatian, the other Slavic languages exhibit matching effects as well (see Borsley 1984 for Polish, Rudin 1986 for Bulgarian). In addition to Slavic and Modern Greek, failure of matching results in ungrammaticality in languages like English, Dutch, German, French, Catalan, Spanish, Hindi. Languages like Latin, Classical Greek, Archaic German, Old Spanish, and Old English do not exhibit matching effects (cf. Bresnan and Grimshaw 1978, Groos and van Riemsdijk 1979, Hirschbühler and Rivero 1981, 1983, Harbert 1983, Suñer 1983, 1984, Grosu 1994, Izvorski 1995b, Bhatt 1996, Alexiadou and Varlokosta 1996, Citko 1998, among others, for discussion and examples.)

To summarize, the *wh*-phrase of a free relative in a matching language has to meet the grammatical requirements imposed by both the external and internal syntax. This apparent 'transparency' of the free relatives poses difficulties in assigning a straightforward

structure to them. In particular, the phenomenon of matching calls for an explication of the mapping procedures between the internal syntax of the free relative clause and those structural properties which determine its external syntactic behavior.

Neither the HEAD- nor the COMP-analysis has an immediate advantage with respect to the phenomenon of matching (despite of claims to the opposite effect on both sides of the debate). Under the HEAD-analysis, the *wh*-phrase is an argument of the matrix clause and thus would naturally conform to its requirements; however, unless it has also been *extracted* from the relative clause (i.e., under the raising analysis of relative clauses mentioned above), there is no obvious reason why it should conform to the grammatical constraints imposed internally to the relative clause. Indeed, matching requirements between head and relative pronoun do not normally apply to restrictive relatives, the phenomenon of case attraction being rather rare. Conversely, under the COMP-analysis only the observance of the internal but not of the external constraints follows straightforwardly.

1.2 The Structure of Free Relatives

I turn next to an outline of my proposal. It combines features of the HEAD- and COMP-analyses. Most notably, it holds that *wh*-free relatives do not have a pojection external to the CP. Some free relatives do have an external nominal head but this head is always overt, e.g., the *lo/el que* 'this that' free relatives of Spanish and Catalan, respectively (cf. Hirshbülher and Rivero 1983, Quer 1998, a.o.), the *afto pu* 'this that' free relatives of Greek (cf. Iatridou and Varlokosta 1998), the *tova koeto* 'this which' free relatives of Bulgarian.[2] Positing a structure with an overt head for these free relatives (as in (8a,b)) appears uncontroversial.

(8) a. $[_{FR}\ [_{Det}\ \text{lo}]\ [_{CP}\ \emptyset_i\ [C^0\ \text{que} \ldots\ t_i]]]$.

b. $[_{FR}\ [_{Det}\ \text{tova}]\ [_{CP}\ \textit{koeto}_i \ldots\ t_i]]$.

Further evidence will be presented in Chapter 4 that these overtly headed free relatives are DPs.

[2]Moreover, the external nominal head may xsbear plural marphology, as in *els que* 'those that' in Catalan, *tezi koito* 'those who' in Bulgarian.

1.2.1 *Wh*-Free Relatives as Bare CPs

Let us begin with a variant of the COMP-account which departs the least from common assumptions in syntactic analysis. Free relatives undoubtedly contain a clause with a gap, so we may assume that the gap is the trace left by the *wh*-phrase after it has been moved to Spec, CP of its clause (cf. (9a)). The first departure from this standard case of A′-movement would be to say that the C^0 has D-features such as ϕ-features and case, in addition to the *wh*-feature attracting the relative *wh*-phrase to an operator position. In other words, this C^0 functional head can be viewed as analogous to a D^0 head, and the ultimate projection as simultaneously a CP and a DP (cf. (9b)).

(9) The Structure of Free Relatives (first attempt)

a. $[_{CP}\ [_{DP}$ what(ever) book$]_i\ [_{C'}\ [_{C^0}$ +*wh*$]\ [_{IP}$ Nick gave me $t_i]]]]$

b. $[_{CP/DP}\ [_{DP}$ what(ever) book$]_i\ [_{C/D'}\ [_{C/D^0}$ +*wh*, case$_\alpha$, $\phi]\ [_{IP}$ Nick gave me $t_i]]]]$

This proposal, of course, immediately captures the clausal and nominal properties of nominal free relatives. They have the syntax of CPs because they are clauses and they appear in argument positions because they are DPs. The mixed status of the DP/CP projection allows it to escape the Case Resistance Principle of Safir (1981), Stowell (1981), which posits that CPs cannot occur in case-marked positions. The analysis also provides a way to account for the matching effects. The category matching requirement is met trivially. The other external grammatical requirements which the free relative clause as a whole has to satisfy, are met by the case- and ϕ-features of its C/D^0 head, just as it happens in the case of ordinary DPs. It is natural to further suppose that there is agreement in features between the C/D^0 head and its specifier. We see such agreement at work in ordinary DPs when languages show inflection overtly:

(10) a. einen alten Mann (*German*)
an-MASC.ACC old-MASC.SG.ACC man
'an old man'

b. i gineka (*Greek*)
the-FEM.SG.NOM woman-FEM.SG.NOM
'the woman'

c. kakuju knigu (*Russian*)
what-FEM.SG.ACC book-FEM.SG.ACC
'what book'

Returning to free relatives, the Spec-head agreement inside the projection of C/D^0 will ensure that the *wh*-phrase has the same grammatical features as the ones imposed from the outside. But of course, the *wh*-phrase also has its case- and ϕ-features licensed internally, since it originates clause-internally. Therefore, unless the two sets of features match (in their morpho-phonological realization) and thus satisfy the matching requirement, the free relative clause will not be well-formed.

The proposal developed so far works well for nominal free relatives. Positing a functional projection with mixed characteristics such as C/D^0 does not appear stipulative because DP projections are known to be similar to CPs in many respects. They are the top-most projections in the nominal domain just like CPs are in the verbal domain. Furthermore, distributionally DPs and CPs commonly appear as complements of certain classes of verbs such as propositional attitudes, verbs of perception (e.g. *know, tell, see,* etc.)[3], and of some prepositions (e.g. *before, after, than*)[4]. DPs also can be said to embed IPs under at least some analyses of gerunds.[5]

However, problems arise if we consider free relatives whose *wh*-phrase is an AdvP (cf. (11a), an AdjP (cf. (11b), or a PP (cf. (11c).[6]

(11) a. I've put the book [$_{AdvP}$ [$_{AdvP}$ *where*] you can find it easily].

b. John will grow [$_{AdjP}$ [$_{AdjP}$ *however tall*] his father grew].

c. [$_{FR}$ [$_{PP}$ *A qui*] has parlat] està malalt. (*Catalan*)
to whom have-2sg spoken is sick
'The one to whom you have spoken is sick.'

Unlike DPs, as we discussed above, AdvPs, AdjPs, and PPs do not have natural parallels with CPs. No adverbs or adjectives and only a limited set of prepositions (e.g. *for, of*) can

[3]It of course, may be argued that the DPs involved, in e.g., *Mary knows the answer*, are in fact concealed CPs such as *Mary knows what the answer is*.

[4]Though see the chapter on comparatives for arguments that the clauses these prepositions embed are in fact free relative clauses.

[5]For instance, Abney 1987 proposes that in ACC-ing gerunds such as *Him writing the letter*, nominal *-ing* attaches at the level of IP and turns the verbal tree into a nominal one.

[6]Example (11c) is from Hirschbühler and Rivero (1981). Notice that the free relative violates the category matching requirement. Later on, it will be discussed why in certain languages under certain conditions the free relative may not obey the matching requirement

play the role of complementizers. There are no cases of Adv^0, Adj^0, or P^0 embedding IPs.[7]

Thus, the proposal in (9) is not optimal, at least not for free relatives that are to be interpreted non-propositionally. In Chapter 4 I will discuss an environment that favors an analysis of free relatives as bare CPs. Notably, this is an environment where free relatives appear in a CP-adjoined position and also receive a propositional interpretation. Instead, I will consider a suggestion made in Iatridou, Anagnostopoulou, and Izvorski (1999) regarding the syntax of relative clauses and the possibility of a moved element to project further. Similar proposals have been developed in Larson (1998) for free relatives and in Bhatt (1999) for headed relative clauses.

1.2.2 Move and Then Project

In Iatridou, Anagnostopoulou, and Izvorski (1999), we observe that reduced relatives can be formed only on certain predicates, those that arguably are nominal. We suggest that this is so because of a more general requirement that modifiers show no mismatch in categorial features with the heads that they modify. The examples in (12) illustrate this point.

(12) a. the woman [$_{AdjP}$ sick with the flu]

b. * the woman [$_{VP}$ be sick with flu]

c. the book [$_{PartP}$ written by the woman]

d. the woman [$_{PartP}$ writing the book]

e. * the woman [$_{PartP}$ written the book]

f. * the woman [$_{VP}$ write the book]

g. the book [$_{IP}$ to be read]

h. the book [$_{PP}$ on my desk]

[7] Larson (1987) has argued that free relatives introduced by *when(ever), where(ever)* and similar *wh*-adverbs are actually DPs. His account in fact involves a further projection, a PP, above the nominal formed from the *wh*-phrase and the clause adjoined to it, as in (i). Similarly, the gap in the clause is said to be a PP dominating a nominal:

(i) [$_{PP}$ [$_{NP}$ [$_{NP}$ when(ever)] [$_{S}$ Mary leaves [$_{PP}$ [$_{NP}$ e]]]]]

If this is so, then at least examples like (11a) do not pose difficulty for the proposal in (9).

Adjectives are standardly assumed to be nominal. They appear as prenominal modifiers to NPs and not to VPs. They inflect in the nominal paradigm, i.e., in gender, number, and case. Thus their functioning as reduced relatives is licensed (cf. (12a)). Participles which take the auxiliary *be* rather than *have*, as argued in Iatridou, Anagnostopoulou, and Izvorski (1999), have nominal features, e.g., inflecting in gender, number, and case in languages with morpho-phonologically overt agreement, while participles selecting *have* do not exhibit such nominal features. This accounts for the acceptability of (12c) and (12d) and the ungrammaticality of (12e).[8] The unacceptability of (12b) and (12f) shows that having the appropriate semantic type is not sufficient to allow a predicate to function as a reduced relative. The VPs are of type <e,t> like the predicates in the other examples considered so far, yet composition is not permitted to take place. In our view this is because the verbal features of the VP clash with the nominal features of the modified head. Finally, the acceptability of (12e) shows that PPs can function as reduced relatives.[9] It would be hard to argue that such PPs have nominal features. Rather, they do have neither verbal nor nominal features and therefore do not cause a featural clash with the head they modify.[10]

Extending the above reasoning to full relative clauses, it follows that they too have to be nominal. In Iatridou, Anagnostopoulou, and Izvorski (1999) we suggest, though do not explore in detail, that it is possible to derive the nominal status of relative clauses by positing that after movement of the *wh*-phrase and its merger with C′, it is the moved and not the host structure that projects further. This is, of course, not what is normally assumed about the category of constituents merged after movement (cf. Chomsky 1995) but it does not appear to have undesirable consequences elsewhere in the grammar. In most cases selectional restrictions on higher nodes would prevent moved elements from projecting further. For instance, after interrogative *wh*-movement, the *wh*-phrase will not determine the category of the whole phrase but rather the host C^0 will, because otherwise embedding the structure under a matrix predicate would be impossible.

[8] In languages with axiliary selection, perfect participles of unaccusatives can form reduced relatives. Similarly, in languages forming the perfect with the *be* auxiliary, the analogue of (12e) is grammatical. See Iatridou, Anagnostopoulou, and Izvorski (1999) for examples and further discussion.

[9] Infinitival clauses are also acceptable as reduced relatives. For a recent discussion of reduced and full infinitival relatives see Bhatt (1999).

[10] Presumably, this is why they can modify VPs, such as *[VP sleep [PP on my desk]]*, if such structures are to be interepreted through intersective predicate modification.

Thus, if we relax the requirement that it is always the case that the host category of move and merge projects further, we can explore a new option in the syntax of free relative clauses. The *wh*-phrase is merged initially in an argument or adjunct position in the clause, depending on its category (DP, AdvP, PP, etc.) and grammatical function. After the C^0 projection is merged to the structure, its features trigger movement of the *wh*-phrase. For now let us accept that it is a [+*wh*] feature in C^0 that triggers the movement.

The facts of matching receive a natural account under the move-and-project analysis. The *wh*-phrase checks features simultaneously in two positions and its category has to conform to the requirements of two clauses.

1.3 Against the *pro*-Head Hypothesis

This section examines some arguments against the availability of a null CP-external head in free relatives as represented in (4a). This is the structure usually adopted by the proponents of the Comp-analysis. If the analysis of move-and-project is to be adopted, then a null head cannot be posited in free relatives. This is why it is important to evaluate the arguments that have been given in favor of a null CP-external head. The discussion focusses primarily on the special status of subject free relatives with respect to matching. A correlation has been found between (non-)matching in subject position and *pro*-drop. It has been noted that in Spanish and Catalan, otherwise matching languages, matching is not required when the free relative is in subject position (Hirschbühler and Rivero 1981, 1983, Suñer 1983, 1984, Harbert 1983). In languages like English, German, or French, however, subject free relatives show matching effects. The analyses proposed to handle this variation relate it to the phenomenon of *pro*-drop. In particular, Hirschbühler and Rivero propose that matching is a property of subcategorized positions only and that the subject position in null-subject languages is not subcategorized. Suñer and Harbert (whose approach is known as the *pro*-HEAD ACCOUNT) take the position that the head of non-matching free relatives is *pro*, and thus non-*pro*-drop languages always need to meet the matching requirement. The *pro*-head account has been taken up further by Grosu (1994), Grosu and Landman (1998) in support of a structural distinction between indicative and non-indicative free relatives (see Chapter 2 for an alternative analysis).

Here I propose an alternative to the *pro*-head account that still ties the absence of matching effects in subject position to the availability of *pro*-drop. My proposal assumes the essentials of Hirschbühler and Rivero's analysis but also introduces some modifications necessary to accommodate the new observations that I make regarding matching and *pro*-drop. I show that the generalization that *pro*-drop languages never require matching in subject position is not correct. In particular, I demonstrate that in Modern Greek and in the Slavic languages when the free relative subject is focused (as when it is the new information in an answer to a question or the associate of constituent negation or a focus-sensitive adverb), the matching requirement is obligatorily observed. Similarly, when the subject free relative is post-verbal, it is necessarily matching. To account for these new findings as well as for the previously known correlation between (non-)matching and *pro*-drop, I propose that matching and non-matching subject free relatives appear in different syntactic positions. Non-matching subjects are left-dislocated clauses, coindexed with a resumptive *pro* in the main clause, i.e., they are in an non-argument position similarly to Hirschbühler and Rivero's analysis. Focused and post-verbal subjects, on the other hand, are linked to an argument position through a movement chain. This proposal, in addition to explaining the previously unknown restrictions on non-matching subjects in *pro*-drop languages, is also in conformity with the observation in Hirschbühler and Rivero, Suñer, and Harbert, that left-dislocated free relatives in Spanish, Catalan, German, and English alike need not exhibit matching effects.

The discussion above concerns case- and category-matching effects. Somewhat surprisingly, the fact that ϕ-feature matching is always necessary, even for subject free relatives in null-subject languages, has not been discussed previously. It is to be expected that ϕ-feature matching would be obligatory, even in left-dislocation structures.

1.3.1 Matching Effects in Subject Position

In languages like English and German free relatives in subject position have to meet the matching requirement, just like object free relatives. The English (13) is ungrammatical because the *wh*-phrase of the free relative is a PP and it does not match the requirements for the category of the matrix subject. The German example in (14) (from Groos and van

Riemsdijk 1979) is unacceptable because the internal syntax of the free relative requires that the *wh*-word be accusative, whereas the free relative as a whole is in a position where nominative case is assigned.

(13) * [$_{FR}$ *With whom* I talked] arrived last.

(14) * [$_{FR}$ *Wen* Gott schwach geschaffen hat], muss klug sein.
who-ACC God weak created has must clever be
'Who God has created weak must be clever.'

In Spanish and Catalan, otherwise matching languages, the matching conditions do not apply when the free relative is in subject position (Hirschbühler and Rivero 1981, 1983, Suñer 1983, 1984, Harbert 1983). Example (15), from Catalan (Hirschbühler and Rivero 1981), illustrates this point. The *wh*-phrase is a PP, thus of an inappropriate category for a free relative that is in subject position, yet the sentence is acceptable.

(15) [$_{FR}$ *A qui* has parlat] està malalt
to whom have-2sg spoken is sick
'The one to whom you have spoken is sick.'

Suñer and Harbert relate the correlation between (non-)matching and *pro*-drop to conditions on *pro*-licensing. Next I briefly present their accounts and then I offer an alternative analysis, modifying Hirschbühler and Rivero's proposal to accommodate the new facts I discuss.

1.3.2 The *pro*-Head Analysis

Suñer and Harbert assume a version of the COMP Hypothesis according to which the free relative is a regular relative clause modifying an empty head. Suñer proposes that the non-overt head of all free relatives is *pro*. The empty category of *pro* needs to be determined (licensed and identified) and *pro*-determination is achieved through case-matching according to the Case-Matching Condition which states that *pro* must be non-distinct in case from the *wh*-phrase in Spec, CP. In Spanish and Catalan, when the free relative is in subject position, *pro* is already determined by Infl, so the Case-Matching Condition does not apply. In English and German, Infl does not determine *pro* so free relatives in subject position need to meet the Case-Matching Condition in order for their *pro*-head to be licit.

For Harbert PRO is the head of matching free relatives. Since PRO has to be ungoverned (assuming the PRO-theorem), it cannot satisfy the subcategorization requirements of the governing head in the matrix clause (because subcategorization requirements are met under government). Instead, the *wh*-phrase in COMP must meet the subcategorization requirements of the matrix verb or Infl.

The following schema summarizes Harbert's proposal:

(16) $[_{NP}$ PRO $[_{CP}$ *wh* ...]]

a. * V_{matrix} s(ubcategorization)-governs PRO.

b. V_{matrix} s(ubcategorization)-governs the *wh*- phrase.

The lack of matching effects in subject position in Spanish and Catalan is accounted for in the following way. The head of the subject free relative in this case is *pro* instead of PRO. It is the *pro* that satisfies the subcategorization requirements of the governing verb in the matrix clause; thus the *wh*-word is free to vary in case and category, as in headed relatives. English and German disallow *pro*; that's why the head of the free relatives in subject position is PRO, and thus matching is required.

In summary, both Suñer and Harbert propose that the head of non-matching free relatives is *pro*. Because *pro* is allowed as a subject only in languages like Spanish and Catalan and not in English or German, non-matching is acceptable in subject position only in the former languages but not in the latter. The Suñer-Harbert *pro*-head account is schematically represented in (17):

(17) $[_{IP}$ $[_{NP}$ *pro* $[_{CP}$ *wh*...]] $[_{I^0}$ ...]]

The *pro*-Head account raises a number of questions. Both Suñer's and Harbert's versions need to introduce special mechanisms that are not used elsewhere in the grammar. Even more problematic is the stipulation of structural variability in free relatives depending on syntactic position and type of language. It is not clear for instance what the status of object free relatives is on this account. The initial assumption would be that the internal syntax of object and subject free relatives is the same; thus they would have a *pro*-head in Suñer's account and a PRO-head (since they are always matching) in Harbert's account. Positing a *pro*- or a PRO-head in object free relatives, however, is objectionable because

none of the languages discussed allows *pro* or PRO in object position. But if object free relatives do not have a *pro*- or PRO-head, the proposal would amount to the claim that free relatives in different syntactic positions have different internal syntax. Harbert's version proposes a further distinction in the structure of free relatives depending on whether the language they occur in is *pro*-drop or not (a *pro* vs. a PRO head). Clearly, an analysis that derives the variability in the behavior of free relatives from a single parameter is to be preferred.

In the next section I give examples of subject free relatives that obligatorily exhibit matching effects. These facts present a challenge to the *pro*-Head hypothesis. They also cannot be straightforwardly accounted for under Hirschbühler and Rivero's proposal that subjects in *pro*-drop languages are not subcategorized. An account that integrates the facts of obligatory matching with the previously observed correlation between (non-)matching and *pro*-drop is then offered.

1.3.3 Obligatorily Matching Subjects

The generalization that *pro*-drop languages never require matching in subject position is not correct. In at least two cases subject free relatives in Slavic and Modern Greek need to be matching: when they are focused and when they appear post-verbally. In this section I will simply present the facts of obligatory matching of subjects; the syntactic implications of these facts will be discussed in the next section.

Consider first (18) from Bulgarian (Modern Greek behaves the same). All sentences are to be considered as answers to the question *Who won the race?*. In all cases the free relative subject is the new information. In isolation, (18a, b) are acceptable, yet they are inappropriate as answers in the given context. In exactly the same circumstances, a matching free relative subject is acceptable, as evident from (18c).

(18) a. #[$_{FR}$ *Kogoto* celuna] spečeli sâstezanieto.
who-ACC kissed-2sg won the-race
'Who you kissed won the race.'

b. #[$_{FR}$ *Na kogoto* pomogna] spečeli sâstezanieto.
to whom helped-2sg won the-race
'Who you helped won the race.'

c. [$_{FR}$ *Kojto* trâgna posleden] spečeli sâstezanieto.
who-NOM left-3sg last won-3sg the-race
'Who left last won the race.'

Similarly, when subject free relatives are the associate of focus-sensitive adverbs like *only* or *even*, they have to be matching. This is illustrated in the Bulgarian example (19). The (a) sentence shows that in principle subject free relatives can be the associate of focusing adverbs. Note that in this case the free relative is matching. Non-matching free relatives are not acceptable in the same position, as evident from the (b) and (c) sentences.

(19) a. Dori [$_{FR}$ *kojto* se uči] njama da spoluči.
even who-NOM refl studies will-not to succeed
'Even who studies will not succeed.'

b. * Dori [$_{FR}$ *na kogoto* pomogneš] njama da spoluči.
even to whom help-2sg will-not to succeed
'Even who you help will not succeed.'

c. * Dori [$_{FR}$ *kogoto* nasârčavaš] njama da spoluči.
even who-ACC encourage-2sg will-not to succeed
'Even who you encourage will not succeed.'

Constituent negation also has a focusing function (cf. Jackendoff 1972, among others). When free relative subjects are the associate of constituent negation, they have to be matching, as the contrast in the following Bulgarian sentences shows:

(20) a. Ne [$_{FR}$ *kojto* e naj-dobâr] šte spečeli konkursa, a [$_{FR}$ *kojto* ima vrâzki].
not who-NOM is the-best will win the-competition but who-NOM has connections
'It's not the one who is the best that will win the competition but the one who has connections.'

b. * Ne [$_{FR}$ *s kogoto* se poznavaš] šte spečeli konkursa, ...
not with whom refl know-2sg will win the-competition
'It's not the one who you know that will win the competition, ...'

c. * Ne [$_{FR}$ *kogoto* predpočitaš] šte spečeli konkursa, ...
not who-ACC prefer-2sg will win the-competition
'It's not the one who you prefer that will win the competition, ...'

Example (20a) is grammatical because its free relative subject meets the category- and case-matching requirements. When either one of these is violated, as seen in (20b) and (20c), respectively, the sentences become unacceptable.

Finally, focus markers cannot be attached to non-matching free relative subjects. The following examples from Bulgarian illustrate that while the focusing (question) particle *li* can accompany a matching free relative subject, it cannot felicitously take a non-matching free relative as its associate.

(21) a. [$_{FR}$ *Kojto* se uči] li šte spoluči?
who-NOM refl studies Q-foc will succeed
'Is the one who studies the one who will succeed?'

b. * [$_{FR}$ *Na kogoto* pomagat] li šte spoluči?
to whom help-3pl Q-foc will succeed
'Is the one who is helped the one who will succeed?'

c. * [$_{FR}$ *Kogoto* nasârčavat] li šte spoluči?
who-ACC encourage-3pl Q-foc will win
'Is the one who is encouraged the one who will succeed?'

Obligatory matching is also found with post-verbal subjects. It is not easy, however, to determine whether the post-verbal appearance of subjects plays a role with respect to obligatory matching, since in Slavic and Modern Greek post-verbal subjects are typically focused. This is why, the following set of examples from Bulgarian and Modern Greek concerns the behavior of post-verbal free relatives in questions: the interrogative pronoun is necessarily the focus, leaving the post-verbal free relative subject as part of the background. Now we can be certain that the observed pattern of required matching is not the effect of focusing but is due to the post-verbal position of the subject.

(22) a. Kakvo šte poluči [$_{FR}$ *kojto* pobedi na finala]?
what will receive-3sg who wins at the-final
'What will the one who wins in the final receive?

b. * Kakvo šte poluči [$_{FR}$ *za kogoto* glasuvame]?
what will receive-3sg for whom vote-1pl
'What will the one who we vote for receive?'

c. * Kakvo šte poluči [$_{FR}$ *kogoto* pobedjat na finala].
what will receive who-ACC defeat-3pl at the-final
'What will the one who is defeated in the final receive?'

In summary, in this section I have discussed cases where, contrary to what is expected, subject free relatives in *pro*-drop languages like the Slavic languages and Modern Greek have to be obligatorily matching. The *pro*-Head Analysis cannot account for these new facts, as it has no way of distinguishing between focused and non-focused subjects, nor between pre- and post-verbal ones. Hirschbühler and Rivero's proposal also cannot accommodate the new facts without some modification. Therefore we need to find an account that is able to integrate the facts about the behavior of focused and post-verbal subjects and still capture the correlation between (non-)matching in subject position and *pro*-drop. This is the task of the next section where I propose a different syntactic placement for obligatorily matching and non-matching subject free relatives.

1.3.4 The Syntax of Matching and Non-Matching Subject Free Relatives

I assume with Hirschbühler and Rivero (1981, 1983), and others, that matching is observed in argument positions. The facts of the Spanish and Catalan non-matching subjects led Hirschbühler and Rivero to propose that the subject position in *pro*-drop languages is not subcategorized. In their analysis, subject free relatives in *pro*-drop languages are in a Topic position, and therefore allowed to be non-matching. Here I follow the basic insight of Hirschbühler and Rivero's account in proposing that non-matching subjects are left-dislocated. Sentences whose subjects are obligatorily matching have different syntax, namely their free relative subjects are linked to an argument position through movement. On this view the subject position in *pro*-drop languages need not be considered a non-subcategorized position.

Let us examine the proposal in more detail. Sentences with non-matching subjects involve a left-dislocated free relative clause and a resumptive *pro* inside IP (cf. (23)). In such sentences *pro* is the actual subject, receiving theta-role and case.[11]

(23) $[_{IP}\ [_{NP}$ free relative$]_i\ [_{IP}\ pro_i$..]]

Such free relatives are exempt of the matching requirement because they are not arguments

[11] I leave open the question of whether *pro* is in Spec, VP or Spec, IP. Also, the subject free relative is illustrated here as adjoined to IP but it could also appear adjoined to CP.

but are generated in a dislocated position. The difference in structure is concealed by *pro*-drop. Obligatorily-matching subjects, on the other hand, are arguments. When they appear post-verbally, as in (22), they may be in Spec, VP, or alternatively, they may be extraposed to the right of the VP.[12] The exact syntactic position of post-verbal subject free relatives is not essential, what is important is that they are in an argument position inside IP or are linked to an argument position through a movement chain. Pre-verbal subjects which show matching effects are similarly linked to a trace in argument position. The representation in (24) illustrates the syntax of sentences with obligatorily-matching subjects (for concreteness I have identified the surface position of the pre-verbal free relative as Spec, IP).

(24) $[_{IP}\ [_{NP}$ free relative$]_i\ [_{I^o}\ t_i ...]]$

The (non-)matching effects then immediately follow from the syntactic position in which the free relative is base-generated. A sentence with the structure in (23) can have a non-matching free relative as a 'subject', whereas the structure in (24) will necessarily have a matching subject. This correlation between (non-) matching and syntactic position is not immediately obvious because the structures in (23) and (24) are indistinguishable in their surface word order. In the former case the argument position is occupied by *pro*, in the latter case by a trace, both phonologically null. Yet despite the fact that the two structures result in the same word order, the position that non-matching subject free relatives are left-dislocated can be empirically tested. The reality of (23) is revealed once *pro* is made overt, as in (25) from Bulgarian (again, Modern Greek behaves identically). As expected, the free relative can be non-matching:

(25) $[_{FR}$ *Kogoto* celuneš], toj šte spečeli sâstezanieto.
who-ACC kiss-2sg he will win the-race
'Whoever you kiss will win the race.'

Similarly, non-matching free relative subjects can precede fronted *wh*-phrases (cf. the Bulgarian (26)), which shows that these free relatives are in a left-dislocated position (note the contrast with (22c):

[12]In the presence of objects or subcategorized adverbials, the preference for the free relative is to appear after the VP-internal material, which indicates that the free relative is extraposed. The extraposition seems to be akin to heavy-NP shift.

(26) [$_{FR}$ *Kogoto* pobedjat na finala] kakvo šte polučи?
who-ACC defeat-3p at the-final what will receive
'What will the one who is defeated in the final receive?'

The observation that focused subjects need to be matching now receives an explanation. In order for a 'subject' free relative to be non-matching, it has to be in a left-dislocated position. Focused elements (such as the new information in question-answer pairs, the associates of constituent negation and of adverbs like *only* and *even*) cannot be left-dislocated by definition; left-dislocation is a strategy for backgrounding discourse entities. Since the focused subjects originate in an argument position, they have to be matching. The previously known correlation between (non)-matching and *pro*-drop is also accounted for: the structure in (23) is available only in null-subject languages. In non *pro*-drop languages the free relative subject has to be generated in argument position for case- and theta-role purposes, and thus it always has to be matching.[13]

The proposal advanced here does not add new mechanisms or structures to handle the behavior of free relative subjects.

Thus the position that the availability of the structures in (23) and (24) is what is responsible for the (non-)matching effects exhibited by subjects in *pro*-drop languages makes the theory simpler; the *pro*-Head analysis has to make further claims about the internal structure of free relatives and also invoke specific mechanisms (like the Case-Matching Condition or the government of the *wh*-phrase) not necessary in other components of the grammar.

Rejecting the *pro*-head account and adopting a version of Hirschbühler and Rivero's analysis has a further advantage: it reduces the behavior of subject free relatives in *pro*-drop languages to that of left-dislocated free relatives in general. It is known (e.g. Hirschbühler and Rivero, among others) that left-dislocated free relatives need not observe the matching

[13]This is not to say that subjects in general and free relative subjects in particular cannot be left-dislocated in non-*pro*-drop languages. When this happens, however, the argument position in the clause has to be filled by a resumptive pronoun (cf. the French (i) from Hirschbühler and Rivero 1983) and therefore such constructions are unambiguously recognizable as ones involving left-dislocation.

(i) [$_{FR}$ *Qui* l'on invite le samedi], il faut qu'il parte le dimanche.
who one invites Saturday it is-necessary that-he go Sunday
'Whoever we invite on Saturday, he must leave on Sunday.'

requirement. The following sentences illustrate the absence of matching effects with dislocated objects:[14,15]

(27) [$_{FR}$ *Kto* včera solgal]$_i$, tomu$_i$ i zavtra ne poverjat.
who-NOM yesterday lied him and tomorrow not will-believe-3pl
'Who lied yesterday will not be believed tomorrow.'

Thus subject free relatives in *pro*-drop languages are not special in any way; they can be non-matching because they can be left-dislocated, just like object free relatives in *pro*-drop and non-*pro*-drop languages alike.

1.4 Conclusions

In this chapter I developed an analysis of the syntax of free relatives. Specifically I argued that free relatives are formed by projecting movement, an option in the grammar of movement and merge that has not been standardly considered. The *wh*-phrase moves and merges with the C' of its clause and then projects, turning the clausal structure into a new category, determined by the categorial status of the *wh*-phrase. The move-and-project analysis has an advantage in accounting for the matching effects in free relatives, a phenomenon that has concerned researchers since the work of Grimshaw (1977). This chapter continued the general line of investigation into the nature of matching looking specifically into the correlation established by Hirschbühler and Rivero (1981, 1983) and others, between (non-)matching effects in subject position and *pro*-drop. Here new data was discussed which shows that the relationship between (non-)matching and *pro*-drop is not as straightforward as previously thought. In particular, subject free relatives in Slavic and Modern Greek, which are null-subject languages, cannot always be non-matching. It is established that matching in category and case is required when the free relative is in argument position or is linked to one through a movement chain. The non-matching subjects are shown to be left-dislocated with *pro* satisfying the category and feature requirements of the main clause.

[14] See also Borsley 1984 and Rudin (1986) for examples of non-matching left-dislocated free relatives in Polish and Bulgarian, respectively.

[15] It still remains to be explained, however, why in French even dislocated free relatives have to be matching (cf. Hirschbühler and Rivero). Apparently, matching is required of arguments but not of arguments only.

The proposal made here offers an alternative to the *pro*-head analysis of Suñer (1983, 1984) and Harbert (1983) in a way that captures the correlation between *pro*-drop and the absence of matching in subject position but also accounts for the obligatory matching subjects in *pro*-drop languages. It also unifies the absence of matching effects in subject and left-dislocated positions. Since the proposal utilizes only independently established facts about the nature of the pre-verbal subject position in *pro*-drop languages, it does not burden the grammar with construction-specific mechanisms. Rather it establishes that free relatives in *pro*-drop and non-*pro*-drop languages are not different, accounting for the variation in their behavior by the sole parameter of *pro*-drop. The rejection of the *pro*-head analysis supports the move-and-project proposal about the derivation of free relatives and opens the way for considering yet another derivationl option for free relatives, that of bare CPs, to be explored in Chapter 4.

Chapter 2

'Irrealis Free Relatives' are Not Free Relatives

An interesting but relatively unknown fact about free relatives is that they cannot be infinitival.[1] The following sentences illustrate the finiteness restriction on free relatives (examples from Baker 1989, p. 169). Despite the many syntactic similarities between questions and free relatives, only questions can be non-finite (cf. (28a,c,e)). There is no obvious reason of why this should be so. Infinitival questions are interpreted modally (cf. 28b), and a similar modal interpretation for free relatives is perfectly acceptable (cf. (28d-f)). Yet neither plain *wh*-free relatives nor *wh-ever* free relatives may appear as non-finite.[2]

(28) a. Jacob (always) knows what to wear.

b. Jacob (always) knows what he should wear.

c. *Jacob (always) wears what to wear.

d. Jacob (always) wears what he should wear.

e. *Jacob (always) wears whatever to wear.

f. Jacob (always) wears whatever he should wear.

[1]The only mentioning of this fact in the literature that I have seen is Baker 1989.
[2]Headed infinitival relatives are acceptable too, unlike free relatives:

(i) John finally found (the) clothes to wear (at the wedding).

The finiteness restriction holds not only in English but in a number of other languages as well, e.g., at least in the Romance, Slavic, Germanic languages and Greek. It likely reflects a deeper connection between definiteness and finiteness.

The present chapter argues that an apparent case of an infinitival free relative, dubbed an IRREALIS FREE RELATIVE in Grosu and Landman (1998), actually involves an indirect question. The alternative analysis strenghtens the link between free relatives and finiteness by elliminating the one likely counterexample to the established generalization. The link between definiteness and finiteness leaves room for the possibility that if free relatives could be interpreted as indefinite DPs, they could be non-indicative as well. The 'irrealis free relatives' could potentially be argued to represent just such a case. Yet by showing that this construction should not be given a free relative analysis I can maintain the strong (and thus more interesting) position that free relatives are necessarily definite (at least until a true case of an indefinite free relative is discovered).

The issues of interest in this chapter revolve around a little-studied phenomenon found in Greek, Yiddish, Hebrew, dialects of Arabic, and the Romance and Slavic languages. It involves the embedding of an infinitival or subjunctive *wh*-constituent under an existential predicate. It is furthermore associated with a particular modal interpretation – an existential modal restricted by a bouletic accessibility relation – that does not have an overt source and that is not subject to the usual ambiguities present with many overt modals and crucially also with modally interpreted infinitivals.

I present a compositional analysis of the phenomenon that accounts for the peculiar restrictions on its syntax and interpretation. I argue that the *wh*-clause has the structure and meaning of a question. The interrogative clause is the syntactic complement of a non-overt head which contributes a root modal base but lacks an inherent modal force. The matrix predicate provides the existential quantification that endows the modal with a quantificational force; thus we receive an explanation for the fact that the matrix is restricted to a small class of predicates that can independently be argued to have existential import as part of their semantics. The covert modal selects the non-indicative morphology in the *wh*-clause, and like root modals in general, it can introduce a thematic subject. Crosslinguistic differences in the syntax of the modal head in terms of covert vs. overt raising to the matrix predicate determines the spelled out form of the matrix (*have* or *be*).

While the immediate goal of this chapter is to argue that a counstruction which may plausibly be analyzed as a free relative but which deviates from some of the basic properties normally associated with free relatives, should be given an alternative analysis, the issues discussed and the specific proposals suggested have implications outside the strict domain of free relatives. One particular feature of the analysis builds on ideas that modality is decomposable into semantic primitives (cf. Kratzer's 1991 three-parameter analysis of modality). I propose that the semantic components of modality are dissociable from one another and it is possible for the base to be lexicalized (in an overt or covert modal) while the modal force may be specified by the syntactic environment. Furthermore, I propose that it is a defining property of non-overt modals in general that they lack a quantificational force of their own. Other aspects of the analysis rely on ideas about abstract decomposition of predicates – the view that morphologically simple lexical forms may have an underlying syntax and may derive their meaning through the composition of the underlying syntactic units. Insofar as the analysis relies on identifying an existence-asserting and a modal part to the matrix predicate, and relates aspects of the syntax and lexical spell-out of the matrix to this underlying complex structure, it provides further support to theories of abstract decomposition of predicates (cf. Freeze 1992, Kayne 1993, Hoekstra 1994, Burton 1995, den Dikken, Larson and Ludlow 1997, among others).

2.1 Outline of the Issues

2.1.1 The Phenomenon

The phenomenon of interest here is illustrated in (29) and (30); as said earlier, it involves the appearance of an infinitival or subjunctive *wh*-constituent as a complement of an existential *have* or *be* matrix predicate. The examples in (29) have an infinitival embedded clause and those in (30) a subjunctive one.[3] For ease of exposition, I will informally refer

[3]Most South Slavic languages – Bulgarian, Serbian, and Macedonian – as well as Greek, do not have an infinitive or a subjunctive; instead, they have a clause, which is headed by a special invariant marker (*da/na*) with the verb showing indicative morphology; this clause appears in non-indicative environments in place of both the infinitive and the subjunctive (the so-called *da*-clause in Slavic and *na*-clause in Greek). It is this type of clause that appears in the construction at hand (cf. (i)):

(i) a. Nemam [*kome* da ga dam]. (Serbian)
not-have-1SG whom-DAT it-acc give-1SG

to this phenomenon as the *wh*-EXISTENTIAL CONSTRUCTION. I will not be using the term IRREALIS FREE RELATIVE that Grosu and Landman (1998) introduce, as I will argue that this construction does not involve a free relative.

(29) Infinitival Complement

a. Est' [*s kem* pogovorit']. (Russian)
be-3SG with who talk-INF
'There is somebody with whom one could talk.'

b. Yeš li [*ma* la?asot]. (Hebrew)
be-3SG to-me what do-INF
'I have something to do.'

c. Ha [*con chi* parlare]. (Italian)
have-3SG with whom speak-INF
'There is someone to talk to.'

d. Nemam ga [*kome* dati]. (Serbo-Croatian)
not-have-1SG it-ACC whom-DAT give-INF
'I have noone to give it to.'

(30) Subjunctive Complement

a. Non sea [*qui* te ajude.] (Old Spanish)
not be who you help-3sg.subj
'Let there be noone to help you.'

b. Ima [*čto* da čitam]. (Serbo-Croatian)
have-3SG what SUBJ read-1SG

'I have noone to give it to'

b. Exo [*ti* na foreso gia to xoro]. (Greek)
have-1SG what wear-1SG for the dance
'I have something to wear for the dance.'

It is known that some *da-/na*-clauses behave like (non-indicative) finite clauses, assigning nominative case to their subjects, while others behave like non-finite clauses with PRO subjects. It can be shown, at least for Bulgarian that the *wh*-complement of existentials is a finite *da*-clause (cf. (iia) with nominative subject *te* 'they' in the embedded clause, and (iib), where the *wh*-word itself is nominative):

(ii) a. Ima [te *s kakvo* da ti pomognat].
have-3SG they-NOM with what you-DAT help-3PL
'There is something they can help you with.'

b. Ima [*koj* da mi pomogne].
have-3SG who-NOM me-DAT help-3SG
'There is someone to help me.'

Thus I will assume for the purposes of this paper that the *da*-clause is subjunctive.

'There is something that I can read.'

c. El Coronel no tiene [*quien* le escriba]. (Spanish)
the colonel not have-3SG who him write-3SG.SUBJ
'Noone writes to the colonel.' lit. ('The colonel has noone to write to him.')

The parameters infinitival vs. subjunctive and *have* vs. *be*, are in principle independent of each other, and allow for various combinations. Thus, the (a) and (b) examples in (29) and (30) have *be* as the matrix verb, while the (c) and (d) examples have *have*. The existential predicates may also be monadic, i.e. without an external argument, as in (29a, c) and (30a, b), or they may have a subject, as in (29b, d) and (30c). Section 2.5 brings all those facts together in proposing a syntactic analysis of the crosslinguistic and within-language patterns.

The sentences in (29)-(30) share an interpretation with the related English examples in (31), which have an indefinite in piace of the *wh*-phrase.[4] The English sentences are ambiguous between a deontic necessity reading, (31a), and a non-deontic possibility one, (31b).

(31) There is/I have something to do tonight.

a. There is something that must be done/I must do.

b. There is something that can be done/I can do tonight.

The sentences in (29)-(30) are unambiguous. They lack the deontic reading and only have the reading corresponding to (31c). Informally, the modality is one of availability. This is the type of modality in *I can (always) talk to John* – not in view of a permission or of a physical ability to talk on my part (as deontic and dynamic possibility would have it), but because John is physically present (at relevant times/locations) and there is no prohibition on, or impossibility of, my talking to him. There is a further element in this modal meaning, brought out quite successfully by a paraphrase such as *I can (always) talk to John if I feel like it*. Thus, to characterize the meaning, in terms of quantification over possible worlds: in some of the worlds in which I wish to talk to John, I do so. More formally, we are dealing

[4] 'In place' is meant strictly according to word order. Here I will not commit to a particular syntactic analysis for the English cases.

with a possibility modal with a circumstantial accessibility relation.[5,6]

The phenomenon exemplified in (29)-(30) needs to be distinguished from another phenomenon found in some languages – that of *wh*-words being used as indefinites. As is commonly known, in many languages, e.g. Chinese, Korean, *wh*-words and (at least some) indefinite pronouns are identical in form (cf. Cheng 1991/1997, Lin 1996 among others for a recent discussion). Even though in the languages that exhibit the phenomenon of interest here, inderfinites and *wh*-pronouns are distinct, the link between the two, phonologically and semantically, is unquestionable. Given this, and furthermore given the similarity of interpretation between the sentences in (29)-(30) and their English counterpart (31b), the possibility arises that the *wh*-pronoun we see in (29)-(30) is in fact an indefinite pronoun in disguise. Furthermore, it is also the case that even in languages where the *wh*-pronouns and the indefinite pronouns are phonologically distinct, in certain cases *wh*-words may be used instead of indefinites; witness to that effect (32), (33), which are due to von Stechow (1989) and are also discussed in Berman (1991).

(32) Da hat *wer*/jemand angerufen. (German)
there has who/someone called
'Someone called.'

(33) Si *quis* habet asinum, pulsat eum. (Latin)
if who has donkey beats it
'If someone has a donkey, he beats it.'

This phenomenon is distinct from the cases in Chinese and Korean, where the *wh*-pronoun is used as an indefinite if and only if it does not entail existence. The *wh*-/indefinite substitution in German and other languages is not limited to such environments. It appears to not be associated with a meaning difference, i.e., as far as I have ascertained with native speakers of German and Russian, the two options, the one with the *wh*-pronoun and the one with the indefinite pronoun, may be used interchangeably. I have not studied this issue extensively, though, so upon closer investigation it may turn out that there

[5]It follows from the logical properties of the modality that negating the modalized proposition entails the non-modalized proposition, i.e., unlike deontic modality, $\Diamond p \rightarrow p$.

[6]It may appear, at first glance that some of the sentences in (29)-(30) are not modalized. To see that, e.g., (30c) is a modal statement, consider the fact that it is felicitous as a continuation in the following discourse *Noone writes to the Colonel. Why? Because he* no tiene quien le escriba. The sequence does not work in the opposite direction #El no tiene quien le esqriba *Why? Because noone writes to him.*

are interpretive differences between the two options. The exact distribution of this *wh-*/indefinite 'substitution', i.e. the environments in which it is possible and those in which it is not, is not well understood. It seems to be commonly found in conditionals and yes-no questions, environments that license NPI indefinites like *anyone* and prohibit specific indefinites. In using *specific* I have in mind something along the lines of an indefinite denoting a subset of its discourse antecedents, e.g., referential and partitive indefinites, as in the theory of Enç 1991 (based on Heim's 1982 Familiarity and Novelty Conditions).[7] Further suggestive evidence regarding the non-specificity of the *wh-*/indefinite pronoun in the substitution cases, is that this pronoun cannot be scrambled. But of course, the problems with characterizing specificity are notorious (cf. Enç 1991, Diesing 1992, among others), and at any rate, it is not clear that (non)specificity is the relevant and only factor behind *wh-*/indefinite substitution, so I will leave the discussion at that.[8]

Importantly for our purposes here, the two phenomena exemplified in (29)-(30) and (32)-(33) are distinct. First, German allows the *wh-*/indefinite substitution, and if (29)-(30) were just a matter of such substitution in the *there is* context, such sentences should have been acceptable in German but they are not. Second, if (29)-(30) were the result of *wh-*/indefinite substitution, the sentences would have identical counterparts, meaningwise, with an indefinite pronoun in place of the *wh*-pronoun. Such a substitution, however, is either ungrammatical or leads to an interpretive difference.

In Russian, for instance, if there is an external argument in the existential-*wh*-construction, it bears Dative case (cf. (34a)). Substituting an indefinite pronoun for the *wh*-pronoun results in an ungrammatical sentence (cf. (34b)). The sentence becomes grammatical if the case on the external argument is changed to Genitive (cf. (34c)). However, this sentence now differs from (34a) in two crucial respects: the Genitive case is indicative of the possessive construction, plus the meaning is changed – (34c) only has a deontic interpretation *I have to read something.*

[7]Note that in *If a certain person calls* and *Did a certain person call?* I believe that the NP functions as a name, i.e. it is a definite description, and it is not used in the same way is in *I have to talk to a certain person.*

[8]There is the additional problem that the *wh*-indefinite substitution is felicitous in partitives, e.g., *which/some* of the students, which raises issues for describing the licensing condition as non-specificity.

(34) a. Mne est' čto počitat.'
I-DAT be-3SG what read-INF
'I have something to read.'

b. *Mne est' čto-to počitat.'
I-DAT be-3SG something read-INF
'I have something to read.'

c. U menja est' čto-to počitat.'
I-GEN be-3SG something read-INF
'I have to read something.'

The switch to a deontic interpretation occurs with the use of an indefinite in Bulgarian and Serbo-Croatian too. No ungrammaticality arises in principle in these languages (unlike Russian (34b)) because the subject in both this construction and in the possessive construction is nominative.[9]

Finally, and perhaps most convincingly, while some of the languages that have the infinitival/subjunctive *wh*-complement of *have/be* do allow the *wh*-/indefinite substitution, e.g. Russian and Serbo-Croatian, others, like Bulgarian, Greek, Italian, Spanish, Hebrew, do not (cf. (35)).[10] The following examples illustrate the (non)availability of *wh*-/indefinite substitution in two of the relevant languages, Russian and Bulgarian:

[9]Because of the deontic interpretation that necessarily arises with the use of the indefinite, certain substitutions are not felicitous. Consider the following examples from Bulgarian:

(i) Imam koj da mi pomogne.
have-1sg who to me help-3sg
'I have someone to help me.'

a. #Imam njakoj da mi pomogne.
have-1sg someone to me help-3sg

[10]Bulgarian has one environment in which an interrogative *wh*-pronoun may be substituted for an indefinite. This environment, though, is different from the ones discussed in relation to (32)-(33). *Wh*-words may appear with the meaning of indefinites only in a context of a list, thus at least two such uses are required (cf. (i), discussed also in Rudin 1986):

(i) a bileti – *koga* za teatâr, *koga* za koncert, (*koga*) za kino.
tickets when for theater when for concert when for movie
'tickets – sometimes for the theater, sometimes for a concert, (sometimes for a movie).'

b *bileti – *koga* za teatâr.
tickets when for theater
'tickets – sometimes for the theater.'

Syntactic tests suggest that the two (or more) instances of *wh*-phrases have to be in a coordinated structure. Meaningwise, they are also specific (in the sense of Enç 1991). Thus, it appears that this is a third, and distinct, phenomenon, from the ones discussed in the text.

(35) a. Esli *kto* pridet, skažite, čto ja skoro vernus'. (Russian)
if who come-3SG say-2PL that I soon return-1SG
'If someone comes, tell them that I will be back soon.'

b. *Ako *koj* dojde, kažete, če skoro šte se vârna. (Bulgarian)
if who come-3SG say-2PL that soon will refl return-1SG
'If someone comes, tell them that I will be back soon.'

Since the phenomenon of (32)-(33) does not exist in languages such as Bulgarian, it cannot be claimed to underly the examples in (29)-(30). The phenomenon we are interested then must have another source.

The phenomenon exemplified in (29)-(30) is of interest for three main reasons. The main reason we are concerned with it here is that it has been claimed to be an instance of a free relative (Pesetsky 1982 for Russian, Rivero 1986 for Spanish, Grosu 1994 for Romanian, and Grosu and Landman 1998).[11] Analyzing the *wh*-constituent as a free relative is intuitively appealing from both a syntactic and a semantic viewpoint. Syntactically, free relatives introduced by nominal *wh*-pronouns behave like noun phrases, and semantically they are interpreted as individuals. Both the syntactic category and the semantic type are appropriate for the associate in the *there is* construction. However, if the *wh*-constituent is indeed a free relative, then it must be attributed some rather unusual properties. The most problematic aspects are (i) the fact that the *wh*-construction can be infinitival, and (ii) that its occurrence in the definiteness restriction context means that it must be a weak NP (cf. Milsark 1974, Barwise and Cooper 1981, among others). In all of the other known cases, free relatives are finite (cf. Baker 1988 for the observation that finiteness can be a diagnostic for distinguishing syntactically free relative and interrogative clauses in English). Free relatives also behave like strong NPs and have been variously analysed as having the meaning of definite or universally quantified noun phrases (cf. Jacobson 1995,

This last phenomenon does not appear to be restricted to Bulgarian; it is found also in French (consider the following example from Posner 1985):

(ii) Ils portaient *qui* un livre, *qui* une valise.
they were-carrying who a book who a suitcase
'Some were carrying a book, some suitcases.'

Clearly, an analysis of this phenomenon is beyond the scope of the present discussion. The important thing is to rememeber that it does not constitute a counterexample to the statement that Bulgarian does not have a *wh*-/indefinite substitution of the kind exemplified in (32)-(33).

[11] In the interest of accuracy, Pesetsky 1982 and Rivero 1986 simply mention the construction as an example of a free relative in the context of a larger discussion.

Rullmann 1995, Dayal 1996, Larson 1987, Iatridou and Varlokosta 1998, among others).[12] If the phenomenon at hand involved a free relative, the question arises why we don't see non-finite and indefinite free relatives elsewhere too. If the *wh*-clause under discussion here could be shown to not be a free relative, we could then, at the absence of other known counterexamples, reach the generalization that definiteness and finiteness are intrinsic properties of free relatives. Thus, the phenomenon in (29)-30 offers an opportunity to evaluate the strong claims about the definiteness-finiteness link in *wh*-expressions.

The second reason for why the phenomenon investigated here is interesting is that it has rather peculiar characteristics and is subject to some particular constraints, neither of which has an immediately obvious explanation. The issues I will address beyond the categorial status of the *wh*-clause are the following: (i) the fact that the *wh*-constituent has to be non-indicative; and (ii) the fact that the matrix predicate is limited to existentials; (iii) the source of the modality and the restrictions on the range of modal meanings; (iv) the crosslinguistic (non)availability of phenomenon, e.g., why don't English and German have it; and (v) the exact syntax of the construction in the *be-* and *have-* type languages. One would want to understand these peculiarities and reduce them to general properties of the grammar. That in itself is a worthwhile endeavor.

Finally there is another reason why the phenomenon is of interest, and that is the fact that it is a place where a number of theoretical questions, both syntactic and semantic, intersect. As discussed above, the phenomenon is of relevance for the semantics of free relatives and questions, and for the role of finiteness in the interpretation and syntactic distribution of *wh*-clauses. It furthermore concerns issues such as (i) the *have-be* connection; (ii) the availability of abstract decomposition of predicates; (iii) the proper understanding and analysis of the Definiteness Restriction; and (iv) the properties of covert modality.

2.1.2 Constraints on the Phenomenon

I will now illustrate in greater detail the peculiarities of the phenomenon for which an explanation will be given in the analysis proposed here.

[12] Wiltschko 1999 is the only study that I am aware of that argues that free relatives have the interpretation of indefinites.

2.1.2.1 *The finiteness constraint*

The subordinate verb in the *wh*-existential construction has to be non-indicative, either infinitive or subjunctive. Indicative *wh*- clauses are prohibited as complements of existentials, cf. (36a, b) where an indicative clause is substituted for an infinitive and a subjunctive, respectively:

(36) a. *Est' [*čto* čitaju/pročitaju]. (Russian)
be-3SG what read-1SG.PRES/FUT
'There is something that I (will) read.'

b. *Imam [*kakvo* četa/ šte četa]. (Bulgarian)
have-1SG what read-1SG.PRES will read-1SG
'I have something that I (will) read.'

In languages that have both a subjunctive and an infinitive, like Romanian, Spanish, Italian, both types of non-indicatives are found in this construction (the same is true for Serbo-Croatian, although the split between infinitive and subjunctive there is dialectal - Croatian typically using the infinitive and Serbian the subjunctive). In Russian, however, which also has both a subjunctive and an infinitive, only the infinitive is allowed. One might think that this has something to do with the fact that the existential verb in this language is *be* (in Romanian, Spanish and Italian it is *have*) and for some reason *be* cannot embed *wh*-subjunctives. Yet this is not so, as evidenced by the fact that in Old Spanish the construction had a matrix *be* and a subjunctive *wh*-clause. The analysis that I develop in this chapter offers an explanation of these facts. It is furthermore related to the fact that English, for instance, does not have the phenomenon, while it independently has all the necessary ingredients. In short, I propose that the reason why a language that has both a subjunctive and an infinitive may allow both, only one, or neither type has to do with the syntax of modals in that language. Whatever clause type occurs embedded under modals in a language will also appear in this construction. In Russian modals only take infinitival complements, hence the non-availability of subjunctive *wh*-complements of existentials. In the Romance languages modals can take both infinitives and subjunctives, and therefore both the infinitive and the subjunctive are available in the construction. Finally, English modals do not take clauses as complements, therefore neither a subjunctive nor an infinitival *wh*-clause may occur under the existential verb.

2.1.2.2 *The* Wh-*phrase constraint*

A defining characteristics of the phenomenon is that a *wh*-pronoun must be present; no other type of non-indicative clause is permitted, neither declarative nor a yes-no question. Furthermore there are restrictions on the type of *wh*-phrases involved. (Singular) partitive/D-linked *wh*-words like *which book* are prohibited from this construction. The constraint is illustrated in the following Russian sentences; the acceptability of *what (kind of) book* and *whose book* shows that the problem with *which book* is not due to the syntactic embedding of the *wh*-pronoun inside an NP.

(37) a. *Mne est' *kotoruju knigu* čitat'. (Russian)
me-DAT be-3SG which book read-INF
'There is some of the books I can read.'

b. Mne est' *kakuju knigu* čitat'.
me-DAT be-3SG what book read-INF
'There is a kind of book I can read.'

c. Mne est' *č'ju knigu* čitat'.
me-DAT be-3SG whose book read-INF
'There is someone's book I can read.'

The fact that *which*-phrases are prohibited from the construction indicates that the *wh*-complement needs to be interpreted as a weak NP. Partitives have the semantics of strong NPs since they obey the Definiteness Restriction, appear as subjects of individual-level predicates, can have higher scope over various types of operators. I will further relate this constraint to the observation in Berman (1991) that in questions singular *which*-NPs pattern differently from non-partitive *wh*-expressions in quantificational environments.

2.1.2.3 *The matrix predicate constraint*

The matrix predicate is limited to a small class of predicates. Their common meaning is the assertion of existence; this meaning is typically expressed by either *be* or *have*. Predicates that assert true possession, e.g., *own, possess*, are prohibited; similarly unavailable are the various other interpretations of *be* and *have*, e.g. causative, obligational, experiential.

We can then conclude that the *wh*-clause is embedded in the *there is* construction. The question arises as to why only an existential matrix is licensed, why are other kinds of

predicates prohibited, as example (38) illustrates ((38a) is from Rappaport 1986):

(38) a. *On poterjal *čem* pisat'. (Russian)
he lost what-INSTR write-INF
'He lost something with which to write.'

b. *Toj iska *s kakvo* da piše. (Bulgarian)
he want-3SG with what SUBJ write-3SG
'He wants something with which to write.'

In my analysis this restriction is related to the fact that existential predicates contribute existential quantification, a manifestation of which is the Definiteness Effect associated with these predicates. The proposal that the *there is*-construction provides an existential quantifier is originally due to Milsark (1974/1977) and has been utilized in much subsequent work. An alternative account of the Definiteness Effect is defended in Barwise and Cooper 1981. To the extent that the analysis here is correct, it provides arguments in favor of Milsark's approach.

The matrix predicate restriction is furthermore of relevance for the *have-be* link long noted in the typological literature (cf. Benveniste 1971, Isačenko 1974, Heine 1997 among others) and recently analyzed in terms of common syntax underlying the two (cf. Freeze 1992, Kayne 1993).

There is a limited further group of predicates that allow the *wh*-constituent, in particular *find, look for, choose*). Examples of the latter predicates are given below (the Old Church Slavonic example is from Vaillant 1964):

(39) On iščet *s kem* poexat'. (Russian)
he look-for-3SG.PRES with whom go-INF
'He is looking for someone to go with.'

(40) ne obrětъše kǫdou vъnesti i. (Old Church Slavonic)
not having-found through-where bring-in-INF him
'not having found any place through which to bring him in'
[Luke 5.19 in the New Testament]

(41) Tja izbra *koj* da ja zamesti. (Bulgarian)
she choose-3SG.PAST who-NOM SUBJ her replace-3SG
'She chose someone to replace her.'

Rather than treating the phenomenon as an instance of a "syntactic idiom" (as in Rappaport 1986), my analysis in fact predicts that the list of matrix predicates will be small and will consist of a certain kind of verbs - namely the ones that can be analyzed as having an underlying existential element as part of their lexical semantics and also their abstract syntactic structure. Such an approach to these predicates has in fact been recently advocated in Burton (1995).

2.1.2.4 *The modality constraint*

The construction is inherently modal. The modality, however, doesn't stem from an overt modal. Moreover, the usual ambiguities associated with modals, i.e. root vs. epistemic, which are present also with modally interpreted infinitivals (cf. Portner 1992)), are not available. The only interpretation is one that can be described as a root modal of circumstantial possibility. It may be argued that the non-finite *wh*-clause is the source of the modality; after all we know that infinitival questions are modal, e.g., *I know what to do, I know where to find a train schedule* (cf. Bhatt 1999 for a recent discussion and analysis of modality in infinitival questions). There are some reasons to not adopt this analysis, however. These will be discussed when I present my analysis in section 2.4.

Now that we have an understanding of what the constraints on the phenomenon are, I will turn to presenting arguments that the *wh*-clause may not straightforwardly be called a free relative. As mentioned earlier, the free relative account is a priori the most plausible one (and possibly for that reason was assumed in a number of previous accounts). Nevertheless, as I show in the next section, there are a number of reasons, semantic and syntactic, to not accept the free relative analysis, at least not before resolving a range of questions that arise when we compare the *wh*-constituent to 'ordinary' free relatives.

Besides arguing agaisnt the free relative analysis of the *wh*-existential construction, this chapter aims at providing a comprehensive analysis of the phenomenon such that all of the above restrictions will come out naturally. Before addressing the specifics of my proposal, I will present the few previous analyses of the phenomenon and will show how they are problematic.

2.2 Problematic Analyses

The previous analyses of the *wh*-existential construction come in two types. The first take the position that the *wh*-pronoun is an indefinite pronoun in disguise; this is the analysis of Rappaport 1986 for Russian and Rudin 1986 for Bulgarian. In particular, Rappaport 1986 argues that the indefinite pronoun is an argument of the matrix predicate. He does not specifically address the status of the non-indicative part of the construction but presumably, if one adopts the main feature of his analysis, it can be argued that the non-indicative is part of a reduced relative or a purpose clause. Rudin, on the other hand, posits that it is an argument of the non-indicative clause. The second class of analyses take the position that the *wh*-clause is a free relative (cf. Pesetsky 1982 for Russian, Rivero 1986 for Spanish, Grosu 1994 for Romanian, Grosu and Landman 1998).

Both accounts are intuitively attractive because they posit that the complement of the existential predicate is a nominal phrase. At least as far the surface syntax of existential *be* and *have* is concerned, a nominal complement appears appropriate (cf. *There is something, I have something*). A free relative and an indefinite, accompanied by a reduced relative clause or a purpose clause, would thus be both syntactically and semantically appropriate. Yet recent decompositional analysis of *have* as existential *be* plus a syntactic head X^0 (in the spirit of Freeze 1992, Kayne 1993) and work on the syntax of *be* more generally (Heycock and Kroch 1999 among others) argue for a more articulated clausal structure for the complement of *be*. There are also a number of specific problems with analyzing the *wh*-existential construction as involving either an indefinite or a free relative to whic I now turn.

2.2.1 The 'Indefinite Pronoun' Analysis

There are two versions to the 'Indefinite Pronoun' analysis, as schematized in (42):

(42) a. *be/have* [$_{NP}$ indefinite [$_{RC}$ $\emptyset_i$ ... V t_i]]

b. *be/have* [$_{VP}$ ... V indefinite]

I will point to the problems that arise for the more specific analysis, (42a) first. The most direct argument comes from the fact that the *wh*-pronoun in the *wh*-existential construction is case- and category- dependent on the infinitival/subjunctive verb.

Consider the following English paradigms first, before we turn to the facts of the *wh*-existential construction:

(43) a. I have someone to talk to.

b. *I have with someone to go out.

c. *I have somehow to solve the problem.

(44) a. There is someone to talk to.

b. *There is with someone to go out.

c. *There is somehow to solve the problem.

The problems with (43b, c)-(44b, c) are syntactic in nature. Semantically there is nothing wrong with these sentences as the following indicate:

(45) a. There is/I have someone to go out with.

b. There is/I have some way to solve this problem.

The ungrammaticality of (43b,d) and (44b,d) supports the proposal that the indefinite in each case is at least case-dependent on the matrix clause, if not a real argument. Under one analysis of the English facts they involve an indefinite modified by a reduced relative. Under such an analysis the facts of (43)-(44) fall out straightforwardly. *Be* and *have* require NPs as complements and PPs like *with someone* or AdvPs like *somehow* are unacceptable in these syntactic positions. A different account for English would posit a small clause complement of the existential predicate and would impose restrictions on the category of the phrase that can appear in the specifier position of the small clause. One natural way to do this would be through case. The ECM case-feature of a predicate like *have* has to be checked, thus precluding PPs and AdvPs in the complement position of its specifier. Similarly, in the case of *be* expletive-replacement will insure that the specifier position of the small-clause complement of *be* is filled by a DP. At any rate, whatever analysis of the English sentences in (43)-(44) turns out to be correct, the dependency between the indefinite pronoun and the matrix predicate is a fact.

When we turn to the *wh*-existential construction, we woulld expect to find the same pattern, if indeed the *wh*-pronoun was an argument of the matrix predicate. This is not

what we find though. The case and category of the *wh*-pronoun depend on the infinitival verb. The following examples from Russian illustrate this point:[13]

(46) a. Est' *čemu* poučitsja.
be-3SG what-DAT learn-INF
'There is something to learn.'

b. Mne bylo *čto* delat'.
me-DAT be-PAST what-ACC do-INF
'There was something I could do.'

c. *Nečem* zanjat'sja.
neg-what-INSTR take-up-INF
'There is nothing to take up.'

d. Bylo *o* *čem* zadumat'sja.
be-PAST about what think-INF
'There was something to think about.'

e. *Nekuda* hodit'.
neg-to-where go-INF
'There is nowhere to go.'

f. *Negde* žit'.
neg-where live-INF
'There is nowhere to live.'

In each of the above examples the case and category of the *wh*-pronoun observes the requirements of the embedded verb. In (243a-c) the morphological case on the pronoun matches the case features of the respective verbs; the *wh*-constituent in (243d) is appropriately a PP, since the verb subcategorizes for a PP; and finally (243e-f) illustrate the directional-locative distinction on adverbials that is determined by the lexical semantics of the verb.

A second piece of evidence against treating the pronoun as an argument of the matrix comes from facts of clitic climbing. In Serbo-Croatian and in Italian, where clitics climb out of infinitival complements into the matrix predicates, clitic climbing occurs in the *wh*-existential construction (cf. (29d) repeated here as (47)).

[13]The examples are actually from Rapparort 1986 who despite them argues that the pronoun is an argument of the matrix.

(47) Nemam ga [*kome* dati]. (Serbo-Croatian)
not-have-1SG it-ACC whom-DAT give-INF
'I have noone to give it to.'

If the pronoun were an argument of the matrix predicate accompanied by a reduced relative or purpose clause, clitic climbing should have been prohibited. As illustrated in (48), clitics cannot climb out of such structures:

(48) *Ona ga_i želi plan da ubije/ubiti t_i.
she him wants plan SUBJ kill-3SG/-INF
'She wants a plan to kill him.'

This comes to show that the infinitival clause is a complement to *have* and not a nominal modifier.

Let us examine next the more general proposal that the *wh*-pronoun is an indefinite in disguise, independently of the issue of whether it belongs to the embedded non-indicative clause or the matrix clause. Two of the arguments were mentioned earlier. One is that none of the languages that have the *wh*-existential construction - Greek, Yiddish, Hebrew, dialects of Arabic, the Romance and Slavic languages, has a morphological isomorphism between *wh*-pronouns and indefinite pronouns. In all of these languages the indefinite pronouns are distinct (though related) to the *wh*-pronouns. As an illustration, consider the Bulgarian and Russian examples below.

(49)

koj	'who$_Q$' (Bulgarian)	*kto*	'who$_Q$' (Russian)
nja-koj	'someone'	*kto-to*	'someone'
koj	'who' in the ∃ construction	*pjos*	'who' in the ∃ construction

The second argument discussed earlier is the fact that the *wh*-existential construction cannot be analyzed in terms of *wh*-/indefinite substitution found in languages such as German (cf. example (43)). Only a subset of the languages that have the *wh*-existential construction, e.g., Russian and Serbo-Croatian, allow the *wh*-/indefinite substitution, while the other languages do not.

The strongest argument against treating the pronoun in *wh*-existentials as a disguised indefinite is that it obeys all the constraints on *wh*-movement in the respective languages, including obligatory fronting, multiple *wh*-fronting and superiority. I propose here that

the *wh*-constituent has the syntax of a question and I will discuss the implications of such an analysis for the syntax-semantics mapping involved in this particular phenomenon and for the semantics of questions and free relatives in general.

The examples in (50) illustrate the fact that *wh*-movement of the pronoun is obligatory.

(50) a. *Mne est' čitat' *čto.* (Russian)
I-DAT be-3SG read-INF what
'I have something to read.'

b. *Exo na foreso *ti* gia to xoro. (Greek)
have-1SG to wear what for the dance
'I have something to wear for the dance.'

There is no grammatical requirement that would force an indefinite pronoun to move. Moreover, the argument derives an even greater force from the fact that the pronoun in question would arguably be a non-specific indefinite (if it were an indefinite) and as such it should not move in the first place.

Furthermore, multiple-*wh*-fronting is obligatory in the *wh*-existential construction in those languages that have obligatory multiple-*wh*-movement in questions, such as the Slavic languages. Consider the following representative example from Russian:

(51) a. Tebe est' *kuda s kem* pojti? (Russian)
you-DAT be-3SG where with whom go-INF
'Do you have somewhere to go and someone to go with?'

b. *Tebe est' *kuda* pojti *s kem*?

Finally, the usual superiority effects observed with *wh*-movement obtain in the *wh*-existential construction as well. Consider the following sentences from Bulgarian. The subject *wh*-word, being higher in the structure than the adjunct *wh*-pronoun is attracted to Spec, CP first, with the subsequent *wh*-phrase tucked in (cf. Richards 1997 for a recent discussion, among many others).

(52) a. Ima *koj kâde* da me zavede. (Bulgarian)
have-3SG who where SUBJ me take-3SG
'I have someone to take me somewhere.'

b. *Ima *kâde koj* da me zavede.

The constraints on *wh*-movement illustrated here are common for both interrogative and free relative pronouns. In the next subsection I will discuss facts about the syntax of *wh*-movement that differentiate between free relatives and interrogatives and will show that the *wh*- constituent in the existential construction patterns with interrogatives.

In sum, all the evidence points to the fact that the *wh*-existential construction does not involve an ordinary indefinite pronoun. If one wants to insist that the pronoun is nevertheless indefinite then one needs to argue that this indefinite is of a special kind. Thus Browne 1986, for instance, explicitly calls this new class the interrogative-indefinite class. Yet the posited indefinite in disguise looks phonologically and behaves syntactically like a *wh*-pronoun, thus it will be conceptually problematic to posit an entirely new class of pronouns. A better alternative is to consider the options that a regular *wh*-pronoun provides.

2.2.2 The 'Free Relative' Analysis

As argued in the previous subsection, the *wh*-existential construction is best analyzed as involving a *wh*-pronoun. The earlier analyses which recognize the *wh*-character of the pronoun all argue that the *wh*-construction is a free relative. The only exception is a traditional analysis of the phenomenon in Russian by Garde 1976 who points out that the pronoun may be considered an interrogative one. The issue regarding the categorial status of the *wh*-pronoun arises, because in most of the languages exhibiting the phenomenon, e.g. Russian, Spanish, Yiddish, Hebrew, the free relative and the question pronouns are phonologically the same. I want to pursue the analysis of the *wh*-construction as an interrogative clause and in this section I argue that a free relative analysis has a number of serious problems, both empirical and theoretical.

I will address issues having to do with interpretation, morphology and syntax in turn.

2.2.2.1 *The interpretation*

Free relatives have the semantic behavior of strong NPs. A number of semantic tests point to that conclusion. Free relatives cannot appear in the *there is*-construction, the prototypical

Definiteness Restriction environment (Milsark 1974), as shown in (53c).[14]

(53) a. *There is the wolf at the door.

b. *There was everyone in the room.

c. *There is [what he cooked] on the table.

Free relatives are acceptable as subjects of individual level predicates, a role precluded to weak NPs (see Milsark 1974, Kratzer 1995, among others for discussion of the stage- and individual- level distinction and its interaction with NP determiners), as illustrated in the examples in (54).[15]

(54) a. *Sm novel is brilliant.

b. The novel/every novel is brilliant.

c. [What she wrote] is brilliant.

Free relatives are also interpreted independently of the scope of quantificational operators, like definites are. Thus (55b) is the logical form of (55a).[16,17]

(55) a. Everyone ate [what John cooked]

b. $\iota x[\text{thing}'(x) \wedge \text{cooked}'(j,x)][\lambda y[\forall z[\text{person}'(z) \rightarrow \text{ate}'(z,y)]]]$

In the case of interactions with propositional attitude verbs and modals, free relatives may be interpreted at the matrix world index. De dicto readings are available, just as with definites, but crucially, de re readings are possible. The particular formalism I have chosen treats propositional attitude descriptions as modal statements, and further analyzes those in terms of quantification over possible worlds. See, for instance, Kratzer (1991) for a particular possible-world framework. In the following sentences, the (b) interpretation is a possible reading, one that assigns the denotation of the free relative the index of the

[14]Modulo the known factors that permit strong NPs in the *there is* construction, cf. Ward and Birner (1995).

[15]*Sm* in (54) represents the weak reading of determiner *some*.

[16]For ease of exposition I am treating the free relative as a singular definite, referring to the single dish that John cooked. It also has the reading that can be characterized as a plural definite.

[17]Free relatives can also distribute, as in *Everyone$_i$ has [what John wants from him$_i$]*, where in order for the pronoun to be bound, the free relative has to be interpreted in the scope of the universal quantifier. Still, the point illustrated in the main text is what is important – free relatives, like definite NPs, may be interpreted as if outside the scope of other operators.

world of evaluation. R_b in (56b) is the function that maps the world of evaluation onto a set of accessible worlds according to Ann's beliefs. R_e in (57b) is the function that maps the world of evaluation onto the set of worlds epistemically accessible from it.

(56) a. Ann believes that Bill ate [what John cooked]

b. $= \iota x[\text{thing}'(x, w) \wedge \text{cooked}'(j,x,w)][\lambda y[\forall w'[wR_b w'][\text{eat}'(b,y,w')]]]$

(57) a. Mary may have eaten [what John cooked]

b. $= \iota x[\text{thing}'(x, w) \wedge \text{cooked}'(j,x,w)][\lambda y[\exists w'[wR_e w'][\text{eat}'(m,y,w')]]]$

Finally, free relatives, just like definite NPs, are necessarily interpreted outside of negation, cf. (58). Only the (a) interpretation is available to this sentence. Note that here free relatives differ from universal NPs in that the latter allow a reading below negation. This in fact is an argument in favor of giving free relatives with *ever* the semantics of definites rather than universals (an issue of some debate), as the same facts appear to obtain in *John didn't read [whatever article she assigned]*, at least for some speakers.[18]

(58) a. Mary didn't eat [what John cooked].

b. $= \iota x[\text{thing}'(x) \wedge \text{cooked}'(j,x)][\lambda y[\neg \text{eat}'(m,y)]]$

c. $\neq \neg\, \exists!x[\text{thing}'(x) \wedge \text{cooked}'(j,x) \wedge \text{eat}'(m,x)]$

It has been proposed by e.g., Jacobson 1995, Dayal 1996, Rullmann 1995 among others that free relatives have the interpretation of (plural) definite NPs. This approach assumes Link's 1983 analysis of definites where the common noun determines whether the unique individual is an atom (e.g. *the book*) or a plurality (e.g. *the books*). Free relatives formed with the relativizer *what* are underspecified as to whether abstraction is over atomic individuals or over maximal plural entities (consider *what she read*); otherwize the common noun in the *wh*-phrase determines that (e.g. *what book she read* vs. *what books she read*). This is the analysis of the semantics of free relatives that I will assume here.

Turning now to the interpetive characteristics of the *wh*-complement of *have* and *be*, we can ascertain that it has the semantic behavior of a weak NP. Crucially, it is allowed

[18]Some speakers find sequences such as the following acceptable: *John didn't read whatever article she assigned, he only read some of them*, suggesting a universal-like interpretation for the free relative.

as a complement of existential predicates. The monadic use of *have* and *be*, i.e. the *there is* construction is the prototypical exmple of the definiteness effect environment; the diadic use, the one with an external argument is related to possessives and they too have been argued to show semantic restrictions with respect to strong NPs. (cf. Szabolcsi 1981, 1983, Iatridou 1995 a.o.). Clearly, the *wh*-constituent behaves differently from free relatives with respect to this semantic test.

Behavior with respect to stage- and individual-level predicates, to contrast with (54) above, cannot be tested, however. The *wh*-clause only appears as the complement of existence-asserting predicates, so it cannot be the subject of a matrix clause. The closest we can come to a predicational structure with the non-indicative *wh*-clause as the subject is (59). The contrast in (59) is expected, though it is not particularly telling because individual-level predicates in principle are prohibited from the existential construction.[19] At least, though, the grammaticality of the stage-level predication confirms that the *wh*-clause has the semantics of a weak NP.

(59) Edva-li ima [*koj* da ti pomogne] *umen/ √dežuren po tova vreme. (Bg)
hardly have-3SG who SUBJ you help smart/ on-duty at this time
'There is hardly anyone who can help you *smart/ √on duty at this time.'

Similarly, the *wh*-clause in the *wh*-existential construction behaves as a weak NP as far as scope with respect to operators is concerned. It obligatorily scopes below quantifiers, as the logical form for the example below shows. Had the *wh*-constituent been a free relative, we would have expected an interpretation equivalent to a wide scope reading.

(60) a. Vseki ima [*kakvo* da čete]. (Bulgarian)
everyone have-3SG.PRES what SUBJ read-3SG.PRES
'Everyone has something to read.'

b. $= \forall x[\text{person}'(x) \rightarrow \exists y[\text{thing}'(y) \wedge \Diamond \text{read}'(x,y)]]$

c. $\neq \exists x[\text{thing}'(x) \wedge \forall y[\text{person}'(y) \rightarrow \Diamond \text{read}'(y,x)]]$

In interaction with propositional attitude verbs and modals, the *wh*-clause is necessarily interpreted at a world index different from that of the matrix. The interpretation of the

[19] Of course, Milsark's original explanation for this fact relied exactly on the obligatorily weak interpretation of the subject NP.

following sentences is exactly the same as the non-deontic interpretation of the English translations:

(61) a. Ana vjarva če Ivan ima [*kakvo* da čete]. (Bulgarian)
Ana believe-3SG that Ivan have-3SG what SUBJ read-3SG
'Ana believes that John has something to read.'

b. $= \forall w'[wR_b w'][\exists w''[w'Rw''][\exists x[thing'(x, w'') \wedge read'(j,x,w'')]]]$

c. $\not= \exists x[thing'(x, w) \wedge read'(j,x,w)] \wedge \forall w'[wR_b w'][\exists w''[w''Rw'][read'(j,x,w'')]]$

(62) a. Marija može da ima [*kakvo* da čete]. (Bulgarian)
Maria may SUBJ have-3SG.PRES what SUBJ read-3SG.PRES
'Maria may have something to read.'

b. $= \exists w'[wR_e w'][\exists w''[w''R_e w'][\exists x[thing'(x, w'') \wedge read'(m,x,w'')]]]$

c. $\not= \exists x[thing'(x,w) \wedge read'(m,x,w)] \wedge \exists w'[wR_e w'][\exists w''[w''R_e w'][read'(m,x,w'')]]$

Again, with respect to this aspect of the interpretation the *wh*-constituent in the *wh*-existential construction behaves very differently from free relatives.

Finally, the non-indicative *wh*-clause is obligatorily interpreted below negation. The following sentence received the interpretation in (b) and not that in (c), again the opposite of what would be expected from a free relative.

(63) a. Jovan nema [*čto* čitati]. (Serbo-Croatian)
Jovan not-have-3SG what read-INF
'Jovan doesn't have anything to read.'

b. $\neg\exists x[thing'(x) \wedge \Diamond read'(j,x)]$

$\neq \exists x[thing'(x) \wedge \Diamond read'(j,x) \wedge \neg have'(j,x)]$

It has been known at least since Milsark (see also Williams 1984, Heim 1987) that the position open to the Definiteness Restriction in the *there is* construction is a scopal island. Examples (60)-(63) above are in conformity with this generalization. Thus all evidence is consistent with the view that the non-indicative *wh*-clause is interpreted as an indefinite in the existential construction.

A final piece of evidence regarding the semantics of the *wh*-clause comes from the partitive restriction on the *wh*-phrase. The constraint is repeated again in (64); as discussed above, the ungrammaticality of *which book* is not due to some prohibition against

pied-piping the sortal (as it happens in free relatives without *ever* in English) since the syntactically similar *what (kind of) book* and *whose book* are acceptable.

(64) Mne est' [(**katoruju*)/ *kakuju*/ *č'ju* *knigu* čitat']. (Russian)
me-DAT be-3SG which/ what/ whose book read-INF
* 'There is some of the books I can read.'
√ 'There is some kind of book/someone's book I can read.'

The facts of (64) confirms the conclusion that the *wh*-constituent in the *wh*-existential construction needs to be interpreted as a weak NP. Partitives (including hidden partitives), as known, have the semantic behavior of strong NPs (though it is not trivial to explain why, given that the presuppositional constituent is embedded and the outmost determiner is weak): they obey the Definiteness Restriction, appear as subjects of individual-level predicates, can have higher scope over various types of operators. It has also been observed in Heim (1987) a.o. that in amount relatives partitives pattern with strong NPs.

In sum, the above examples illustrate that free relatives have the semantics of strong NPs (or, as assumed here, the semantics of definites). In contrast, the *wh*-constituent in the *wh*-existential construction is interpreted as a weak NP, that is, as an indefinite. Thus we establish that the two types of *wh*-clauses have quite different semantic properties.

Two directions can be taken at this point. One possibility is to define free relatives by the class of properties exhibited by strong NPs. Since constructions like the one at issue here have not generally been discussed in the literature, only *wh*-clauses like the ones in (53)-(58) have been considered free relatives; that is, free relatives have in fact been defined as strong NPs. Under this approach, the non-indicative *wh*-complement of possessives and existentials cannot by definition be a free relative, because, as we saw, it has the semantics of a weak NP. The second possibility is to give a more general definition of free relatives, something along the lines of a headless *wh*-clause which is interpreted as, and has the syntactic distribution of, an NP, and allow for there to be two types of free relatives, those that are interpreted as definites and those that are interpreted as indefinites. This is the approach taken by Grosu and Landman (1997) who call the *wh*-clause we are discussing an IRREALIS free relative and constructions like those in (53)-(58) REALIS free relatives. The second approach seems preferable in its generality, after all if NPs can be definite or indefinite, why shouldn't free relatives be. However, for such an

approach to be meaningful, it needs to go deeper than what has been said so far (e.g., for Grosu and Landman, several of the distinctions between the two types of *wh*-clauses only accidentally correlate with the weak/strong interpretation). What we need is more than just a classification and for that we first have to find out the full range of properties of *wh*-constructions, both syntactic and semantic, that go together with the strong/weak interpretation, and then offer an explanation for why certain properties always appear together. It is the goal of this chapter to contribute to such an enterprise. For the purposes of the discussion, then, for the rest of this chapter I will only refer to *wh*-constructions of the type in (53)-(58) as free relatives, as I have done so far.

2.2.2.2 *The morphology*

Let us now consider the morphological arguments against analyzing the non-indicative *wh*-clause as a free relative. Part of the reason why the construction has been misanalyzed as a free relative, I believe, is the fact that in most of the languages that have *wh*-existentials, i.e., the Romance languages, Yiddish, Hebrew, and most of the Slavic languages, there is no morpholophonological distinction between free relative and interrogative pronouns.[20] The situation in Bulgarian and Greek, however, is different: free relative pronouns are different in form from the question words. The *wh*-pronoun used in the construction we are discussing is unambiguously the interrogative pronoun. The following illustrate this point:

(65)	*koj***to**	'who$_{FR}$' (Bulgarian)	**o-***pjos*	'who$_{FR}$' (Greek)
	koj	'who$_{Q}$'	*pjos*	'who$_{Q}$'
	koj	'who' in the ∃ construction	*pjos*	'who' in the ∃ construction

The facts of (65) constitute a very strong argument against the free relative analysis. Yet strictly speaking it is not entirely conclusive. The morphological difference between the free relative and the interrogative pronouns is the presence or absence of a piece of definite morphology, *-to* in Bulgarian and *o-* in Greek. It could be claimed that free relative pronouns come in two variants - a definite and an indefinite one - and the facts of the

[20]Thus grammars of English have to make an effort to describe how the two types of *wh*-clauses can be told from one another, cf. Baker 1988, Quirk et al. 1985.

interpretation and distribution would follow from this distinction alone. And even the fact that the indefinite free relative pronoun is identical to the interrogative pronoun would be naturally explained: interrogative pronouns after all are often given the interpretation of existentially quantified NPs (cf. Karttunen 1977 and others).

Recall, however, that our goal is not to simply categorize *wh*-expressions into classes and label them. We want to understand what makes a given *wh*-expression a definite free relative, an indefinite free relative, if such a thing exists, or a question. It may indeed be the case that natural languages only have two casses of *wh*-pronouns, a definite and an indefinite one and how they interact with other elements in the clause determines whether the ultimate construct is a free relative or a question. We would still want to understand, though, what these other elements in the clause have to be in order to derive the category of the *wh*-clause. In other words, what we want is a theory and not simply a list of coocurrence characteristics such as {definite free relative pronoun, finiteness} and {indefinite free relative pronoun, non-indicativeness}. So, I continue to hold that calling the *wh*-existential construction an irrealis or an indefinite free relative simply avoids a deeper analysis into the inner workings of *wh*-clauses.

Furthermore, while the free relative and the interrogative *wh*-pronouns in Bulgarian and Greek are morphologically related and also transparent semantically, i.e., following the pattern below:

(66) $wh_{FR} = wh_{Q}$ + def

this is not the case for Old Church Slavonic. In this language the free relative pronoun and the *wh*-pronoun in the *wh*-existential construction are not related. Thus it cannot be claimed that one is just the definite version of the other. Moreover, the pronoun that appears in the *wh*-existential construction is clearly the interrogative *wh*-pronoun. The following sentences illustrate these facts; free relative *iže* is from the so-called 'relative-anaphoric' set, and *česo* is from the 'interrogative-indefinite' set (cf. Lunt 1974). Example (67) is from Lunt (1974) and (68) is from Vaillant (1964).

(67) Iže estъ otъ boga, glagolь božьi poslušaetъ (Old Church Slavonic)
who is from God, word God's listen-3SG (Lunt 1974)

'He who is of God hears God's words'

[St. John 8.47]

(68) ne imǫtъ česo ěsti. (Old Church Slavonic)
not have-3PL what-GEN eat-INF (Vaillant 1964)
'They do not have anything to eat.'

[Matthew 15.32, NT]

Another argument against treating the *wh*-clause in *wh*-existentials as a free relative comes from considerations of matching effects. As originally discussed in Grimshaw (1977), the *wh*-pronoun in free relatives has to be of the appropriate category and case for the position in which the free relative itself appears, i.e. if the free relative is in an accusative case checking position, then the *wh*-phrase has to be accusative and a DP, not dative or a PP. Free relatives in the relevant languages exhibit matching effects. Examples of matching in Serbo-Croatian were given earlier, in Chapter 1, and will not be repeated here. Importantly, the *wh*-constituent in the *wh*-existential construction, shows no matching effects (as noted also in Rappaport 1986, Rudin 1986, Grosu 1994, Grosu and Landman 1998). Example (69), from Serbo-Croatian, serves to illustrate the absence of matching effects in the *wh*-complement of existentials.

(69) a. Nemam se [$_{PP}$ *za koga* brinuti]. (Serbo Croatian)
not-have-1SG refl for who look-after-INF
'I don't have anyone to look after.'

b. Nemam [*kome* pisati].
not-have-1SG who-DAT write-INF
'I don't have anybody to write to.'

As (69) shows, both a PP *wh*-phrase is possible, in violation of category matching, and a dative *wh*-phrase is allowed, in violation of case-matching. If these *wh*-constructions were indeed free relatives, then we would want to know why they are exempt of the Matching Requirement. Unfortunately, we do not have a clear understanding of the requirement itself. It is sometimes considered that matching (at least case matching)[21] is a post-syntactic, PF phenomenon, because syncretic forms are able to pass the requirement (see Suñer 1984 a.o. for examples).

[21] Larson (1987) has argued that category matching is a semantic phenomenon.

Even in the absence of a definitive analysis of the matching effects in free relatives, we can still use the phenomenon as a diagnostic. Obviously, matching involves some sort of identity of features CP externally and internally. There is no obvious reason why the weak/strong NP interpretation should be correlated with the absence/presence of such matching of features in the *wh*-constructions. Grosu (1994) and Grosu and Landman (1997) propose to account for the lack of matching effects in the non-indicative *wh*-clauses by positing that irrealis FRs are bare CPs whereas realis free relatives have a CP external *pro*-head. In fact, Grosu and Landman also have a proposal that links the presence of a *pro*-head to the strong interpretation; so, if indeed the *pro*-head could account for the matching effects, and it could also explain the necessary strong NP reading, we would have a principled account of the facts seen so far. However, both links in the above analysis are problematic.

First of all, there are some conceptual and empirical problems with explaining the matching effects on the basis of the presence of a *pro*-head. Note that Suñer (1983) and Harbert (1983) adopt exactly the opposite claim from that of Grosu and Landman: for the former authors non-matching free relatives have *pro*-heads, and for the latter only matching free relatives have *pro*-heads. Thus one could not appeal that the *pro*-head account of matching is in any sense intuitive. Furthermore, it is not clear, for instance, what the status of non-subject free relatives is on a *pro*-head account, or the status of subject free relatives, for that matter, in languages that do not have *pro*-subjects. The appeal of Suñer's and Harbert's analyses was in the predictions they made concerning free relatives in subject position: *pro*-drop languages were expected to lack matching effects in subject position as these languages have an independent mechanism of licensing and identifying a subject *pro*. Yet, as I discussed in Chapter 1, it is possible to give an account of the possibility of non-matching subjects and *pro*-drop without employing a *pro*-head for free relatives.

Let us turn to the reasons for the weak/strong interpretation for the *wh*-constituent. Grosu and Landman's proposal is that any time (and only when) there is syntactic material outside a relative clause, which is somehow interpreted (or semantically determined from) inside the relative, a maximalization operation is triggered, which in effect gives the construction a definite-like meaning. Grosu and Landman do not attempt to explain *why*

this should be the case, thus the principle is only a postulation. It is not very good as an empirical generalization either, because it is not clear what semantic role *pro* has and thus in what sense, except trivially, it is interpreted (or semantically determined from) inside the free relative. All the relevant information is already present CP-internally in the case of realis free relatives. Therefore the proposed link between the syntactic presence of a *pro*-head and the strong NP interpretation is not adequately explanatory. In addition, questions are a counterexample to this account as they are bare CPs but are acknowledged by Grosu and Landman to involve maximalization (e.g. Groenendijk and Stokhof's 1982 *exhaustivity*).

Thus we can see that the facts of matching support the position that the *wh*-clause in *wh*-existentials is not a free relative. Unlike the facts about the morphology of the *wh*-pronouns, the facts of matching cannot be said to fall naturally with the weak/strong interpretation.

Another difference between free relatives and the non-indicative *wh*-constituent in the existential construction is the the (non)availability of *-ever*. It is known that free relatives allow *-ever* and questions in general disallow it[22]; the *wh*-clause under discussion behaves like a question in this respect. The examples in (70) illustrate that *-ever* is prohibited both when it is expressed by the subjunctive (cf. the Russian facts in (70a)) and when it is a lexical term.

(70) a. Mne est' čto (*by (to) ni bylo) kušat'. (Russian)
I-DAT be-3SG what would not been eat-INF
lit. 'I have what(*ever) to eat.'

b. On ima [*što*(*god) skuhati]. (Serbo-Croatian)
he have-3SG whatever cook-INF
lit. 'He has what(*ever) to cook.'

It is not clear that the distribution of *ever* is in any obvious sense related to the strong/weak interpretation. Grosu and Landman's proposal is that *ever* is an NPI licensed by the maximalization operation in free relatives[23] If that were the case, though, then one would expect questions to also allow *ever*, given that they too show maximality effects and they in general do not.

[22]Questions in some dialects actually allow *-ever* though its distribution is restricted.
[23]Larson (1987) gives a similar account of the licensing of *ever*.

To sum up the findings so far, the non-indicative *wh*-complement is unlike a free relative in that (in addition to having the semantics of a weak NP) it allows violations of matching, prohibits *ever*, and involves an interrogative *wh*-pronoun. All these properties, in fact, are shared with questions.

2.2.2.3 *The syntax*

There are syntactic properties that the *wh*-complement of existential predicates has in common with questions and that distinguish it from free relatives. I will list the properties below to show the full range of evidence available in support of the claim that the *wh*-constituent under discussion is not a free relative.

1. Extraction Possibilities: *Wh*-extraction out of free relatives is prohibited universally. The *wh*-existential construction, however, allows extraction in some languages. In Grosu 1994 and Grosu and Landman 1998 it is claimed that the extent to which such extraction is successful in a particular language (i.e., a violation of subjacency or full acceptability) matches the possibilities for *wh*-extraction out of questions. The following examples from Bulgarian illustrate that given the fact that extraction out of *wh*-questions is possible, so is extraction out of the *wh*-constituent.

(71) a. Kâde se čudiš s kogo da otideš? (Bulgarian)
where refl wonder-2SG with whom SUBJ go-2SG
'Where is the place such that you wonder who to go with to that place?'

b. Kâde imaš s kogo da otideš?
where have-2SG with whom SUBJ go-2SG
'Where is the place such that you have someone to go with to that place?'

2. Clitic climbing: Clitic climbing is prohibited out of free relatives universally, whereas the construction at hand allows clitic climbing. Observe the following contrast. Example (72) (appearing earlier as (47)) is a case of the *wh*-existential construction and it exhibits clitic-climbing. Example (73) is an attempt to clitic-climb out of a free relative in the same language, and it is not acceptable.

(72) Nemam $\underline{ga_i}$ *kome* dati t_i. (Serbo-Croatian)
not-have-1SG it-ACC whom-DAT give-INF

'I have noone to give it to.'

(73) *Ja $\underline{mu_i}$ želim što je dala t_i. (Serbo-Croatian)
I him want what is given-FEM.SG
'I want what she gave him.'

Clitic climbing out of infinitival questions is at least possible (though very restricted), cf. Rizzi 1982, Kayne 1989. Rooryck 1994 has a discussion of the crosslinguistic availability of clitic climbing out of questions, as well as of the role of the tense and mood of the matrix predicate, negation, the *wh*-pronoun, and the clitic itself.

3. Multiple *Wh*-Phrases: Grosu and Landman 1998 point out a further difference between free relatives and the *wh*-clause in the existential construction, namely that the latter allows multiple *wh*-phrases. It is true that free relatives in argument or adjunct position inside the clause do not allow multiple *wh*-phrases. If we consider, however, the case of correlatives, which involve a dislocated free relative clause, we can see that free relatives too allow multiple *wh*-phrases. Thus, the availability of multiple *wh*-phrases in the *wh*-clause in the existential construction tells us nothing about whether its *internal* syntax is that of a question or of a free relative. Of course, given that the position open to the Definiteness Effect in the existential construction is clause-internal, multiple *wh*-phrases will not be expected on the we have evidence that the *external* syntax of the *wh*-constituent is not that of a free relative.

4. Sluicing: The availability of sluicing in the *wh*-complement of existentials, at least in Bulgarian, Russian, and Spanish (though apparently not in Italian and Greek), is another argument in favor of a question analysis of the *wh*-existential construction. The phenomenon of sluicing involves ellipsis of the question with sparing of the *wh*-phrase in the context of an indefinite antecedent (cf. Chung, Ladusaw, and McCloskey 1995, Romero 1998, Merchant 1999 for recent discussion of sluicing). The following example from Bulgarian illustrates the possibility for sluicing in the case of the *wh*-existential construction:

(74) Čete mi se nešto no njamam kakvo.
read-3SG me refl something but not-have-1SG what
'I feel like reading something but I have nothing to read.'

5. Pied-Piping: In some languages the constraints on pied-piping differ in free relatives and in questions. Hebrew, for example, requires pied-piping in questions, but disallows it in free relatives. The following examples illustrate that in the *wh*-clause in the *wh*-existential construction pied-piping is obligatory, i.e., the clause behaves like a question and not like a free relative.

(75) a. Yeš li ?im mi ledaber.
be-3SG to-me with who talk-INF
'I have someone to talk to.'

b. *Yeš li mi ledaber ?im.
be-3SG to-me who talk-INF with
'I have someone to talk to.'

6. Resumptive Pronouns: Hebrew provides another test for the nature of the *wh*-constituent. Questions in Hebrew do not allow resumptive pronouns whereas free relatives do. The *wh*-constituent in the *wh*-existential construction does not allow resumptive pronouns, i.e., it behaves like a question and not like a free relative.

7. Doubly-Filled Comp: Another potential argument against the free relative analysis is the behaviour of free relatives and questions with respect to the Doubly-Filed Comp constraint. Hebrew free relatives have an overt complementizer in addition to the *wh*-word in Spec, CP. Questions do not allow overt complementizers. The *wh*-constituent in our case also prohibits an overt complementizer. This facts are at best suggestive though, for it may very well be the case that the free relative complementizer has the features [indicative] and [declarative] which will prohibit it from questions and our *wh*-constituent for independent reasons.

8. Subject-Verb Word Order: In Bulgarian questions, both matrix and embedded, subjects cannot intervene between the *wh*-word and the verb; in free relatives they can.

(76) a. ??Čudja se kakvo Paulina risuva.
wonder-1SG refl what Paulina draw-3SG
'I wonder what Paulina is drawing'

b. Čudja se (Paulina) kakvo risuva (Paulina).
wonder-1SG refl what (Paulina) draw-3SG (Paulina)

'I wonder what Paulina is drawing'

c. Kakvoto Paulina risuva mi haresva.
what Paulina draw-3SG me pleases
'I like what Paulina is drawing'

In the *wh*-existential construction subject-verb 'inversion' is required. That is, word order is as in questions and not as in free relatives:

(77) a. ??Ima kakvo Paulina da jade.
have-3SG what Paulina to eat
'There is something for Paulina to eat.'

b. Ima (Paulina) kakvo da jade (Paulina).
have-3SG what (Paulina) to eat (Paulina)
'There is something for Paulina to eat.'

Only the first three of the above facts can straightforwardly follow from a limited structural difference between free relatives and the *wh*-clauses in existential sentences such as the presence vs. absence of a *pro*-head. The rest of the facts suggest that it is the CP-internal syntax in the two types of clauses that is different. This is in conformity with what we already saw in the discussion of matching, the distribution of *ever*, as well as the form of the *wh*-phrase.

Thus, in conclusion to this section, there are a number of arguments – semantic, morphological, and syntactic – in support of a position that the *wh*-clause in the existential construction is not a free relative.

In sum, the phenomenon of *wh*-existentials has a number of peculiar properties and restrictions. The existing few proposals do not attempt to explain any of the four constraints outlined above – the finiteness constraint, the *wh*-pronoun constraint, the modality constraint, and the matrix predicate constraint. The analysis that is to follow provides an explanation for all of these constraints as well as for some crosslinguistic facts about the distribution and syntactic behavior of *wh*-existentials.

2.3 The *Wh*-Constituent is a Question

In the attempt to contribute to a theory which correlates all of the facts discussed above, I propose that the *wh*-clause in the existential construction is a question. Recall that all the morphological and syntactic facts are consistent with a claim that the *wh*-constituent is an interrogative clause. The challenge then is to explain how the interpretation is determined by the interrogative syntax.

2.3.1 Do We Really Have a Question Here?

There are several facts, however, that seem to suggest that the *wh*-constituent does not have the semantics of an embedded question. First, a compositional interpretation for an embedded question would predict the interpretation in (78b) as corresponding to the schematized LF in (78a), following the semantics for questions in Hamblin 1973 and Karttunen 1977. But this meaning is weaker than what (78a) actually asserts, which is (78c). It is clear that (78b) can be true in a situation where (78c) is false, namely when it is not possible for me to go anywhere.

(78) a. *be/have* [*where* I go-SUBJ/INF]

b. There exists a set of propositions that are possible/true answers to the question 'where can I go' (Hamblin/Karttunen-denotation).

c. There exists a place where I can go.

The second apparent problem is the following. It is known that *wh*-questions permit negative answers, i.e. *I know who came to the party* entails *I know that noone came to the party* in a situation where indeed noone came to the party.[24] However, a sentence with the LF in (78a) is incompatible with a situation where what is available is that I go nowhere.

Finally, if indeed the *wh*-clause were interpreted as a question, we would also expect *yes-no* questions to be possible in its place. In the case of all other question embedding predicates, if a *wh*-question is a possible complement then a *yes-no*question also is. *Yes-no* questions, though, are precluded as complements of *be/have*.

[24] In various formalisms, the proposition containing a negative quantifier in place of the *wh*-word is included in the denotation of the question.

The above considerations, however, are not sufficient to justify a conclusion that the *wh*-clause does not have the semantics of a question. There are other predicates that embed *wh*-questions but not *yes-no* questions, namely predicates like *be surprising/amazing/unbelievable* (cf. (79)).

(79) It's surprising/amazing/unbelievable who came to the party.

In Grimshaw (1977) these have been argued to embed exclamations, however Lahiri (1991) has arguments that they do indeed embed questions and not exclamations; in particular he shows that multiple *wh*-phrases giving rise to pair-list readings are possible, as in e.g., (80) which is not characteristic of exclamations.

(80) It's surprising/amazing/unbelievable who gave what to whom.

It is important for the purposes of the discussion here that the *wh*-complements of such factive predicates differ from typical questions in one more respect, namely in that the negative answer is clearly unavailable for them. *It is amazing who came to the party* doesn't entail *It's amazing that noone came to the party* in a situation where noone came to the party.

Finally, the compositionality problems pointed out in (78) can be adressed by positing covert structure between the existential predicate and the question

(81) a. *be/have* [Modal [*where* I go-SUBJ/INF]]

b. There exists a possibility that a set of propositions obtain that are possible/true answers to the question 'where I go' (Hamblin/Karttunen-denotation).

So, it appears to be possible to claim that the *wh*-clause in the existential construction is indeed interpreted as a question, a view which is consistent with the syntactic and morphological facts discussed above. Let us then see what the appropriate semantics for questions is, that will also account for the interpretation of the construction at hand. And also, we would want to look into the composition of the various *wh*-clauses – questions and free relatives – and localize the distinctions among them. This will be the purpose of the next subsection.

2.3.2 What Makes a *Wh*-Clause a Question vs. a Free Relative?

According to the propositional approaches to the semantics of questions, some version of which is commonly assumed (e.g. Hamblin 1973, Karttunen 1977, Groenendijk and Stokhof 1982), questions denote propositions or sets of propositions. The interpretation of the *wh*-constituent in the existential construction, however, is that of an indefinite, again commonly assumed to be a predicate over individuals. One way to reconcile the two is to reject the assumption that the individual variable associated with the *wh*-phrase is existentially closed at the clausal level, i.e. to adopt an analysis in the spirit of Hintikka (1976) and Berman (1991), according to which questions have the LF of open sentences.[25] Thus I propose that the question word is not an existential quantifier (unlike Karttunen 1977) and that the binder for the variable is found in the higher clause (more will be said on this in the next section). Under this approach, the *wh*-clause is, in effect, a DRT-indefinite, contributing an individual variable. It now becomes clear why the interpretation for the embedded question in (78a) is (78c) and not (78b): the latter assumes that the interrogative variable is closed off at the clausal level whereas the former reflects the existential binding from the higher clause. The unavailability of the negative answer is also explained. As for the impossibility of *yes-no* questions, an explanation can be found in the type of variable needed by the matrix binder – an individual and not a propositional one.

Let us now see in more detail how the composition of interrogative and free relative *wh*-clauses is different. There are two possible sources for variation in the make-up of a *wh*-clause: the value of C^0 and the denotation of the *wh*-word. Considering the former, we can distinguish a *wh*-feature, which syntactically is responsible for the overt movement of the *wh*-phrase to Spec, CP.[26] Semantically, the *wh*-feature in C^0 acts as a λ-abstractor

[25]The specifics of the Hintikka/Berman-semantics are somewhat problematic. The main concern is that it fails to capture the difference between relative clauses and questions: prior to the application of the various variable-binding mechanisms that according to Hintikka and Berman take place in questions, both types of *wh*-clauses have in effect the same LF, modulo the fact that the variable in the relative clause is abstracted over. Since the variable-binding mechanisms themselves are not specific to questions, i.e. they involve the more general default existential or generic operators and adverbs of quantification, the syntactic and semantic differences known to exist between questions and relative clauses would have to come from elsewhere, something which the uniform LFs posited by this type of approach do not allow for. Secondly, the Hintikka/Berman account is unconstrained: it introduces non-locality in that it allows extension of the variable-binding domain to include the matrix clause (in case binders are available there), regardless of the clause type of the *wh*-clause itself, and before a default operation can apply locally, at the level of the clause.

[26]Crosslinguistically there is variation, of course. In internally-headed relative clauses and questions without *wh*-movement presumably the *wh*-feature in C^0 is checked by movement of the *wh*-feature of the *wh*-phrase,

over the variable corresponding to the *wh*-trace. This feature will be present in both interrogative and free relative clauses. We can furthermore recognize an interrogative operator associated with the C^0 position, as suggested by Heim (cf. von Stechow 1993) which is responsible for question-type meanings. This operator would be absent in free relative clauses. The second source of variation, the denotation of the *wh*-phrases I am assuming is given in (82):

(82) a. interrogative *wh*-words: $[\![\text{what}_Q]\!] = \lambda P \lambda x[P(x)]$

b. free relative *wh*-words: $[\![\text{what}_{FR}]\!] = \lambda P \lambda x[P(x) \wedge \forall y\ (P(y) \rightarrow y \leq x)]$

As I discussed earlier, I propose to treat interrogative *wh*-words not as existential quantifiers (unlike Karttunen 1977 and in the spirit of Hamblin 1973) but as functions from predicates to functions from individuals to truth values. Free relative *wh*-words, on the other hand, while also not being existential quantifiers, denote a maximal plural or unique atomic individual, a proposal modeled after Jacobson's (1995) treatment of free relatives. They undergo ι-type lowering (Partee 1987), defined as in (83a), resulting in a definite NP interpretation for the free relative, as in (83b):

(83) a. IOTA-$(\lambda x[P(x)]) = \iota x[P(x)]$ only if $|\lambda x[P(x)]| = 1$

b. $[\![\text{FR}]\!] = \iota x[P(x) \wedge \forall y\ (P(y) \rightarrow y \leq x))]$

It is possible to further decompose the free relative *wh*-word so that the commonality with interrogative *wh*-phrases is recognized. We can isolate an element responsible for the definite NP interpretation of the free relative clause from the *wh*-element which the free relative *wh*-pronoun shares with the question pronoun. Consider (84):

(84) a. $[\![\text{what}]\!] = \lambda P \lambda x[P(x)]$

b. $[\![\text{def}]\!] = \lambda P \iota x[P(x) \wedge \forall y\ (P(y) \rightarrow y \leq x)]$

c. $[\![\text{FR}]\!] = [\![\text{def}(\lambda x[P(x)])]\!] = \iota x[P(x) \wedge \forall y\ (P(y) \rightarrow y \leq x)]$

In fact, Bulgarian and Greek provide morphological evidence that $wh_{FR} = wh_Q$ + def (cf. (65) where *-to* and *o-* have the definite article as a source).

or by the scope markers if such are present.

The proposal presented above builds the definite interpretation into the denotation of the free relative *wh*-pronoun, thus defining free relatives as definites. We can now step back and ask whether a *wh*-clause may be a relative and yet have a *wh*-pronoun without the incorporated definite element. The featural composition of such a clause would be $[_{CP}\ wh_Q\ C^0{}_{wh}]$, i.e. it would involve an 'interrogative' (i.e. definiteless) *wh*-pronoun and a complementizer that only has the *wh*-feature and not the interrogative feature. A good candidate for such a clause is the regular NP-modifying relative clause. Yet it turns out that in languages that have a morphologically distinct wh_Q, e.g. Bulgarian and Greek, this is not an option for the relative clause – both languages having an incorporated definite element into the relative *wh*-pronoun. So, it appears that the definiteless *wh*-pronoun is indeed interrogative and as such it can be expected to require the Q-feature in C^0. If this is right, then indefinite free relatives are ruled out in principle.

2.4 Composing the Meaning

The goal of this chapter, as stated in the introduction, was to give an account of the following issues: (i) the nature of the *wh*-clause; (ii) the fact that the *wh*-constituent has to be non-indicative; (iii) the source of the modality; and (iv) the fact that the matrix predicate is limited to possessives and existentials.

As I argued, the *wh*-clause is best analyzed as a question. There are several existing analyses of the semantics of questions. I will adopt a version of Karttunen's semantics enriched with maximality, which, as Rullmann (1995) has argued makes it equivalent to Groenendijk and Stokhof's (1982) semantics for questions embedded under extensional predicates. Furthermore, the interrogative *wh*-pronoun, not being an existential quantifier as I argued, leaves the position of the individual variable open. Technically, the *wh*-question denotes a singleton set of propositions; thus the denotation of the question may be identified with the unique proposition member of the set.

I further propose that the *wh*-question is embedded under a covert modal. The presence of this modal is the reason for the non-indicativeness of the *wh*-clause. In section 2.5 I give some syntactic evidence for the presence of the modal head. Here it suffices to say that if the modality were to stem from the non-indicative clause itself, we would expect

ambiguities in interpretation (see Portner 1992, Bhatt 1999 for recent discussion). Positing a covert modal allows us to say that the modal base is prespecified, hence the absence of ambiguities. Note that a proposition is an appropriate semantic complement for a modal predicate. If the *wh*-clause could not be a free relative and still be embeddable under a modal. The question also arises as to the existential force of the modal. recall that we are dealing with a modal of possibility. Usually, covert modality is associated with default universal interpretation (cf. Kratzer's proposal about covert modality in conditionals).

This brings us to the issue about the role of the matrix predicate. If we assume that the existential construction provides an ∃-quantifier, i.e. Milsark's explanation for the restriction against strong NPs in this environment, we will have a source for the existential force behind the covert modal (and also for closing off of the position left open by the interrogative syntax, in an unselective fashion). Alternatively, Barwise and Cooper's (1981) account of the Definiteness Restriction may be deemed preferable, and if so, some version of Partee's (1987) Existential Lift or Heim's (1982) Existential Closure could be adopted. Thus it seems that both Milsark's and Barwise and Cooper's approach can be accommodated into an analysis of the distribution of the two types of *wh*-clauses in the existential construction. However, only the former approach predicts the limited distribution of the *wh*-question. According to this approach, the matrix is limited to the particular predicates – *have* and *be* – because only they come with an ∃-quantifier. Under Barwise and Cooper's approach, the limited distribution of the *wh*-interrogative clause must be given an independent explanation. Thus it appears that if the account presented here is on the right track, it supports one treatment of the Definiteness Restriction over the other.

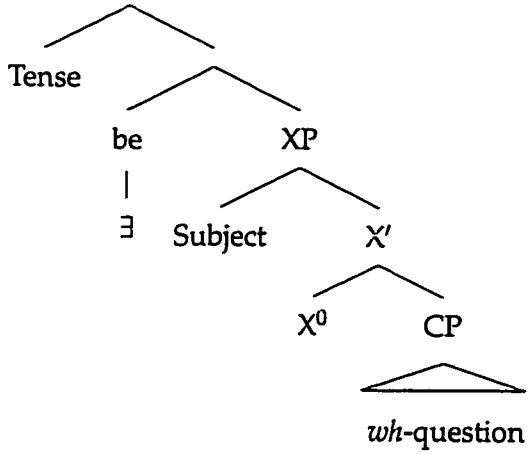
The proposal made here is also of relevance for the line of investigation into the *have-be* link (cf. Benveniste 1971, Freeze 1992, Kayne 1993), an approach that proposes a derivational relationship between the two predicates (in short *have* = *be* + X^0). The next section addresses the actual syntax of *be*- and *have*-rooted examples of the phenomenon. That plus the proposal that they contribute an ∃-quantifier suggests that the two predicates are decomposable to a common element. Recall furthermore, that the class of matrix predicates exemplifying the phenomenon is actually larger, including verbs like *choose, find, look for*. A unified account is possible, assuming a recent proposal in Burton (1995)

that predicates like these contain an abstract *have*.

2.5 Bringing the Syntactic Pieces Together

I propose the following syntax for the *wh*-existential construction:

(85)



The X^0 predicate is the modal predicate posited for the compositional interpretation of the structure. As appropriate for a root modal, it has an external argument. It is also the predicate that incorporates into the existential head *be*, yielding *have*. As discussed earlier, recent syntactic accounts have captured the typological link between possessives and existentials, giving the two a common structure; *have* = *be* + P^0.

(86) [$_{VP}$ be [$_{PP}$ theme [$_{P'}$ possessor]]] (Freeze 1992)

(87) [$_{VP}$ be [$_{DP}$ [$_{AgrP}$ [possessor [$_{Agr'}$ theme]]]] (Kayne 1993)

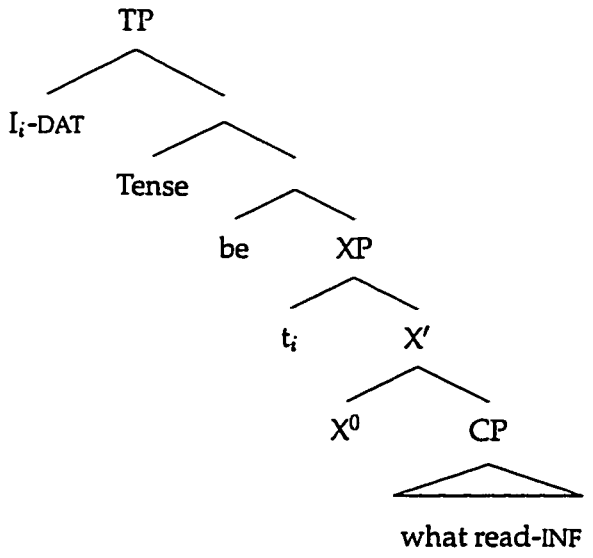
In the theory of Freeze 1992, P^0 is the incorporating head; Kayne's 1993 analysis exploits a more articulated structure. The important aspect behind these theories is that in existential constructions, independently of whether their predicate is *have* or *be*, the indefinite theme stays in situ and the possessor or subject may A′-raise. The analyses adopted here is closer to Freeze's proposal in that the X^0 predicate and the possessor are in a thematic relationship. This accounts naturally for the observed facts of possessor case and spell-out of the existential predicate. If incorporation takes place, the result is a

have-predicate and a non-oblique subject. If incorporation does not take place, the subject surfaces in an oblique case and the predicate is spelled out as *be*.

The following examples provide a sample derivation for the *wh*-existential construction in a *be* and a *have*-language.

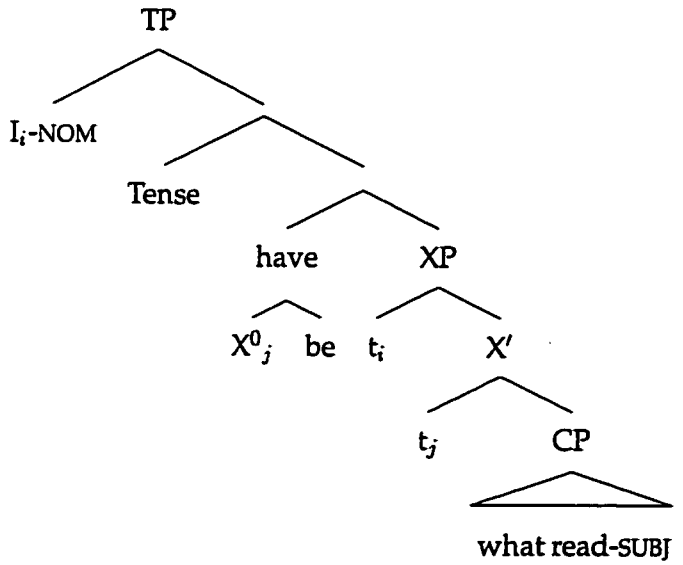
(88) a. Mne est' čto čitat'. (Russian)
I-DAT be-3SG what read-INF
'I have something to read.'

b.



(89) a. Az imam kakvo da četa. (Bulgarian)
I-NOM have-1SG what SUBJ read-1SG
'I have something to read.'

b.



The Dative case on the subject-argument in Russian supports the proposal about the existence of the modal head. Subjects of overt modals appear in the Dative case in Russian:

(90) Mne nado rabotat'. (Russian)
I-DAT must work-INF
'I have to work'.

Note also that the modal interpreted in the *wh*-existential construction is a root modal and thus it may have thematic subjects. If the modal head did not exist in the structure, there would be no source for the oblique subject. Note that the subject cannot be posited to be the clause internal subject of the non-indicative clause for a variety of reasons. Thus the structure in 91b) must be accepted over (91a):

(91) a. Mary$_i$ X^0 [what t_i to read]

b. [to Mary] X^0 [what PRO to read]

The arguments in support of (91b) are as follows. First, A-movement out of *wh*-clauses is theoretically problematic. Then there is a lack of agreement between *Mary* and *be* and *Mary* cannot appear in the nominative when the matrix predicate is *be*. This suggests that Mary has not been A-raised out of the infinitival clause.

Furthermore, expletives and weather-subjects are prohibited in the *wh*-existential construction, as the following sentences indicate:

(92) a. *Est' kogda idti dožd/doždju'. (Russian)
be-3SG when go-INF rain-NOM/DAT
'There is a time such that it can rain then.'

b. *Est' čto xotet'sja čtoby Ivan pročital.
be-3SG what want-REFL.INF that-SUBJ Ivan read
'There is something that it would be nice for Ivan to read.'

This again rules out a raising analysis for the subject in *wh*-existentials.

Another argument comes from the lack of truth-functional equivallence between active and passive *wh*-existentials. As argued in Postal 1974, truth-functional equivalence obtains in the case of raising (cf. (93)a) but not in cases of control (cf. (93)b):

(93) a. Mary is likely to kiss John ⇔ John is likely to be kissed by Mary

b. Mary is anxious to kiss John ⇏ John is anxious to be kissed by Mary

The *wh*-existentials behave like a control case and not like a raising case:

(94) a. Imam na kogo da predstavja Ivan. ⇏
have-1SG to whom to introduce-1SG Ivan
'There is someone available to me to introduce Ivan to.'

b. Ivan ima na kogo da bâde predstaven ot men.
Ivan have-3SG to whom to be introduced by me
'There is someone available to Ivan to be introduced to by me.'

Finally, a strong argument against raising comes from the fact that a *wh*-subject of the infinitive and a dative NP can be expressed simultaneously in Russian:

(95) Nam est' komu rabotat'. (Russian)
we-DAT be-3SG who-DAT work-INF (Rappaport 1996)
'We have someone to work (for us).'

All the arguments presented above suggest that (91a) cannot be the right structure. This means that the subject has to be introduced in a position outside of the *wh*-clause. This argues for the existance of a predicate below the existential verb that can accomodate two arguments. The modal head in my analysis plays this role. It furthermore is responsible for the syntactic differences between the *have* and *be*-type languages. Importantly, this modal head selects a non-indicative clause as its complement, as all modals do. Thus we receive an explanation for the non-indicativeness constraint. The covert modal observes the syntactic behavior of overt modals in the different languages. The Romance covert modal can select both an infinitive and a subjunctive; the Russian modal may select only an infinitive. Hence the distribution of the infinitive and subjunctive in the *wh*-existential construction is explained. Furthermore, the non-availability of the construction in English also receives a natiral explanation – English modals do not select clauses as complements.[27]

2.6 Conclusions

This chapter aimed to explain away an apparent counterexample to the generalization that free relatives cannot be non-finite. I presented a range of arguments, semantic,

[27] The fact that German does not have the *wh*-construction is explained differently from the English case – German independently does not allow infinitival questions.

morphological, and syntactic, that the *wh*-constituent in the *wh*-existential construction is not a free relative. Thus, the only reported putative case of a non-finite free relative is dismissed. This reaffirms the link between definiteness and finiteness.

In the course of the discussion I provided a comprehensive analysis of a phenomenon that has been considered a syntactic idiom because of the various constraints on its elements. I showed that the construction is in fact fully compositional. I was furthermore able to account for the cross-linguistic distribution and variability of the construction over a number of languages. The analysis developed here depended on a number of theoretical assumptions; to the extent that it is correct it provides support for the availability of existential quantification in Definiteness Effect environments, for abstract decomposition of predicates, for a multi-component treatment of modality with dissociability of the modal force from the modal base, and for particular semantics for free relatives and questions.

Chapter 3

Comparative Clauses are Free Relatives

This chapter defends the idea that free relatives play a role in the formation and interpretation of clausal comparatives. Specifically, I propose that the comparative clause - the complement of comparative *than* as in *Mary liked the movie more than John did* - is a DEGREE FREE RELATIVE. Degree free relatives are *wh*-structures that denote definite descriptions of degrees. The analysis of comparative clauses as free relatives is of interest for the general study of free relatives for several reasons. It broadens the class of phenomena involving free relatives (as the previous chapter of this dissertation did for concessive free adjuncts). It also provides possibly the first example of a free relative introduced by a non-overt *wh*-element (for English, German and some other languages at least). The availability of a null *wh* in free relatives argues against the head-analysis, and against the *pro*-head versions of the Comp-analysisis, being consistent only with the Move-and-Project account and the bare-CP account, both of which, as argued earlier in this dissertation, are appropriate for free relatives.

The reduction of comparative clauses to free relatives is also of relevance for the proper understanding of comparatives. This analysis allows for a uniform treatment of comparatives and subcomparatives (sentences like *Mary liked the movie more than John did the show*) in positing syntactic degree phrase movement and abstraction over degrees in both comparative and subcomparative clauses, despite their different surface forms. The uniform

treatment supports the view that comparatives are in fact antecedent-contained-deletion constructions. The proposal argues further against treating comparatives as coordinated structures, since the matrix IP and the free relative complement of *than* are not of the same syntactic category. Finally, the analysis of comparative clauses as free relatives has consequences for phrasal (sometimes known as reduced) comparatives (as in *Mary liked the movie more than him* and *Mary liked the movie more than the show*). There is a debate in the literature as to whether phrasal comparatives are derived through ellipsis in a clausal structure, or are directly generated. The proposal advanced here makes possible a restrictive view of the selectional properties of comparative prepositions, namely, an analysis which posits that *than* can only take nominal arguments - denoting either degrees (degree free relatives but also measure phrases such as *6 feet, 20 pounds*) or individuals. In turn, this motivates the argument that phrasal comparatives in which the complement of *than* is a (reduced) degree free relative, involve ellipsis, while phrasal comparatives in which the complement of *than* is an individual-denoting DP, are directly generated.

Apart from these issues directly concerning the status of comparative clauses as degree free relatives, the chapter makes several additional proposals about the general architecture of the comparative construction. I propose that gradable predicates have syntactically represented degree-arguments. This internal argument position of predicates such as *tall* or *books* is in fact the position out of which the degree *wh*-operator is raised. This is also the position where the comparative operator *er* and the *than*-clause are generated as sisters. This architecture is a variant of the classical analysis of comparatives, and like the classical analysis, it respects the semantic constituency of the comparative operator and the comparative clause. It however avoids some of the problems associated with the classical analysis, most notably the necessity of extraposition of the *than*-clause in the overt syntax. The analysis, furthermore allows for an account of subcomparatives that respects their sensitivity to islands but does not run into problems with left-branch extraction of a degree modifier.

3.1 Background

Comparatives were extensively studied throughout the 70's and 80's (cf. McConnell-Ginet 1973, Bresnan 1973, 1975, Cresswell 1976, Chomsky 1977, Klein 1980, 1982, Pinkham 1982, von Stechow 1984a, Heim 1985, Larson 1988, among others) and have not ceased to be of interest, inspiring, for instance, a number of recent dissertations (Moltmann 1992, Hendriks 1995, Kennedy 1997, Donati 1997, Lechner 1999). The lasting interest in the subject stems from the fact that the syntax of comparatives is fairly intricate and varied across types of comparative constructions, even within a language - not to mention the cross-linguistic variation; and while it is challenging enough to account for the variety of related structures in a uniformed and non-ad-hoc manner, it has proved even more difficult to unterstand how these structures map to LFs that can be interpreted straightforwardly and consistently.

This section presents an overview of the challenges facing any comprehensive analysis of comparatives, as well as some of the most influential approaches in the literature addressing those challenges. The purpose of this discussion is to identify the issues of controversy and to trace the history behind the development of the ideas that will be used in my own analysis. Before I begin the discussion of the main issues surrounding the structure and interpretation of comparatives, I will first list briefly the different types of comparatives that have been studied in the literature and that will be relevant to some extent or another in this chapter. This is meant to offer a perspective as to the range of data that needs to be accounted for[1] and to familiarize the reader with the terminology that has been adopted.

3.1.1 Classificatory Remarks

3.1.1.1 Gradability and Comparison

Comparatives are concerned with evaluating the relative extent to which entities can be attributed a certain property. The extents can be ranks on a natural scale such as age, height, weight, etc. (cf. (96a)) or more abstract but still scalarly ordered measurments (cf.

[1] An unfortunate fact concerning the literature on comparatives is that the majority of accounts address only subtypes of comparatives, e.g., only adjectival comparatives, and often these accounts are not easily extendable to other subtypes of comparatives.

(96b)). The domain of comparison may also be pluralities and substances; in this case the relative extents with respect to which individuals are compared are cardinalities (cf. (96c) and amounts (cf. (96d). These are also partially ordered according to some measure, e.g., the number sequence.

(96) a. John is older/a taller man/heavier than Bill.

b. John is smarter/more handsome/ than Bill.

c. John has more CDs than Bill.

d. John drank more wine than Bill.

The predicates of comparison - *tall, smart,* etc. - are GRADABLE predicates. Such gradable predicates may be considered to be of the same semantic type as non-gradable predicates - e.g., *Bulgarian, asleep,* etc. - but imposing a particular restriction on their domains. Alternatively, gradable predicates may be assigned a different semantic type than non-gradable predicates. These two views correspond to two approaches in the literature to the semantics of gradable adjectives. One approach (cf. McConnell-Ginet 1973, Klein 1980, 1982, 1991) treats all adjectives as functions from individuals to truth-values. Thus both *tall* and *Bulgarian* are analyzed as properties of individuals, of type <e,t>:

(97) a. $[\![tall]\!] = \lambda x[\text{tall}(x)]$

b. $[\![Bulgarian]\!] = \lambda x[\text{bulgarian}(x)]$

Where gradable adjectives differ is in their domains. The domains of gradable adjectives are partially ordered with respect to some property, in the case of *tall* the property being height (cf. (98)) . No such ordering is imposed on the domains of non-gradable adjectives (cf. (99)).

(98) $D_{tall} = \{... < \text{John} < ... < \text{Mary} < ... < \text{Bill} < ... < \text{Sue} < ...\}$

(99) $D_{Bulgarian} = \{...\text{John, Mary, Bill, Sue}...\}$

Furthermore, the domain of gradable adjectives is partitioned into a positive and negative extension (and possibly an undefined extension; cf. Klein 1980, 1982) according to a contextually determined standard value. Thus, given only the partial ordering in (98),

it is not possible to evaluate the truth of *x is tall* for any individual x from the domain of *tall*. What is also necessary is the contextual identification of at least two non-intersecting subsets of the domain of *tall*: tall_{pos} and tall_{neg}. If an individual is in the positive extension, tall_{pos}, then the property *tall* may be truthfully predicated of that individual. Conversely, if an individual is member of the negative extension, tall_{neg}, *x is tall* would be false for that individual. If the partitioning includes the neutral extension, tall_{neut}, and an indivudual was in that extension, then *x is tall* would lack a truth-value for that individual. The same individiual may be a member of either extension, depending on context (cf. (100)-(101)).

(100) Context 1

a. $\text{tall}_{pos} = \{\text{Bill, Sue}\}$

b. $\text{tall}_{neut} = \emptyset$

c. $\text{tall}_{neg} = \{\text{John, Mary}\}$

(101) Context 2

a. $\text{tall}_{pos} = \{\text{Sue}\}$

b. $\text{tall}_{neut} = \{\text{John, Mary}\}$

c. $\text{tall}_{neg} = \{\text{Bill}\}$

The second approach to the semantics of gradable adjectives assigns them a different semantic type than that of non-gradable adjectives (cf. Cresswell 1976, von Stechow 1984, among many others). According to this approach, gradable adjectives establish a relation between objects in their domain and DEGREES, which are abstract representations of measurment. Gradable adjectives are thus of semantic type <d, <e,t>>. (Non-gradable adjectives are still properties of individuals).

(102) a. $[\![\textit{tall}]\!] = \lambda d \lambda x[\text{tall}(d)(x)]$

b. $[\![\textit{Bulgarian}]\!] = \lambda x[\text{bulgarian}(x)]$

Conceptually, degrees correspond to ranks on a scale. In the case of *tall* the scalar dimension is height; thus degrees correspond to measurements such as e.g., 5'4". A gradable predicate such as *tall* would assign a degree of height to every individual in its

domain. Under this approach there is no need to order the individuals in the domain of *tall*; the partial ordering will fall out of the fact that the respective degrees are relatively ordered, e.g., 5'4" < 6'. The truth-value of propositions such as *x is tall* for a given individual *x*, is detemined based on a contextually identified, standard-denoting degree. Thus if the standard degree is d_s, *x is tall* is true of any *x* that is at least as tall as d_s. As an illustration, suppose the domain of *tall* includes the individuals in (98) (though now they are not ordered cf. (103)), and their respective heights are as in (104). Depending on the different value of the standard degree in different contexts, *tall* may be predicated truthfully or not of the same individual.

(103) D_{tall}= {...John, Mary, Bill, Sue...}

(104) tall(j, 5'6"), tall(m, 5'8"), tall(b, 5'9"), tall(s, 5'10")

(105) Context 1 d_s=5'8"

a. [[John is tall]]= 0

b. [[Mary is tall]]= 1

c. [[Bill is tall]]= 1

d. [[Sue is tall]]= 1

(106) Context 2 d_s=5'9"

a. [[John is tall]]= 0

b. [[Mary is tall]]= 0

c. [[Bill is tall]]= 1

d. [[Sue is tall]]= 1

The above discussion was only meant to introduce the basic notions in the semantic treatment of gradable predicates. An excellent overview and a critique of the two approaches, as well as a discussion of some additional semantic properties of gradable adjectives is found in Kennedy 1997.

The degree is a cover concept that encompasses not only ranks on scales but also amounts and cardinalities. Analogously to the approaces to gradable adjectives outlined

above, plural and mass nouns may be conceived of as either properties of individuals (cf. (107a)) or relations between individuals and degrees (cf. (107b)).

(107) a. $[\![books]\!] = \lambda x[\text{books}(x)]$

b. $[\![books]\!] = \lambda d \lambda x[\text{books}(d)(x)]$

In (107b) *books* is a predicate that relates a (plural) individual x and a degree (number) d, such that x consists of d(-many) books. The relational analysis of count and mass nouns goes back to at least Cresswell 1976, see also Krifka 1989.

3.1.1.2 Types of Comparative Constructions

The grammatical category of gradable expressions

Comparatives differ as to the category of the gradable expression that forms the basis of comparison: the gradable expression can be an adjective (as in (108)), an adverb (as in (109)), a noun phrase (as in (110)), and a verb phrase (as in (111)). Comparative adjectives appear in both predicative and attributive positions (cf. (108a,b), respectively). Similarly, comparative adverbials may be deeper embedded inside other phrases (cf. (109b).

(108) a. John is more/less talented than Bill is.

b. John listened to a more/less talented musician than Bill did.

(109) a. John runs faster than Bill does.

b. John works for a faster growing company than Bill does.

(110) John has more/fewer CDs than Bill does.

(111) John likes Bach more than Bill does.

Comparatives of difference and equality

The above examples, formed with the comparative determiners *more*, its allomorph *-er*, and *less*, are sometimes properly called COMPARATIVES OF DIFFERENCE.[2] COMPARATIVES OF

[2]Apart from the difference in meaning, the comparative operators *more/as/less* may differ in syntax as well. For instance it is possible to think of *less* as further decomposable into *more little* or *more few*; this is the analysis in Bresnan 1973, 1975 among others, and this is also how *less* is expressed in some languages, e.g. the Bulgarian *po-malko* lit. 'more-little'.

EQUALITY, or EQUATIVES are illustrated below:[3]

(112) a. John is as talented as Bill is.

b. John is as talented a musician as Bill is.

(113) a. John runs as fast as Bill does.

b. John works for as fast growing a company as Bill does.

(114) John has as many CDs as Bill has.

(115) John likes Bach as much as Bill does.

Clausal and phrasal comparatives

Depending on the category of the post-*than/as* material, comparatives can be CLAUSAL or PHRASAL. All the above sentences were examples of clausal comparatives, since comparative *than/as* was followed by a clause (containg a gap), e.g., *Bill is, Bill does.* These clausal comparatives also have phrasal counterparts, in which *than/as* is followed by just a DP. Consider the sentence in (116).

(116) I saw a taller man than John/him.

Languages that mark case overtly, fall in two groups with respect to the case of the DP complement of *than/as*. In English and Bulgarian a pronoun in that position will bear objective/accusative case. In German and Dutch, the case will depend on the grammatical role of the DP with respect to the predicate of comparison. Note that sentence (116) is ambiguous between the readings below:

(117) a. I saw an x such that [x is a taller man than John].

b. The man I saw is taller than the man that John saw.

[3]Note that attributive equatives cannot have the syntax in (108b), which is available to attributive comparatives of difference:

(i) *John is a(n) as talented musician as Bill is.

On the other hand, attributive comparatives of difference may also have the structure in (112):

(ii) John is more/less talented a musician than Bill is.

I do not currently have an explanation of this curious fact.

In (116) the complement of *than* would bear accusative in the reading in (116a), and nominative in (116b), corresponding to the grammatical role of *John* in the expanded paraphrase. Accounts in the literature differ as to whether they derive phrasal comparatives from clausal comparatives through ellipsis (Pinkham 1982, Bierwisch 1989, Lechner 1999) or whether they suggest that phrasal comparatives may be base-generated as such (cf. Hankamer 1973, McConnell-Ginet 1973, Napoli 1983, Heim 1985).

Subcomparatives

A subtype of the comparative construction - known as a SUBCOMPARATIVE - evaluates the relative degree to which indivuduals posses a *different* though in some sense a commensurate property. Thus whereas (108a) compares *John* and *Bill* with respect to the degree in which they have the same property *talented*, (118a) compares them with respect to the degree in which they have a different property, *talented* and *prolific*, respectively.

(118) a. John is as talented as Bill is prolific.

b. John has more CDs than Bill has records.

Comparatives of degree and of identity

Finally, all of the above examples involve comparison between individuals with respect to a gradable expression (height, quantities of CDs, speed of running, etc.). They are sometimes called COMPARATIVES OF DEGREE, as they compare the degree to which individuals rank on the natural scale associated with the gradable expression. There are also related constructions, which can be called COMPARATIVES OF IDENTITY (Heim 1985, 1999). These can compare any entities which are not necessarily ranked on a scale, cf. (119):

(119) a. John saw the same woman as Bill did.

b. John saw a different woman than Bill did.

This chapter will only be concerned with comparatives of degree. I suspect that comparatives of identity may be analyzed as containing KIND FREE RELATIVES - the sort of free structures that correspond to the headed relatives discussed in Heim 1987 and instantiated in examples such as *They no longer make the chocolates that we used to have when we were little.*

3.1.2 Outline of the Main Issues

As I mentioned above, one of the reasons comparatives continue to be of interest to syntacticians and semanticists alike is that there are intricate problems of structure and interpretation, and in particular, of mapping the one to the other. As an illustration of some of the complexities involved, consider the following example.

(120) Fred is taller than Bill is.

The interpretation of the comparative sentence is clear: (120) asserts that Fred's height exceeds Bill's height. How to achieve that interpretation given the syntax is less clear, and it is also not obvious what the syntax itself is. It is agreed on that (120) has a biclausal structure: one clause containing the comparative adjective - *Fred is taller* - and the other containing a gap of some sort - *Bill is*. The controversy in the literature concerns the relationship of the two clauses to each other, which depends on the role of *than* as a coordinating conjunction, a subordinating complementizer, or a preposition; the category of the gap in the second clause and the mechanisms for its identification; as well as the overall role of the comparative operator *-er*.[4]

The main syntactic issues can be summarized as follows; in each case the questions are meant to address both the derivational history and the syntax of LF:

(121) a. the structural position of the comparative clause

b. the place of the comparative operator *-er* in the syntactic structure

c. the structural position of the predicate of comparison *tall*

d. the internal syntax of the comparative clause

The first three questions are clearly closely related and they determine the general architecture of the comparative construction. The last question, although seemingly restricted to the comparative clause, has repercussions for the external position of the comparative clause and thus for the overall syntactic structure of the comparative.

[4] As commonly used in the literature, *-er* stands for both the inflectional and the analytic variant *more* of the comparative operator.

Under an approach that ties closely semantics to syntax, the answers to the above questions will also determine the steps in the semantic composition and the interpretation assigned to the main syntactic components involved - the comparative operator, its correlate *than*, the matrix predicate of comparison, and the comparative clause.

The discussion that follows is meant to briefly present some of the approaches to the above questions that have been argued for in the literature. The main objective is to convey the general ideas and trace their developments, as well as clarify some of the terminology.

There are three general classes of theories regarding the overall architecture of the comparative construction. The classical view of the comparative (Bresnan 1973, 1975 and others) assigns (120) a structure with a predicative main clause (similar to *Fred is that much tall*) and a subordinate comparative clause - the complement of *than* - which, somehow in combination with the comparative operator *-er*, modifies the main clause predicate, i.e., functions analogously to the *that much* in the corresponding predicative sentence *Fred is that much tall*. An alternative view considers the constituency relationships inside the comparative to be the reverse - the comparative operator *-er* is a sister to the gradable expression *tall*, with the *than*-clause adjoining to this constituent (cf. Larson 1987, 1988, Abney 1987, and others). Yet another view treats sentences such as (120) to be conjunctions of clauses (cf. Hankamer 1973, Napoli 1983)[5] or assigns comparatives a coordinate structure at some point in their derivational history (cf. Moltmann 1992, Lechner 1999)[6].

The comparative operator appears to have a close syntactic relationship with the predicate of comparison. It may plausibly be said to be similar to other modifiers such as *very*

[5]Corver 1990, 1993, defends the position that a subset of comparatives, namely subcomparatives (as in (i)), involve coordination of clauses.

(i) Fred is taller than the door is high.

[6]Moltmann 1992 proposes a three-dimensional structure for comparatives according to which they involve simultaneous subordination and coordination. Lechner 1999 derives a coordinate structure for a subset of comparatives, namely phrasal comparatives (as in (6)), through extraposition of the *than*-clause from an initially subordinate base position.

(ii) (a) She drank more beer than him.

(b) She drank more beer than wine.

or *so* and measure phrases such as *6 feet*, as in (122), which arguably form constituents with the predicative adjective, as evidenced by the movement facts. If that is the case, then the comparative operator may be thought to be within the same projection as the adjective, a possibility underscored by the facts of morphology - the realization of the comparative operator as an inflection on certain adjectives.[7]

(122) a. Fred is *very/so* tall.

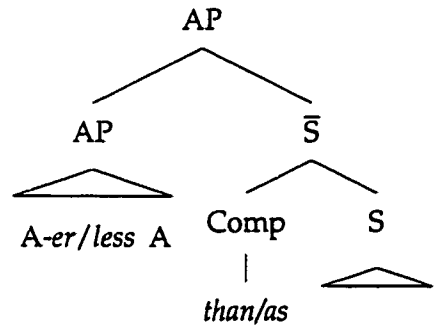
b. Fred is *6 feet* tall.

c. [Very tall] Fred is not.

d. [How tall] is Fred?

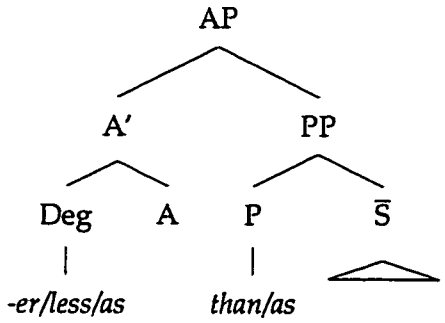
The view that the comparative operator forms a constituent with the adjective of comparison is held by e.g., Larson (1987), Larson (1988a), Abney (1987), Corver (1990), Kennedy (1997), among others. Larson assumes structures where the comparative operator adjoins to, or is a specifier to the comparative AdjP; the other studies adopt the spirit of the DP-hypothesis (Abney 1987), and treat the comparative operator as a Degree head taking the AdjP as its complement. As in illustration, consider the trees in (123)-(125).

(123) Larson (1987)

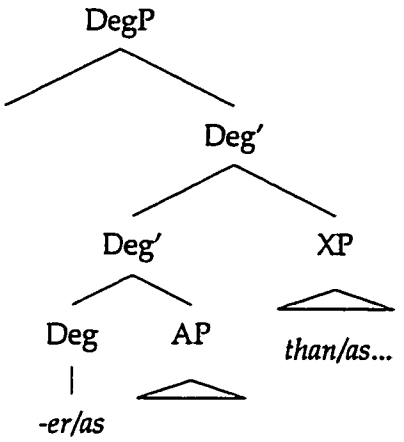


[7]The generalization is that monosyllabic adjectives, e.g. *rich* and bisyllabic adjectives ending in a vowel, e.g., *witty, shallow* have inflectional forms for the comparative and the superlative, whereas the remaining adjectives have analytic forms, e.g. *more/most intelligent.*

(124) Larson (1988a)



(125) Abney (1987), Corver (1990), Kennedy (1997)



The analyses that first compose the comparative operator with the predicate of comparison, have to treat the comparative clause as coming later in the structure. We see this feature in all of the above structures. Larson (1987) considers the *than/as*-phrase (for him an $\bar{S}$) an adjunct attached to the maximal projection of the first compared constituent. The main objection against the structure in (123) is that the relationship that it proposes between the comparative determiner and its first argument, on the one hand, and the *than/as*-phrase on the other, is far too loose. Arguably, this relationship is much closer than that between a phrase and its appositive modifier. A number of arguments have been put forward in the literature arguing for a direct syntactic and semantic relationship between the comparative operator and the comparative clause and these arguments will be examined below. For now it is sufficient to note that the structure in (145) is not an

adequate representation of the comparative construction.[8]

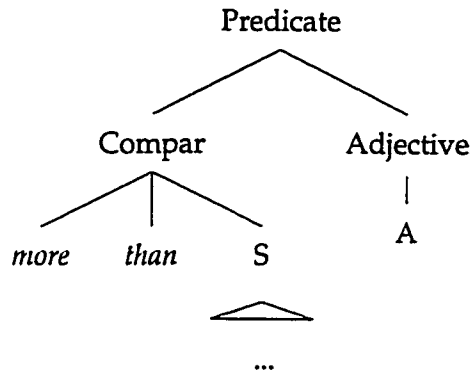
In Larson (1988a) the comparative clause is treated as a specifier of the first compared constituent, though to the right. The move is towards a representation of a closer relationship between the comparative clause on the one hand, and the predicate of comparson and comparative operator on the other. Finally, in the analyses proposed by Abney (1987) and adopted in Corver (1990) and Kennedy (1997), an important step is taken towards giving the comparative operator a central role in the structure, one presumably corresponding to its semantics. The comparative determiner is the head of the whole construction and not simply a modifier of the main clause predicate of comparison. The comparative clause is adjoined even lower. Essentially, this structure is similar to the structure that was commonly attributed to bitransitive verbs before the VP-shell analysis of Larson (1988b).

An alternative view to the analyses discussed above is that the comparative operator first forms a constituent with the comparative clause. This is the analysis advocated in the earlier syntactic theories of comparatives (e.g., Chomsky 1965, Bresnan 1973, Hendrick 1978) and employed recently in Heim (2000), as well as in aspects of Larson's (in progress), Izvorski's (1995a), and Lechner's (1999) accounts. The constituency of the *than/as*-phrase with the comparative determiner is desirable from a semantic point of view, as will become clear in section 3.2. An attractive syntactic result is that the discontinuous dependencies *more/less...than* and *as...as* can be accounted for easily. Chomsky's and Bresnan's accounts are very similar in that they combine the constituent formed by the comparative operator and the comparative clause with the main clause predicate as a degree modifier. These accounts are illustrated in (126a, b). Hendrick treats the *-er* + comparative clause constituent as a sentential adjunct, necessitating different means of composition with the first comparative argument.

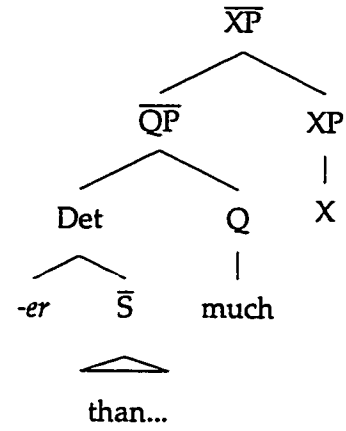
[8]This line of reasoning is related to the argumentation that has been advanced in favor of a syntactic distinction between restrictive and non-restrictive relative clauses (Partee 1975, Jackendoff 1977). The proposal is that restrictive relatives are attached at the level of N' while appositives are adjoined higher, to the NP. Among the differences that this syntax is supposed to capture is the observation that the head of an appositive relative has reference independent of its modifying clause, while the head of the non-restrictive relative does not. Of course, an appropriate semantics is available for restrictives attached at the level of NP, as argued in Bach and Cooper 1978, but see Srivastav 1991 on why the syntactic distinction must still be maintained despite their arguments.

(126) Chomsky (1965), Bresnan (1973)

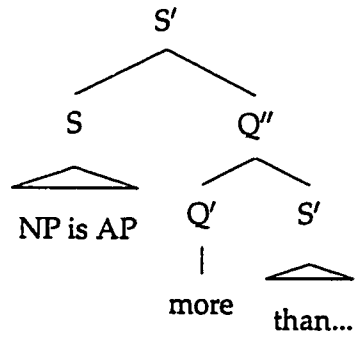
a.



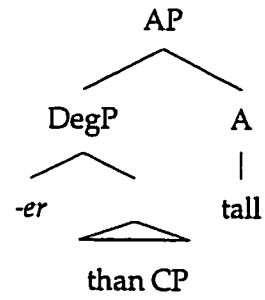
b.



(127) Hendrick (1978)



(128) Heim (2000)



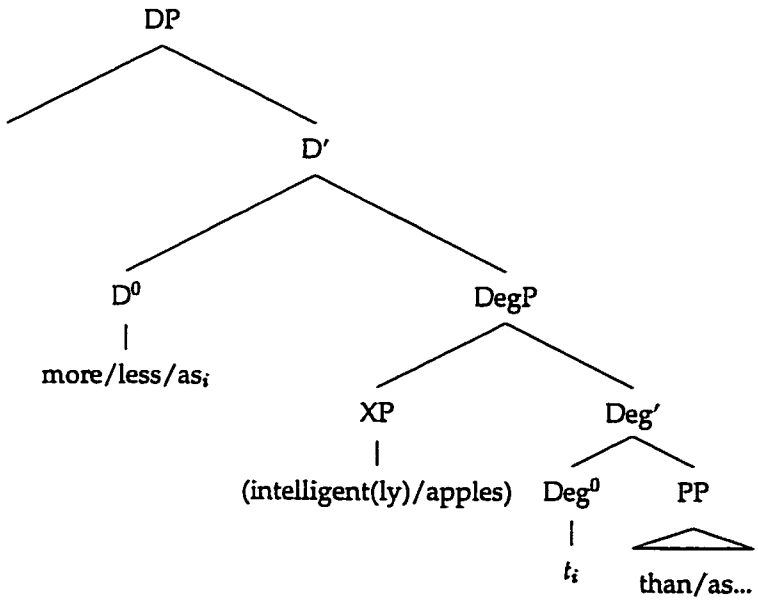
Under Chomsky's and Bresnan's account in (126a, b), the *than*-phrase obligatorily extraposes out of (what is effectively) the specifier position of AP and adjoins to that AP. The problem is that this movement is not motivated by anything apart from the need to derive the correct surface word order. Furthermore, it has been argued in Heim 2000 that the *than*-clause takes scope together with the comparative operator; presumably,

such an analysis would necessitate reconstruction of the *than*-clause after the extraposition, followed by operator-rasing of the reconstructed clause. And worse still, such a left-branch extraction is in principle excluded in English: *very easily recognizable* → **very recognizable easily*.

For Hendrick (1978), who discusses only adjectival comparatives, the constituent formed by the comparative determiner and the *than*-phrase is effectively adjoined at the sentence level. Movement of the comparative determiner out of the adjunct phrase into the specifier position of AP is required to derive the correct word order. Again, this movement is both unmotivated independently of word order considerations and impossible to justify theoretically. In addition, the underlying representation would be wrong if extended to nominal comparatives (see section 4.3).

Accounts that adopt the position that a Deg^0 heads gradable predicates, and that assign a sisterhood to the comparative operator and the comparative clause, are those of Larson (in progress), Izvorski 1995b, Lechner 1999. These posit a shell-structure, in which the Deg^0 moves to a higher functional head. Such accounts avoid the problems associated with positing extraposition for the comparative clause, while having the semantic advantages of generating the comparative operator and the comparative clause as a constituent.

(129) Larson (in progress), Izvorski (1995b), Lechner (1999)



Later accounts of the comparative construction try to remedy the inherent problems of these early proposals. In examining the more recent analyses of comparatives, my purpose is to emphasize the fact that there is a trend towards closer representation of the semantic constituency in the syntax. The proposal that I eventually develop here is a logical continuation of this tendency towards a compositional semantics for comparatives.

Having examined the main issues for the syntax-semantics mapping in comparatives, we can now turn to the central argument defended in this chapter: that comparative clauses are degree free relatives.

3.2 The Degree Free Relative Analysis of Comparative Deletion

As discussed above, one of the many interesting issues raised by comparatives is the structure of the comparative clause. In particular, the comparative clause contains implicit content represented by a syntatic gap *e*. The category of that gap is different across comparative constructions. For instance, the sentences in (130) are representative of the range of clausal comparatives:

(130) a. John has more books than Bill has *e*.

b. Ann is less happy now than she was *e* before.

c. Phil runs as fast as George does *e*.

d. Mary liked the movie more than she expected *e*.

In (130a), the syntactic category of the gap is that of a DP; in (130b) the gap is a predicative adjectival phrase; in (130c) it is a VP; and in (130d) it is likely a clause[9]. The underlying structure is illustrated in (131) (constituents marked with ∅ are non-overt):

(131) a. John has more books than Bill has [∅ *x-many books*].

b. Ann is less happy now than she was [∅ *x-much happy*] before.

c. Phil runs as fast as George does [∅ *run x-much fast*].

d. Mary liked the movie more than she expected [∅ *to like the movie* x-much].

[9]Infinitives are sometimes analyzed not as clauses but as VPs; see e.g., Larson, Iatridou, Lahiri, and Higginbotham 1992 for an overview of approaches.

The question is how the gap is derived - through ellipsis, through a syntactic mechanism such as movement, or a combination of both.

It is now more or less generally accepted that comparative clauses are *wh*-structures, although there is no agreement as to the exact category of the comparative *wh*-operator. The idea pursued in this chapter is that comparative clauses involve *wh*-movement of the *x-many/x-much* degree phrase in (131) (although the base position of the degree phrase will be argued to be not of a pre-head modifier but of an internal argument of the gradable expression) and that the rest of the gap in the comparative clause is derived through ellipsis. This account differs from the syntactic analysis commonly adopted for comparatives, i.e., the classical analysis of Chomsky (1977) and its most recent instantiation in Kennedy (1997). The classical analysis posits syntactic movement of the gradable expression in the comparative clause - a nominal phrase, an adjectival phrase, or an adverbial phrase, depending on the category-type of the comparative. The degree-extraction analysis, however, has semantic advantages, and in addition, it allows for a unified account of comparatives and subcomparatives. The degree-extraction analysis is in fact adopted in some of the semantic literature on comparatives (cf. Heim 1985, 1999, 2000, Rullmann 1995). No syntactic arguments in its favor, however, have been given, as far as I am aware, and the most straightforward degree phrase movement account runs into syntactic problems. This chapter thus aims to justify syntactically the semantically motivated account of comparative deletion in terms of degree phrase extraction. It further investigates the idea that the *wh*-movement of the degree phrase in the comparative clauses is necessary for the formation of a free relative structure. Specifically, I argue that comparative clauses are free relatives of a particular kind - namely DEGREE FREE RELATIVES. Aspects of the idea that comparative clauses are free relatives can be attributed originally to Larson (1987), who proposes that adjectival free relatives such as *however tall Bill is* are not in fact relatives but "free comparatives". While the spirit behind the analysis proposed here is similar, the suggested reduction goes in the opposite direction: comparative clauses are not a primitive type of the linguistic system such that they would come in a "headed" and a "free" variant; rather comparative clauses instantiate a specific kind of a free relative.

Given the large amount of attention devoted to comparatives and to free relatives independently, it is somewhat surprising that the comparative clause-free relative parallel

has not been discussed much. I previously made the proposal that comparative clauses are free relatives in Izvorski (1995b); I had since found out that an earlier study arguing for the same idea is Grosu (1994). The only other study defending the idea, as far as I am aware, is Donati (1997).[10] None of these studies, though, makes the particular proposal that comparative clauses are a specific kind of free relative, namely one of degree. This distinction is crucial, since entity-denoting free relatives do occur in comparatives, but as an instance of phrasal comparatives. Furthermore, even studies which examine comparatives and free relatives in parallel (e.g., Andrews 1985, Rullmann 1995) do not draw the conclusion that comparative clauses are free relatives. Finally, den Besten (1978) and Hazout (1995) have given some arguments that comparative clauses should not be analyzed as free relatives. This is the extent to which the issue has been considered in the literature, as far as I can see. Given all that, the idea that comparative clauses are reducible to free relatives clearly needs a justification in order to be accepted. My goal in this chapter is to present the evidence in favor of such a reduction and to examine its implications for the overall design of the syntax-semantics mapping in comparatives.

It is important to stress that the proposal being defended here is not just that comparative clauses of the standard variety (e.g., *John is taller than Bill is*) are free relatives but that, specifically, they are degree free relatives. The arguments presented by den Besten (1978) and Hazout (1995) against the idea that comparative clauses are free relatives are valid but crucially, they concern entity-denoting free relatives - the type that occur in DP positions. Entity-denoting free relatives, of course, are the most commonly discussed cases of free relatives in the literature and perhaps for that reason they alone were considered (and correctly rejected) as candidates for the analysis of comparative clauses. What has not been considered is the possibility that comparative clauses are not entity-denoting free relatives but degree-denoting free relatives. Finally, it needs to be emphasized that this proposal concerns the common variety of comparative clauses which in English and some other languages such as German, Dutch, or French are normally introduced by null *wh*-elements. Comparative *than* can in principle take entity-denoting free relatives as complements, just as it does ordinary DPs (cf. *John is taller than her*).

[10]Donati 1997 also attributes the idea that comparative clauses are free relatives to Bracco 1980, a study which I have not seen.

The next subsection presents briefly the arguments in favor of a *wh*-movement analysis of comparatives and the following subsection argues that subcomparatives too involve *wh*-movement. Then subsection 3.2.3 presents a unified analysis of comparative deletion and subdeletion in terms of degree abstraction. Finally subsection 3.2.4 argues that the degree abstraction observed in (sub)comparatives is part of the formation of a free relative.

3.2.1 Comparative Deletion Involves *Wh*-Movement

In one of the earliest syntactic analyses of comparatives, Chomsky 1965 (chapter 4) proposes that comparatives involve deletion under identity.[11] The comparative clause is posited to have the same basic structure as the main clause with the gap resulting from a deletion of a constituent in the comparative clause under identity with its main clause correlate. Thus in an example such as (132a) the underlying structure is (132b):

(132) a. John is more clever than Bill is.

b. John is more than [Bill is clever] clever.

The adjective *clever* in the comparative clause is deleted because it is the same as the main clause predicate.[12] A final option is to delete the comparative clause copula. Thus, even though in this early syntactic analysis of comparatives, essentially the same operation – erasure of phonological strings – is responsible for comparative deletion and for ellipsis of syntactic material in the rest of the comparative clause, still the two operations are kept distinct.

Following this early non-movement analysis of comparatives, Ross 1967 observes that comparatives obey islands; this provides the foundation for the analysis of comparatives

[11] Chomsky 1965 attributes the deletion-under-identity idea to Lees 1961 and Smith 1961.

[12] As Chomsky 1965 further points out, features such as gender and number should not count for the purposes of establishing identity, in light of examples such as the French (i):

(i) Ces hommes sont plus intelligents que Marie
these men are more intelligent-MASC.PL. than Mary
'These men are more intelligent than Mary.'

The adjective in the comparative clause will be feminine and singular, whereas the one in the matrix clause is masculine and plural. Of course, it may be the case, that example (i) is a case of a directly generated phrasal comparative, in which case the issue of deletion does not arise. Such considerations are also of relevance only for lexicalist theories or for theories positing the addition of agreement features in syntax. Halle and Marantz 1993 propose that agreement features are added to structures only after Spell-Out.

in Chomsky 1973 and Vergnaud 1974 in terms of *wh*-movement. In what has become a classic analysis of comparative formation, Chomsky 1977 argues that the comparative clause involves *wh*-movement of the entire compared phrase followed by a deletion of the compared phrase in its moved operator position (cf. (133)). The movement is syntactically identical to the corresponding one in questions (cf. (134)):

(133) John has more books than [[*wh*-many books]$_i$ Bill has t$_i$]

(134) [*How*-many books]$_i$ does Bill have t$_i$?

This analysis is largely adopted in the literature, e.g. den Besten 1978, Taraldsen 1978, Grimshaw 1987, Larson 1988, Corver 1990, 1993, Moltman 1992, Kennedy 1997, among others. Importantly, it entails movement of distinct syntactic constituents in nominal, adjectival, and adverbial comparatives. As (135a, b) show, the category of the comparative operator would be an adjectival phrase in adjectival comparatives and an adverbial phrase in adverbial comparatives, just as the comparative operator is a nominal in nominal comparatives (cf. (133)). Presumably, in attributive comparatives, a Chomsky 1977 type of analysis would posit a nominal comparative operator, as in (135c). All the posited movements correspond syntactically to the respective movements in questions of AdjPs, AdvPs, and DPs with an attributive modifier.

(135) a. Ann is less happy now than [$\emptyset$ *wh-much happy*]$_i$ she was t$_i$ before.

b. Phil runs as fast as [$\emptyset$ *wh-much fast*]$_i$ George does [$\emptyset$ run t$_i$].

c. Chris knows better musicians than [$\emptyset$ *wh-much* good musicians]$_i$ Ann does [$\emptyset$ know t$_i$].

Different syntactic accounts still relying on *wh*-movement are proposed in Izvorski 1995b, Donati 1997, Lechner 1999; these will be discussed further below.

The best articulated alternative to the *wh*-movement analysis is due to B· . .nan 1973, 1975. She discusses island effects in the comparative clause yet still argues that comparative clauses involve no movement but only deletion under identity. Bresnsn's point is that island effects are not necessarily the result of a movement operation but may be found in deletion operations as well. In addition to the island effects Bresnan observes

that comparative clauses exhibit cross-over effects, another by now common diagnostic for movement, but again argues that cross-over phenomena cover both movement and deletion cases. However, Bresnan's arguments that islands and cross-over effects cover a larger domain of linguistic phenomena than those that can be accounted for by movement, are problematic. As an example of island effects that are not due to movement she points to multiple questions (Bresnan 1975, ex. (43) and (44)). But, of course, subsequent research has taken the position that the in-situ *wh*-word is subject to movement (cf. May 1977, 1985; Huang 1982; Pesetsky 1987, 1998; Richards 1997; among many others). Aother argument that islands are found in cases not involving movement comes from *as*-relatives, according to Bresnan 1975. She gives examples such as (136) (her example (42)) to illustrate the presence of island effects and also examples like (137) (her (32)) to illustrate weak cross-over effects.

(136) a. Such problems as we believe (*the claim) that there may be will not be insuperable

b. *Such problems as there are solutions and *e* cannot be insuperable.

c. *Such problems as that there will be *e* is likely will not be insuperable.

(137) a. Such students as e_i were given C's by their$_i$ teachers...

b. *Such students as their$_i$ teachers gave C's to e_i...

Bresnan relies on the assumption that since *as*-relatives do not contain an overt *wh*-word, they cannot be claimed to involve movement. It is possible to give an alternative account to her explanation, though. In particular, it may be argued that *as*-relatives involve not an abstraction over individuals but abstraction over kinds. In their discussion of kind (and amount) relatives, Carlson 1977 and Heim 1987 point out that these relative constructions exhibit particular restrictions on the complementizer introducing them (e.g., (138)) and on the determiner accompanying the head noun (e.g., (139)) when the gap is in the position open to the Definiteness Restriction:

(138) a. You no longer see the telephones that there were *e* in my grandmother's time.

b. *You no longer see the telephones which there were *e* in my grandmother's time.

(139) a. Every tram that there was *e* in my grandmother's time has been replaced by a new model.

b. *Some tram/*most trams/*three trams that there were *e* in my grandmother's time have been replaced by a new model.

The details of Carlson's and Heim's proposals (cf. also Grosu and Landman 1998) are not of immediate relevance right now. The common analysis is that the *wh*-operator in kind relatives is of a different semantic category to that of the *wh*-operator in restrictive relative clauses. Thus an acount of kind relatives as *wh*-constructions is possible.

I propose that the *as*-relatives discussed by Bresnan 1975 are an instance of kind relatives. In fact Bresnan already has examples where the gap in *as*-relatives is in the *there is* construction; in such cases the choice of relativizer is as in (138) where the relativizer that abstracts over individuals is prohibited (example (140a) is Bresnan's (30b) and example (140b) is her (31b)):

(140) a. Such women as there were on the playing field...

b. *Such women who there were on the playing field...

Similarly, the choice of determiner to accompany the head noun in *as*-relatives is the same as the one illustrated in (139): strong determiners with the exception of *most* are allowed and weak determiners (and *most*) are prohibited:

(141) a. Every such woman as there was on the playing-field...

b. *Some/most/three such women as there were on the playing field...

Thus, Bresnsn's argument that *as*-relatives do not involve *wh*-movement is countered by the proposal that *as*-relatives are an example of kind-relatives. Given that, *as*-relatives cannot be taken as a phenomenon which observes islands and exhibits cross-over effects yet is derived in a non-movement fashion.[13]

Given the explanations presented above, it becomes clear that Bresnan's proposal that comparative clauses do not involve *wh*-movement has no independent empirical

[13]Bresnan's 1975 reference to Japanese relatives as being another case where cross-over effects are present but no *wh*-movement analysis is available, is insufficiently detailed to allow an alternative analysis.

motivation. The main force of Chomsky's 1977 argument is that positing movement as the sole source for island effects and cross-over effects is empirically adequate and is furthermore to be preferred on conceptual grounds since an additional rule of the grammar, governed by the same constraints as *wh*-movement, would be superfluous. With these considerations in place, the *wh*-movement account of comparatives has become predominant.

It is interesting to note that essentially the same debate has taken place over the proper analysis of free relatives. Recall that Bresnan and Grimshaw 1977 are the main proponents of a variant of the deletion analysis: they treat the gap in free relatives as a null pronominal interpreted under identity with the external *wh*-head of the free relative (under the head-analysis of free relatives). Groos and van Riemsdijk 1979 and others have argued that free relatives involve *wh*-movement (the Comp-analysis).

What follows is an illustration of the island and cross-over effects exhibited by the comparative clause.

3.2.1.1 Island effects

All but the last two of the following examples are modified from Bresnan 1975. All examples are self-explanatory and thus simply listing them will be sufficient for our purposes.

COMPLEX NPS:

(142) a. *We ended up buying more oranges than we had discussed a plan to buy.

b. We ended up buying more oranges than we had planned to buy.

SENTENTIAL SUBJECTS:

(143) a. *You have more friends than that he has is likely.

b. You have more friends than it's likely that he has.

COORDINATE STRUCTURES:

(144) a. *Dean drank more booze than Frank drank milk and Martha drank/did.

b. Dean drank more booze than Frank did and Martha did.

WH-ISLANDS:

(145) a. *We bought more apples than they wondered whether to buy.

b. We bought more apples than they wanted to buy.

NEGATIVE ISLANDS:

(146) a. *The door is higher than the window is not.

b. The door is higher than the window is.

3.2.1.2 Cross-over phenomena

It has been known at least since Postal 1971 that *wh*-movement over a coindexed pronoun results in ungrammaticality (see also Koopman and Sportiche 1982, Safir 1986, among others). In cases where the pronoun c-commands the *wh*-trace, the offending phenomenon is one of strong cross-over. Consider as an illustration the sentences in (147). In (147a) the pronoun *they* does not intervene in the *wh*-chain established between the relative pronoun and its trace. As a result, a coindexed interpretation for the pronoun is possible. Not so in (147b): here *they* c-commands the trace and as a result a coindexed interpretation is not permitted. This is an example of the strong cross-over effect.

(147) a. The students$_i$ who$_i$ t_i thought they$_i$ would flunk didnt't flunk.

b. The students$_i$ who$_i$ they$_{*i}$ thought t_i would flunk didnt't flunk.

Weak cross-over, on the the other hand, arises when the intervening pronoun does not c-command the *wh*-trace. Consider the sentences in (148) (Bresnan's 1975 ex. (23)):

(148) a. Which students$_i$ t_i were given C's by their$_i$ teachers?

b. Which students$_i$ did their$_{*i}$ teachers give C's to t_i?

In (148a) the the pronoun *they* can be interpreted as co-indexed with the *wh*-chain, as the pronoun does not intervene. This interpretive possibility is absent in (148b) where the

pronoun intervenes betewwn the head and the foot of the *wh*-chain, without c-commanding the trace.

Importantly, comparative clauses exhibit cross-over phenomena. Example (149) is Bresnan's 1975, ex. (16); it illustrates the strong cross-over effect in comparatives. Because the comparative deletion site in (149a) is higher in the structure than the pronoun *they*, coindexation with the interpreted element *students* in the position of the gap is possible. The structure in (149) is minimally different. There, the pronoun *they* c-commands the gap in the comparative clause and coindexed interpretation is not permitted. The facts receive a straightforward explanation if we consider that the gap in (149) is the syntactic trace of *wh*-moved constituent.

Similar logic applies to the sentences in (150) (Bresnan's 1975, ex. (25)). The (a) example allows coindexation between the gap in the comparative deletion site and the pronoun *they* since the latter is structurally lower in the syntactic tree. What happens when we reverse the relative structural position of the two is that the sentence becomes ungrammatical on the coindexed reading. This can be explained as a weak cross-over effect if the gap in the comparative clause is the trace of an *wh*-operatror.

STRONG CROSS-OVER:

(149) a. More students flunked than *e* thought they would (flunk).

b. More students flunked than they thought *e* would (flunk).

WEAK CROSS-OVER:

(150) a. More students re-registered than *e* were given C's by their teachers.

b. More students re-registered than their teachers gave C's to *e*.

3.2.1.3 Overt *Wh*-Words

The *wh*-movement inferred from the island and cross-over effects can be seen overtly in some languages. Example (151) is from Bulgarian and here the fronted *wh*-pronoun is obligatory. This is the relative *how much/many* pronoun, whose interrogative counterpart appears in questions (cf. (152)).

(151) Ivan izpi poveče vino ot-*kolkoto* bjahme kupili.
Ivan drank more wine from-*how-much*-REL be-1PL.PAST bought
'Ivan drank more wine than we had bought.'

(152) Kolko vino bjahme kupili?
how-much-Q wine be-1PL.PAST bought
'How much wine did we buy?'

Italian too, exhibits an overt *wh*-pronoun in comparatives. The following example is from Donati 1997 (her ex. (12)):

(153) Paolo ha mangiato più biscotti di quanti$_i$ ne ha mangiati t$_i$ Maria.
Paolo has eaten more cookies than *wh*-pl of-them has eaten Mary
'Paolo ate more cookies than Mary ate.'

Similar facts obtain in Greek, where comparatives are formed with the relative pronoun *oso* 'how many/much'. Polish too has obligatory *wh*-movement in comparative clauses (cf. Borsley 1981). More examples of the typological distribution of *wh*-pronouns in comparatives can be found in Stassen 1984, 1985.

Some dialects of English also have an overt *wh*-word in the comparative clause. As an illustration, consider (154) (example (154a) is from Chomsky 1977, ex. (51)):

(154) a. John is taller than *what* Mary is.

b. We own more books than *what* they do.

Chomsky 1977 and Chomsky and Lasnik 1977 have argued that facts like those in (154) support a *wh*-movement analysis of comparatives. Den Besten 1978 considers the dialectal *what* a complementizer whose specifier position contains a +*wh* element. He points out that the same analysis may be posited for Afrikaans comparatives. There too an invariant relative pronoun *wat* appears in the comparative clause (cf. (155), example from den Besten 1978, ftn. 15).

(155) Jan het meer boeke gekoop as *wat* Piet gekoop het.
John has more books bought than *what* Pete bought has
'John bought more books than Pete did.'

The Afrikaans relative *wat* has a wider distribution and it also appears in retrictive relative clauses, in temporal relatives, and in clefts. Den Besten proposes that *wat* can occur as a complementizer whenever a deleted +*wh* element can be posited.

This concludes our discussion of the evidence in support of *wh*-movement analysis of comparatives.[14] As I said above, it is by now widely accepted that comparatives involve *wh*-movement. The classical analysis of Chomsky 1977 is the one commonly adopted (and defended most recently in Kennedy 1997). Extended to its logical conclusion, this analysis posits that the category of the *wh*-element fronted in comparatives differs in the different subtypes of comparative constructions: it is a nominal phrase in nominal comparatives, and AdjP in adjectival comparatives, and an AdvP in adverbial comparatives. In section 3.2.3 I propose that *the same wh*-operator moves in all variaties of comparative constructions. In order to introduce this analysis in a more convincing way, I will first examine the syntax of subcomparatives.

3.2.2 Comparative Subdeletion Involves *Wh*-Movement

Recall that subcomparatives differ minimally from 'ordinary' comparatives in that only a subpart of the compared constituent in the comparative clause is non-overt. Thus whereas the comparative (130a), repeated here as (156), can be argued to have a non-overt phrase in the comparative clause that denotes the number of books that Bill owns, which is identical to the compared constituent in the matrix clause (the number of books owned by John); the corresponding subcomparative in (157a) expresses overtly the compared constituent in the embedded clause - the number of *magazines* owned by Bill. Similarly for (156b, c) and their subcomparative counterparts (157b, c).

(156) a. John has more books than Bill has *e*.

b. Ann is less happy now than she was *e* before.

c. Phil runs as fast as George does *e*.

(157) a. John has more *books* than Bill has *e magazines*.

[14] Another argument agaist the deletion-under-identity account (and thus, indirectly, supporting the *wh*-movement account) comes from cases where the matrix clause contains no overt gradable predicate. Consider the following sentences (from Chomsky 1977, ex. (53))

(i) a. Mary is (more or less) as she was five years ago.

b. Mary isn't as John believes that Bill claimed that she was five years ago.

The gap in the sentences in (i) cannot be simply the result of phonological deletion under identity with a gradable predicate in the matrix, as there is no such a predicate.

b. Ann is less *happy* now than she was *e sad* before.

c. Phil runs as fast as George does *e slowly*.

The gap in (157) marks the presence of an 'understood' quantifier (Bresnan 1975). The ungrammaticality of overt determiners in the position of the gap has been taken as evidence that there is indeed an empty quantifier in the subcomparative clause:

(158) a. John has more books than Bill has (**many/*the*) magazines.

b. Ann is less happy now than she was (**very/*that*) sad before.

c. Phil runs as fas as John does (**very/*that*) slowly.

As a natural extension of the analysis of comparatives, it may be posited that the 'understood' quantifier in subcomparatives is a non-overt *wh*-expression. The only difference then between subcomparatives and comparatives is that in the latter, the compared phrase in the embedded clause is deleted under identity with the matrix clause, whereas in the former, the compared phrase is expressed overtly. See (159) vs. (160):

(159) a. John has more books than Bill has [∅ *x-many books*].

b. Ann is less happy now than she was [∅ *x-much happy*] before.

c. Phil runs as fast as George does [∅ *run x-much fast*].

(160) a. John has more books than Bill has [∅ *x-many*] magazines.

b. Ann is less happy now than she was [∅ *x-much*] sad before.

c. Phil runs as fast as George does [∅ *run x-much*] fast.

Originally, subcomparatives were not treated radically differently from the other type of comparatives. Thus for Bresnan (1973, 1975) the phenomenon exemplified by the sentences in (157) is just a proper subset of the comparative construction in (156). She proposes that the rule of Subdeletion, the operation responsible for the derivation of subcomparatives, is a case of Comparative Deletion operating on a smaller constituent. A QP modifier *x many* or *that many* (or *x much/that much*, correspondingly) is deleted in (157) whereas the entire compared constituent (here an NP, AdjP, or an AdvP, respectively) is removed in (156). Similarly, Chomsky (1977) and den Besten (1978) suggest that the *wh*-movement analysis

can be extended to subcomparatives, but in this case the moved phrase will be a subpart of the compared constituent, namely Bresnan's null modifier.[15]

The more recent accounts, however, treat subcomparatives differently from the other types of comparatives. For Grimshaw 1987 subcomparatives involve no extraction at all. Corver 1990, 1993 proposes that subcomparatives are derived through LF-raising of the comparative quantifier in the antecedent clause which then binds in an across-the-board fashion both its trace and a variable (the gap) in the subcomparative clause. Kennedy 1997 adopts the degree-description analysis for subcomparatives (cf. Heim 1985 for the semantic, and Izvorski 1995b, for the syntactic proposal that subcomparatives involve *wh*-extraction of a degree phrase) but argues for a version of Chomsky's 1977 analysis of 'ordinary' comparatives in which the comparative clause involves syntactic movement of a constituent with the same category as the comparative correlate in the matrix phrase. Finally, Lechner 1999 does not present an analysis of subcomparatives but his account of comparative clauses in terms of raising of the compared element from the embedded to the matrix clause, does not permit for a unified analysis with subcomparatives.

It is the purpose of this section to propose an analysis of the subcomparative construction that allows for a uniform treatment of subcomparatives and the other types of comparatives. I argue that subcomparatives also involve *wh*-movement, though of a different constituent than the one proposed by Chomsky 1977 and den Besten 1978 and adopted most commonly in the literature. Before one adopts a *wh*-movement analysis for subcomparatives though, it is necessary to resolve what I called the SUBCOMPARATIVE PARADOX in Izvorski 1995b - the fact that subcomparatives exhibit all the diagnostics for movement yet a straightforward analysis in terms of *wh*-movement runs into problems of left-branch extraction.

[15]Chomsky 1977 raises the possibility that subcomparatives may not, in fact, be truly parallel to comparatives, on the basis of examples such as (i) (Chomsky's (232c,d)). The claim is that a sentence like (ia) is less acceptable than (ib) (though apparently not so much as to deserve a *):

(i) a. ?The desk is as high as they believe that Bill claims that it is wide.
b. The desk is as high as they believe that Bill claims that it is.

First, it has to be noted that not all native speakers agree with this judgement. Furthermore, both Chomsky 1977 and Bresnan 1975 acknowledge that since subcomparatives involve comparison of contrastively focused constituents, their interpretative complexity is greater. Thus the distinction between (ia) and (ib), if real, could be attributed to the fact that deeper embedding interferes with the processing of the contrastively focused compared constituents.

3.2.2.1 Islands

It was first noted by Bresnan 1975 that subcomparatives exhibit island effects. As evident from (161), the subcomparative construction is subject to the Complex NP Constraint; (162) shows that the subcomparative clause cannot be inside a sentential subject, and (163) illustrates the effect of a violation of the Coordinate Structure Constraint. All these examples are taken from Bresnan 1975 with some modification. Additional island violations not discussed by Bresnan are shown in (164) and (165):

COMPLEX NPS:

(161) a. *We ended up buying more oranges than we had discussed a plan to buy apples.

b. We ended up buying more oranges than we had planned to buy apples.

SENTENTIAL SUBJECTS:

(162) a. *You have more friends than that he has enemies is likely.

b. You have more friends than it's likely that he has enemies.

COORDINATE STRUCTURES:

(163) a. *Dean drank more booze than Frank drank a lot of milk and Martha drank Postum.

b. Dean drank more booze than Frank drank milk and Martha drank Postum.

WH-ISLANDS:

(164) a. *We bought more apples than we wondered whether to buy oranges.

b. We bought more apples than we wanted to buy oranges.

NEGATIVE ISLANDS:

(165) a. *The door is higher than the window is not wide.

b. The door is higher than the window is wide.

In addition to the island cases listed above, it is possible to construct cross-over-like configurations for subcomparatives. Bresnan 1975 in fact discusses such sentences (cf. Bresnan's (125) and (129)). However, cross-over phenomena cannot be examined as evidence in favor of the proposal that subcomparatives are derived through *wh*-movement, because the posited abstraction in subcomparatives is not over individuals. Thus the left trace cannot be subject to principle C effects and cannot induce a strong cross-over violation, for instance. But the availability of overt *wh*-pronouns in subcomparatives is an argument supporting the *wh*-movement analysis.

3.2.2.2 Overt *Wh*-Words

The *wh*-movement posited in the formation of English subcomparatives can be seen overtly in some languages. Example (166) is from Bulgarian and here the fronted relative *wh*-pronoun is obligatory. The same relative pronoun appears in 'ordinary' clausal comparatives as illustrated in (151) above.

(166) Ivan izpi poveče vino ot-*kolkoto* Maria bira.
Ivan drank more wine from-*how-much*-REL Maria beer
'Ivan drank more wine than Maria drank beer.'

Greek too uses the same relative pronoun *oso* 'how-many/much' in subcomparatives and 'ordinary' comparatives alike.

As for the English dialects described above that have overt *what* in comparatives, it is controversial whether they allow *what* in subcomparatives. Chomsky 1977 denies that it is the case (cf. (167) which is Chomsky's ex. (255, 256)):

(167) a. *John is more courageous than what Bill is intelligent.

b. John is more courageous than what Bill is.

Yet other examples may be found of felicitous subcomparatives with overt *wh*-phrases:

(168) a. We own more books than *what* we own magazines.

b. She is more happy now than *what* she was sad before.

Finally, Afrikaans requires the relative pronoun *wat* not only in 'ordinary' comparatives, as seen above in (155), but in a subcomparatives as well (example from den Besten 1978, fn 15):

(169) Jan koop meer boeke as *wat* Piet plate koop.
John buys more books than *what* Pete records buys.
'John buys more books than Pete does records.'

As discussed above, den Besten 1978 argues that *wat* is a complementizer that can only occur when Spec, CP has a deleted *+wh* operator.

3.2.2.3 Left-Branch Extraction

A *wh*-movement account of subcomparatives is problematic because *wh*-movement in many languages including English is not able to front pre-head modifiers:

(170) a. *How many do we have books?

b. *How (much) was she sad before?

(171) a. *Many we have books.

b. *Very she was sad before.

The ungrammaticality of the left-branch extractions in (170) and (171) suggests that the gap in the subcomparatives in (157) cannot be a trace of *wh*-movement the same way as the gap in comparatives is claimed to be. The left-branch prohibition holds for languages such as Bulgarian and Greek too, and recall that these languages exhibit overt *wh*-phrases in subcomparatives.[16]

(172) a. *Kolko izpi Maria bira?
how-much drank Maria beer

b. Kolko bira izpi Maria?
how-much beer drank Maria
'How much beer did Maria drink?'

[16]Some languages, such as e.g., Russian or Serbo-Croatian, allow fronting of pre-head modifiers as in (170) and (171). For such languages the issue of left-branch extraction violations in subcomparatives does not arise.

Therefore, we end up with a puzzle: on the one hand, subcomparative clauses exhibit sensitivity to islands, which is typical of constructions involving movement; on the other hand, extraction of pre-head modifiers is prohibited in English (and many other languages). This state of affairs, which I have called previously the SUBCOMPARATIVE PARADOX, has been the main reason for the interest shown in the construction, and it has made the analysis of subcomparatives nontrivial and quite controversial.

It is clear at this point that an analysis like that of Chomsky 1977 and den Besten 1978, though attractive because of its uniform treatment of subcomparatives and 'other' comparatives, runs into problems in violating the left-branch condition. Chomsky 1977 in fact suggests that the quantifier extracted in subcomparatives is an exception to the left-branch condition because it can never be phonologically realized (in English). In terms of recent developments of syntactic theory, it may be argued that subcomparatives are formed through feature-movement or covert phrasal movement, hence the lack of phonological realization for the *wh*-operator. In fact, this is the analysis assumed in the semantic literature (Heim 1985, Rullmann 1995). While this may be a plausible solution for English and other languages with phonologically null *wh*-operators, such a solution will not work for languages such as Bulgarian, Greek, or Italian, neither of which allows left-branch extraction but all of which exhibit overt *wh*-elements in the subcomparative clause.

The analyses of Grimshaw 1987 and Corver 1990, 1993 do not posit movement in the subcomparative clause and thus evade the problem of left-branch extraction. Grimshaw 1987 develops a deletion analysis similar to the one proposed by Bresnan 1975, though she rejects the idea that a pre-head modifier gap is present in subcomparatives. Grimshaw's initial observation that seems to argue against *wh*-movement in subcomparatives is the well-formedness of the subcomparative clause. The italicized parts of (173) (her example (8)), can form an independent clause without being incomplete:

(173) a. As many men will come as *women will stay away.*

b. We find more books dull than *we find magazines interesting.*

This fact contrasts with the ungrammaticality of the comparative clauses in 'ordinary' comparatives when taken in isolation: **we own* from *They own more books than we own.* The

completeness of the subcomparative clauses suggests, according to Grimshaw, that no QP is syntactically generated and extracted in subcomparatives. The well-formedness of the embedded clauses in (8), however, is only due to the fact that English has bare plurals. Thus *women* can be interpreted both as a DP and as an NP with a non-overt determiner. Subcomparatives in Bulgarian, for instance, do not necessarily have an embedded clause that is well-formed on its own.

(174) a. Tolkova mâže šte dojdat, kolkoto *ženi šte si ostanat u doma.*
as-many men will come as women will refl. remain at home
'As many men will come as women will stay at home.'

b. * Ženi šte si ostanat u doma.

c. Ženite šte si ostanat u doma.
the-women will refl. remain at home

d. Mnogo/njakoi ženi šte si ostanat u doma.
many/some women will refl. remain at home

Thus if *kolkoto* 'how many/much' in (174a) is not taken to be the determiner extracted from the DP *kolkoto ženi* 'how many women' but a conjunction/comparative *than*, there is no explanation for the fact that *ženi* cannot occur on its own in (174b) but needs an overt determiner as in (174c, d). These facts suggest that the compared constituent in subcomparatives contains a variable (bound from the Spec, CP of the subcomparative clause).

Even in the English examples the meaning of the subcomparative clause is changed once it is examined independently. The italicized parts of (173a) and (173b), read on their own, require a generic interpretation of the key words *women* and *magazines*. The meaning of the subcomparative clause in isolation is as in (175a) and (175b):

(175) a. Gen_x [x is a woman] x will stay away

b. Gen_x [x is a magazine] we find x interesting

No generic interpretation of *women* and *magazines* is available in the subcomparative construction arguing that these constituents in the subcomparative clause are not bare plurals. These interpretive facts, together with the ill-formed clauses of Bulgarian (174b), form a valid counterexample to the base-generation analysis of subcomparatives.

Corver 1990, 1993, argues that comparative *-er* raises at LF and binds both its trace and the null pronominal in the position of Bresnan's 'understood' quantifier, as in (177), the LF-representation of (176):

(176) Mary bought more cookies than Pete had sold candies.

(177) more x_i [[$_{IP}$ Mary bought [x_i cookies]] than $_{IP}$[$_{IP}$ Pete had sold [x_i candies]]]

Corver's analysis relies on a coordination analysis of subcomparatives which cannot be straightforwardly accepted.[17] Furthermore, the analysis does not avoid the left-branch extraction problem; it only shifts it from the subcomparative to the matrix clause with the raising of *more* from the determiner position of the first compared constituent. Corver addresses this issue by claiming that the ECP does not hold at LF. In support of his argument he gives the example in (178a) (his footnote 6) where supposedly *each professor* can have scope over the existential quantifier *some student*. The availability of such a reading is meant to show that the *that*-trace effect does not hold at LF. This, of course, violates the usual assumptions that Quantifier Raising is clause-bound. It is clearly the choice of the quantifier *each* and of the intensional verb that is responsible for the blurred distinction between the possible and the unavailable reading (scope of *each professor* over the embedded clause only vs. scope over the matrix as well). The inability of embedded quantifiers to raise to the matrix clause is easier to see in (178b):

(178) a. Some student thinks that each professor is stupid.

b. Someone said that most professors are stupid.

Sentence (178b) does not have a reading where most professors are such that for them someone said that they are stupid. Further examples illustrating the fact that quantifiers cannot have scope outside of their clauses are given in (179):

[17] Consider, for instance the fronting in (i) which is impossible to derive from a coordinated structure:

(i) [More surprised than Mary was disappointed] John couldn't possibly be.

(179) a. *If John has *every donkey*, he beats *it*.

b. *John talked to *everyone* and invited *his* friend.

The relevant pronouns in (179a) and (179b) cannot be interpreted as bound variables namely because the respective quantifiers cannot have scope outside of their local IPs. The latter example is in fact exactly parallel to Corver's structure in (177). It is essential for his analysis that a quantifier be able to raise out of one conjunct and bind a variable in another conjunct, something which is a violation of the Coordinate Structure Constraint, and which, as (179b) shows, is not possible.

As QR is apparently clause-bound, Corver's argument that the *that*-trace effect is not observed at LF because the ECP does not apply there cannot hold. That left-branch extraction remains a problem at LF is further shown by the unavailability of (180c) as a reading of (180a):

(180) a. Many people read most articles.

b. * $[_{IP}$Most$_i$ $[_{IP}$ many people$_j$ $[_{IP}$ t_j read $[t_i$ articles]]]]

c. * Most x [x is a quantity] many people read x articles

Sentence (180a) is clearly only two-ways ambiguous. If the structure in (180b) were available for (180a) we would expect one of the ambiguities of the sentence to be *Most quantities are such that many people read that quantity of articles*, as in (180c). But while in a world with sufficiently many different quantities this is false (because there are more quantities of other things than of articles that have been read) (180a) can still be true.

Another problem is that while other quantifiers cannot get scope outside of the *there is* construction, as evident from the lack of ambiguity in (181), *more* should be allowed to do so, because of the grammaticality of the subcomparative construction in (182):

(181) There are many linguists on every committee.

(182) There are more linguists on the committee than there are mathematicians.

Sentence (181) does not have a reading where many linguists are such that they are on every committee. Therefore raising of *many linguists* out of the existential construction

is prohibited. Yet under Corver's analysis *more* should be able to QR out of the same construction in (182) to derive a representation as in (183):

(183) more x_i [[$_{IP}$ There are [x_i linguists] on the committee] than $_{IP}$[$_{IP}$ there are [x_i mathematicians]]]

Crucially in addition to the specific problems addressed above, both Corver's and Grimshaw's analyses do not address the existence of the island effects described in (161) to (165), thus these accounts cannot be accepted as the proper analyses for the syntax of subcomparatives.

An account of subcomparatives that captures the island effects without positing left-branch extraction is that of Kuno 1981. Instead of movement of a null phrase into the Spec, CP of the subcomparative clause, he argues for a rightward movement of the compared constituent and subsequent deletion of its modifier. Kuno's main arguments come from instances of VP deletion in subcomparatives, illustrated in (184):

(184) Jack ate more caviar than Bill did mush.

As Kuno argues, for VP deletion to have spared the object, the latter should have been raised out of the VP first. This is why Kuno proposes a rule of *X-Quantifier Raising* which moves the *x many/x much* quantifier in the comparative clause together with the constituent that it modifies and adjoins it to the S node of the comparative clause. The derivation of (184) is given in (185) (Kuno's ex. (17)):

(185) a. Jack ate more caviar than [Bill T_{past} [$_{VP}$ eat [*x much* mush.]]]

b. Jack ate more caviar than [Bill [$_{VP}$ ate] [[*x much* mush.] $_S$]$_S$]

c. Jack ate more caviar than [Bill did $\emptyset$ [[*x much* mush.] $_S$]$_S$]]

The original structure of (184) is as in (185a). The rule of *X Quantifier Raising* moves the NP *x much mush* and adjoins it to S of the embedded clause. Then VP deletion can take place and result in a structure like that of (185c), or the VP may remain intact, as in (185b).

After the application of *X Quantifier Raising*, a rule of *Comparative Deletion* applies, which deletes the *x many/x much* quantifier but retains the modified constituent because it is not recoverable from the main clause:[18]

(186) $[_{NP}$ *x much* mush] ⇒ $[_{NP}$ ∅ mush]

The sentences in (187) (Kuno's (19)) are supposed to illustrate that VP deletion cannot apply to a constituent smaller than a VP; that is, if there are any objects inside the VP, they have to be deleted as well.

(187) a. Jack gave Mary more caviar than Bill gave her mush.

b. Jack gave Mary more caviar than Bill did $[_{VP}$ ∅] mush.

c. *Jack gave Mary more caviar than Bill did $[_{VP}$ ∅ her] mush.

The contrast between (187b) and (187c) shows that *her* has to delete together with the whole VP. Since this is what happens in (187b), the sentence is acceptable. It is because *her* is retained in (187c) and only the verb is deleted, that the sentence is ungrammatical. When VP deletion has not applied, as in (187a), then the presence of *her* is acceptable.

Of course, one might ask why the object *her* does not raise as well, as does the compared constituent, before the application of VP deletion. To this question, Kuno replies by arguing that only focused constituents can raise out of the VP. He proposes a rule of *Focus or Contrast Raising*, which raises a contrasted constituent out of the VP and adjoins it to S. This is for instance, what happens in (188a):

(188) a. John likes Mary more than Bill does Jane.

b. ...than [Bill does $[_{VP}$ like t_i] $[_S$ [Jane$_i$]]

c. ...than [Bill does ∅ $[_S$ [Jane$_i$]]

d. *John likes Mary more than Bill does her.

Since *Jane* is contrasted with *Mary*, it can undergo *Focus or Contrast Raising* and move out of the VP before VP deletion applies. This option is not available for *her* in (188d), hence the ungrammaticality of this sentence.

[18]The name *Comparative Deletion* is normally used in reference to the cases when the whole compared constituent is non-overt; for subcomparatives the rule that Kuno refers to is standardly known as *Subdeletion*.

Kuno's analysis has the advantage of being able to accommodate the island sensitivity shown by subcomparatives. He also evades the problem exemplified by (142) because he does not assume left-branch extraction of a null modifier from the compared constituent. Still, his movement analysis predicts that the compared constituent has to be in a peripheral position in the sentence; or otherwise, separated from that position by elements that can undergo *Focus or Contrast Raising*. However, as he himself notes, sentences like the ones in (189) (his (84)) are fully acceptable:

(189) a. John gave more girls cookies than he gave boys *cookies*.

b. John has introduced many more girls to me than he has introduced boys *to me*.

c. John put many more bananas in the refrigerator than he put apples *in it*.

d. The proposed tax cut offers many more affluent people help than it offers poor people *help*.

The italicized phrases in (189) separate the compared constituents from the clause-final position. In order for the latter to have undergone *X Quantifier Raising* and be adjoined to IP, the underlined constituents must have been raised as well. However, they cannot possibly be claimed to have undergone *Focus or Contrast Raising* because they are not contrasted with anything in the matrix clause. On the contrary, in (189a), (189b), and (189d) the underlined phrases are identical to constituents in the matrix clause. In (189c) the complement of the prepositional phrase that separates the compared constituent from the clause edge is a pronoun, again an element that does not *Focus*-raise (cf. examples (187c) and (188d)).

Because the underlined phrases in (189) could not have raised, Kuno assumes that the compared constituents are also VP internal, that is, they have not been raised to an IP-adjoined position. He proposes that *X-Quantifier Raising* is "...a transformation that applies obligatorily when applicable, but that does not result in unacceptability when it is not applicable..." and that "in (84) neither the rightmost underlined constituent, nor the quantified NP has been raised."(p. 152) Thus, in effect, he weakens his own movement analysis. The sentences which he claims are not derived through movement still show sensitivity to islands:

(190) a. *John gave more girls cookies than he had discussed a plan to give boys cookies.

b. *John has introduced more girls to me than he has wondered whether to introduce boys to me.

c. *John put many more bananas in the refrigerator than he was seen putting apples in it.

The examples in (190) have the compared constituent inside an island, but according Kuno's analysis they are not derived through movement and therefore their ungrammaticality remains unexplained.[19]

The analysis I develop here largely builds on the ideas developed in Izvorski 1995b. There I proposed a solution to the subcomparative paradox which took into account the island facts as well as the presence of overt *wh*-phrases in some languages, on the one hand, and the left-branch prohibition, on the other. The advantage of this analysis is for languages with overt *wh*-pharses in the subcomparative clause. Languages such as English, or German may be analyzed in terms of extraction of a left-branch degree phrase - either feature movement or covert phrasal movement (cf. Chomsky 1995, Pesetsky 1998) - in any case movement that does not require pied-piping. For uniformity reasons I will still treat subcomparatives in such languages as having essentially the same derivation as in e.g., Bulgarian or Greek.

The details of my analysis are as follows. There is indeed *wh*-movement in the subcomparative clause; however, it extracts not a pre-head modifier, but a (phonologically non-overt in some languages) degree/amount phrase from a post-head position. In my

[19]Under Kuno's account, the two rules of *X Quantifier Raising* and *Focus or Contrast Raising* are essentially identical: they move a constituent out of the VP and adjoin it to S. However, they differ in their preferences regarding prepositional phrases: *X-Quantifier Raising* preposition-strands while *Focus or Contrast Raising* pied-pipes:

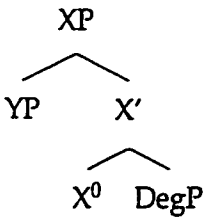
(i) a. John speaks against many more friends than he does ∅ enemies.
b. ?? John speaks against many more friends than he does ∅ against enemies.

(ii) a. ?? John speaks against his friends more persistently than he does ∅ his enemies.
b. John speaks against his friends more persistently than he does ∅ against enemies.

The difference in acceptability between (190a) (Kuno's ex. (38)) and (190b) shows, according to Kuno, that when the compared constituent in the subcomparative clause raises, it leaves the preposition stranded and subsequently deleted by VP deletion. When a contrasted constituent is raised, however, the preposition cannot be stranded, as (19) (Kuno's ex. (39)) shows. The difference between the two rules remains unmotivated in Kuno's analysis.

earlier account (Izvorski 1995a) I took this phrase to be an adverbial in an adjoined position to the predicate. This does not seem to be neccessary to me now.[20] Instead I propose that the degree phrase is the internal argument of the gradable predicate whether that predicate is an adjective, adverb or a noun. For syntactic reasons, in English and other languages when the post-head degree phrase is realized overtly, it is embedded under a P; most likely this is for reasons of case, given that degrees are nominal, and given that their selecting predicates cannot check case. Examples (192) illustrate the overt expression of such post-head degree phrases in English. The specific structure I propose is the following:

(191)



The XP above is the projection of the gradable predicate, X^0 could be Adj^0, Adv^0, or N^0. Its complement is a syntactic PP when overtly realized by phrases such as *to such an extent, in that amount*. The YP is the external argument of the gradable predicate. The structure thus reflects directly the semantics of gradable predicates as relations between degrees and entities.

I do not adopt the recent trend in representing gradable predicates as Degree Phrases, headed by a Degree head. The idea that adjectives and adverbs are arguments of Deg^0 was introduced in Abney 1987, in the general spirit of his DP hypothesis; the idea has been further adopted in e.g., Larson 1988a, Corver 1990, Kennedy 1997, Lechner 1999. The structure I proposed in (191) above is more in lines with the traditional accounts that treat degree phrases as modifiers of adjectives and adverbs (e.g., Bresnan 1973, Heim 2000).

The posited derivation of the subcomparative clause is illustrated in (192):

(192) a. ...than $[_{\emptyset}$ *in what quantity*$]_i$ we have magazines t_i.

b. ...than $[_{\emptyset}$ *to what extent/degree*$]_i$ she was sad t_i before.

[20] In fact the distinction between subcategorized adjuncts and arguments is somewhat blurried. Extraction out of subcategorized adjuncts is possible, for instance.

In other words, the claim is that the gap in the subcomparative clause is a *wh*-trace, not a base-generated variable, and furthermore, it is not in the left-branch position indicated in (157). Ever since Bresnan's proposal authors have assumed the null-modifier status of the gap in subcomparatives (cf. Chomsky 1977, den Besten 1978, Corver 1990, 1993, Moltmann 1992, and others) and have sought a resolution of the resulting problem with left-branch extraction. The only account, as far as I know, that does not adopt Bresnan's null-modifier proposal is that of Grimshaw 1987. She proposes that subcomparative clauses have a non-overt adverbial phrase "something like *to a certain/great extent*" (p. 668) (attributing this idea to Roger Higgins). Grimshaw, however, explicitly argues against *wh*-movement in subcomparatives.

Adopting the idea of a null adverbial phrase gives us a way to solve the Subcomparative Paradox: *wh*-movement of the degree/amount-denoting adverbial is the reason for the island effects; this movement, however, does not involve left-branch extraction. Note that the extraction of such adverbial phrases is acceptable:

(193) a. To what extent was John surprised?

b. To such a great extent was John overwhelmed with joy that he didn't even notice Mary crying.

(194) a. In what quantity did Mary eat apples?

b. We know in what quantities Mary used to drink wine.

Bulgarian provides partial additional support for the idea that *wh*-movement is from the post-head position. The only case in this language where the left-branch prohibition is seemingly relaxed is with predicative adjectives (see (195a)). This is exactly the environment where post-head degree phrases are acceptable (see (195b)):

(195) a. Kolko e visok Ivan?
how-much is tall Ivan
'How tall is Ivan?'

b. Ivan e visok 1.90m.
Ivan is tall 1.90m
'Ivan is 1.90m tall'

Thus, (195a) is likely not a case of left-branch extraction but an instance of the movement posited in the derivation of subcomparatives. Of course, this evidence is only partial, because all types of subcomparatives in Bulgarian - nominal, adjectival, and adverbial - have the same overt *wh*-phrase; but the phenomenon in (195) is found only with predicative adjectives.

The original argument for the existence of a null modifier in subcomparatives relied on the ungrammaticality of overt quantificational determiners in this position (cf. (158)). However, the unacceptability of overt modifiers in the compared constituent is equally compatible with the idea of an adverbial trace in the subcomparative clause. Note that when the adverbial is expressed overtly, pre-head degree/amount modifiers are prohibited (an observation made in Grimshaw 1987):

(196) a. We read (*five) magazines in a certain quantity.

b. She is (*very) sad to a great extent.

How do we account for the data in (196)? The degree variable can be bound by only one quantificational element; this is why the presence of the adverbial phrase in (196) precludes the quantificational modifiers. For the same reason pre-head determiners in subcomparatives are disallowed (cf. (158)). In sentences like *We read magazines* and *She was sad* where no overt quantificational element is present, the variable could be assumed to be bound by an existential operator. In the case of predicates with polar opposition counterparts, e.g., *sad-happy*, the existential operator assumes a positive value with respect to the (contextually defined) cutt-off. This in effect is the *pos* operator (for 'positively') of von Stechow 1984.

A prediction of this proposal is that subcomparison will not be possible within left-branch modifiers. Indeed, while predicative adjectives can be the compared element in a subcomparative clause, attributive adjectives cannot. Note the contrast between (197a) and (197b):

(197) a. Bill is more successful than he is talented.

b. *Bill is a more successful actor than he is a talented director.

In both (197a) and (197b) the null Degree Phrase is the complement of the AP *talented*. Nothing blocks the extraction of the Degree Phrase when the AP is used as a predicate and this is why (197a) is grammatical. When the AP is a modifier to an NP though, as in (197b), extraction of the Degree Phrase results in a violation of the left-branch condition; therefore subcomparison in this case is precluded.

The facts of (197) have been observed in Bresnan 1975 and in Grimshaw 1987. Grimshaw argues however that the same facts obtain in what she takes to be *phrasal* comparatives:

(198) *Bill is a more successful actor than a talented director.

Grimshaw's assumption is that the complement of *than* in (198) is a not a clausal projection but a base-generated DP. Therefore, the ungrammaticality of the sentence cannot be attributed to illicit *wh*-movement, as no such movement should exist in the DP complements of *than*. Even if (198) were a directly generated phrasel comparative, which we cannot a priori know for English, its ungrammaticality may stem from the fact that the LF operations and interpretive procedures posited in the direct analysis of phrasal comparatives (cf. Heim 1985) may not apply in this case.[21]

In attributive subcomparatives too the gap cannot be an NP-modifier, as shown in the following sentences:

(199) a. *John makes better cakes than he can make cookies.

b. John makes better cakes now than he could make before.

Under the existing approaches to subcomparative formation the contrast between (197a) and (197b) is unexplained (just as the island facts in (161)-(165) remain unaccounted

[21]It is not obvious whether a sentence like (198) has a phrasal or a clausal complement. As argued by Hankamer 1973 among others, sentences like (198) are in fact reduced *clausal* comparatives; that is, the complement of *than* is a clause that involves ellipsis. In Bulgarian we can clearly distinguish between reduced and directly-generated phrasal comparatives. Both are in fact ungrammatical for a sentence like (198):

(i) a. * Bil e po-dobâr aktjor otkolkoto talantliv režisjor.
Bill is better actor from-how-much talented director
'Bill is a better actor than (he is) a talented director.'

b. * Bil e po-dobâr aktjor ot talantliv režisjor.
Bill is better actor from talented director
'Bill is a better actor than a talented director.'

for). Positing *wh*-movement of a post-head degree phrase captures uniformly the facts of both (197) and (199).

3.2.2.4 The Arguments against *Wh*-Movement in Subcomparatives

In concluding this section I will present the arguments that have been advanced against the *wh*-movement account of subcomparatives. The main argument against *wh*-movement in subcomparatives has always been the problem with left-branch extraction (since it was assumed that *wh*-movement would involve a modifier to the compared constituent). Here I offered a solution that avoids this problem so the subcomparative paradox no longer arises. But before reaching a convincing conclusion, it is necessary to examine the other arguments that have been presented in the literature against *wh*-movement in the derivation of subcomparatives and see whether they are true counterexamples to the acount proposed here.

Grimshaw 1987 notes that the presence of a complementizer has much less effect in subcomparatives than in 'ordinary' comparatives with a subject gap:

(200) a. Even fewer books were published than we expected that magazines would be.

b. Even fewer books were published than we expected (*that) would be.

Both Grimshaw 1987 and Corver 1990 consider the absence of *that*-trace effects in (200a) evidence that no *wh*-movement has occurred in its subcomparative clause.

Given the analysis proposed here a *that*-trace effect is not to be expected in subcomparatives. The presence of an overt complementizer should not have an effect on extraction from the post-head position.

What appears at first problematic for any *wh*-movement account is the existence of MULTIPLE SUBCOMPARATIVES: constructions having more than one subcompared constituent in a single clause. Some examples are given in (201):

(201) a. Mary sent more papers to more journals than John sent abstracts to conferences.

b. More men attended more morning talks than women attended evening talks.

In each of these examples two constituents in the subcomparative clause are being compared to respective phrases in the main clause. According to the interpretation given

for multiple subcomparatives in von Stechow 1984, these involve pairwise comparisons. Sentence (201a), for example, compares the number of papers that Mary sent to journals to the number of abstracts that John sent to conferences and the number of journals to which Mary sent papers to the number of conferences to which John sent abstracts.

Corver 1990, 1993 argues that if the derivation of subcomparatives involves wh-movement then multiple subcomparatives would have to involve multiple *wh*-movement, which is not possible in English.[22] Therefore, he concludes that subcomparatives are not formed via extraction of a *wh*-element. The prediction of his argument is that multiple comparison should be precluded in 'ordinary' comparatives as well and he claims that this is indeed the case. However, multiple comparatives are acceptable; the following examples are taken from Andrews 1985 (his 88a,b):[23]

(202) a. People do crazier things at higher speeds on the McGrath Highway than they do other places.

b. Marcille gave a longer talk at a better attended session than did her husband.

Furthermore, the examples of multiple comparatives considered by Corver become fully acceptable with VP-ellipsis. Compare the following (the judgements on the (a) examples are as indicated by Corver):

(203) a. *John has given as many boys as many parcels as I've sent.

b. John has given as many boys as many parcels as I have.

(204) a. *I consider as many boys as intelligent as you consider.

b. I consider as many boys as intelligent as you do.

I will not offer here an analysis of multiple subcomparison. None of the existing syntactic analyses of comparatives can, in fact, extend to multiple comparatives. The *than*-clause is likely not generated with the comparative determiner, given the multiplicity

[22]Note that in a multiple-*wh*-fronting language such as Bulgarian multiple subcomparatives have only one overt *wh*-element.

[23]Similarly, multiple result clauses are also possible; the example is from Liberman 1974:

(i) John hit his car so hard so many times with such a big hammer that it finally started.

of them.[24] Both the syntax and semantics of the construction are quite complicated, surrounded by important questions that have not yet been settled. These include even the basic questions of grammaticality and interpretation: some speakers find multiple subcomparatives unacceptable and many are not sure what these sentences actually mean. Hendriks 1994 has argued against von Stechow's 1984 claim that the multiple instances of comparison are independent of each other. He shows, for example, that when the comparative operators are not identical, multiple subcomparatives are not well formed.

Another argument given by Corver 1990, 1993 against the *wh*-movement approach to the formation of subcomparatives is the grammaticality of sentences like (205):

(205) Destroyed as many cities as built castles the Romans certainly have.

Corver's claim is that the two compared constituents are within conjoined VPs. As the domain of subcomparison is smaller than a CP, *wh*-movement cannot be involved.

An alternative explanation for (205) is available, however. It is possible to analyze the domain of subcomparative formation as not a VP but a whole clause involving ellipsis (see Hankamer 1973). Note the grammaticality of (206):

(206) Destroyed as many cities as they have built castles the Romans certainly have.

The subcomparative clause provides the necessary landing site for *wh*-movement. Ellipsis, however, conceals the clausal structure of subcomparatives in examples like (205).

We see that no real counterexamples are found to the account proposed here. And since it does not give rise to the subcomparative paradox it is to be preferred to analyses that do not treat subcomparatives and the other comparative constructions uniformly.

The purpose of the next section is to extend the analysis of subcomparatives to comparative clauses in general. Unlike the original analysis of Chomsky 1977, generally taken as the standard (adopted recently in Kennedy 1997), I will argue that both comparatives and subcomparatives involve *wh*-movement of a degree phrase.[25]

[24] It is possible that multiple comparatives involve a different derivation than 'ordinary' comparatives regarding the *than*-clause. It may be useful to consider in this light the analysis of multiple and single correlatives in Bhatt 1999. There it is proposed that in single correlatives the correlative clause is generated with the demonstrative proform and then moved to an operator position, whereas in multiple correlatives, the correlative clause is base-generated high.

[25] A note on terminology is in order. With the introduction of the DP-hypothesis in Abney 1987, degree heads

3.2.3 Both Comparative Deletion and Subdeletion Involve Degree Extraction

Given the analysis adopted in the previous section, all comparative constructions can now be analyzed as involving *wh*-movement. Yet this movement is of a different constituent in the different types of comparatives. I begin this section with providing semantic argumentation in support of a unified *wh*-movement analysis of comparatives and subcomparatives. It will be shown that the two are interpreted alike and furthermore they have common properties with other *wh*-constructions.

An influential semantic analysis of all comparative clauses posits the binding of a degree or amount variable by an operator. The details of the different semantic accounts are not immediately relevant for the particular issue at hand. What is important is that all analyses involve an operator-variable chain of some sort for both subcomparatives and 'ordinary' comparatives. As has often been pointed out (see Heim 1985, Rullmann 1995), subcomparatives are simpler to analyze than 'ordinary' comparatives because the syntactic gap in subcomparatives is of a degree/amount expression just like the semantic variable. The *wh*-movement analysis of subcomparatives allows for a compositional semantics of the construction, as the *wh*-element and its trace correspond directly to the operator and the semantic variable.[26] Thus the syntactic expression in (207a) has the semantic representation in (207b).

(207) a. The table is higher than [wh_i [the desk is wide (to) t_i]].

b. The table is higher than $max(\lambda d$ (the desk is wide (to) d)).

The representation in (207b) follows the proposal of von Stechow 1984 (see also Rullmann 1995) that comparative clauses denote maximal degrees. This view goes back to the original Russellian analysis of comparative clauses as definite degree descriptions (see also Heim 1985). The definition of the *max* operator is as in (208):

(208) The Maximality Operator *max*:

take the heads they 'modify' as complements. Thus the term Degree Phrase may be used for the whole e.g., nominal phrase such as *5 books*. This is how the term is used in Kennedy 1997, for instance, hence his claim that comparatives involve movement of a degree phrase. I will use the term to mean solely the 'modifier' part, e.g., *5* in *5 books*.

[26] Both Heim and Rullmann assume the left-branch extraction account of Chomsky 1977, but it is obvious that the compositionality argument holds for the present proposal as well.

Let DEG be a set of degrees ordered by the relation $\leq$, then
$max(\text{DEG})=\iota d\ [d \in \text{DEG} \wedge \forall d' \in \text{DEG}[d' \leq d]]$

In 'ordinary' comparatives, however, the gap can be an NP, AP, or an AdvP, according to the analysis of Chomsky 1977, but semantically they still are degree/amount descriptions. In other words, the structure in (209a) is interpreted as in (209b):

(209) a. The table is higher than [*wh high*$_i$ [the desk is t_i]].

b. The table is higher than $max(\lambda d$ (the desk is high (to) d)).

Note that at the level of interpretation, the 'ordinary' comparative in (209a) is treated as a subcomparative. This may be achieved through copying of the adjective (without the degree expression) into its original position. Adopting the copy theory of movement (Chomsky 1995) can give an even more straightforward account of the derivation. The AdjP *wh high* is moved to Spec, CP of the comparative clause and a copy is left in the original predicate position. At PF the foot of the chain is deleted and so is the adjective in Spec, CP under identity with the matrix clause. At LF the adjective is 'reconstructed' in its original position, i.e., it is deleted from the head of the chain and the *wh*-operator is interpreted in the raised position and deleted from the foot (as in (210b)):

(210) a. The table is higher than [*wh high*$_i$ [the desk is *wh high*$_i$]].

b. The table is higher than [*wh* [the desk is *high*]].

c. The table is higher than $max(\lambda d$ (the desk is high (to) d)).

The syntactic reconstruction account is analogous to the analysis for subcomparatives developed here. The reconstruction account is perhaps the correct account for English (and other languages with no overt *wh*-phrases); for languages like Bulgarian though, we would neet to posit both reconstruction at LF and PF deletion of the predicate of comparison. It seems logical then, and it is more economical, to extend the analysis defended for subcomparatives to to 'ordinary' comparatives as well. Thus instead of moving the whole compared constituent (as in (209a)), we can extract only the null degree/amount denoting adverbial, as in subcomparatives. Ellipsis can then remove the remaining constituent because it is identical to the compared constituent in the matrix clause. If such an analysis

of 'ordinary' comparatives is adopted, there will be no disparity between the syntax and semantics of this construction and the uniformity with the other comparative constructions will be complete.

Whether or not English employs the syntactic strategy suggested above, itis important to show that at LF only the *wh*-degree phrase is in Spec, CP, with the compared constituent being in its base position, for both comparatives and subcomparatives alike, unlike what is usually assumed.

Consider the following example taken from Lechner 1999 (his ex. (24)). Lechner argues for an account which generates the predicate of comparison *proud of John* in the embedded clause and raises it to the matrix clause. Both copies are then interpreted. The example in (211) is supposed to show that at LF the predicate of comparison is syntactically reconstructed and thus argue against semantic treatments of Comparative Deletion such as Lerner and Pinkal 1995 and aspects of Kennedy 1997. Independently of Lechner's analysis, the example in (211) serves to show that at LF the predicate *proud of John* is in the base position and not in Spec, CP, as in the original analysis of Chomsky 1977. The ungrammaticality of (211) can be attributed to a condition C violation if an LF such as (212b) is adopted for this sentence rather than (212a).[27]

(211) *Mary is prouder of John$_i$ than he$_i$ is.

(212) a. Mary is prouder of John than [*wh proud of John* [he is t_i]].

b. Mary is prouder of John than [*wh$_i$* [he is t$_i$ *proud of John*]].

Within the same vein of analysis, the subject of the comparative clause can bind an anaphor sloppily, as in (213) (Lechner's ex. (28)). For binding to be able to take place, the predicate of comparison must be in the base position and not in the Spec, CP position.

(213) a. Mary is prouder of herself than Sally is.

b. The girls are prouder of each other than the boys are.

[27] As Lechner 1999 points out (his ftn. 12), stress on the pronoun largely obviates the unacceptability, as is usually the case with condition C effects:

(i) ??Mary is prouder of John$_i$ than HE$_i$ is.

There are even more reasons to prefer the unified degree *wh*-movement approach to comparatives and subcomparatives. It can be shown that all comparative clauses behave like other *wh*-constructions with respect to sensitivity to negative islands and interaction with certain quantifiers.

As illustrated earlier in (146) and (165), comparatives and subcomparatives obey negative islands. It is well known that negation and downward entailing quantifiers interfere with the interpretation of certain *wh*-phrases: measure DPs like *how many feet* and *how much money*; degree adjectival and adverbial phrases like *how tall* and *how quickly*. As originally discussed in Kroch 1989, amount quantified NPs like *how many books* have a non-referential and a referential interpretation. The referential interpretation is the D-linked interpretation of Cinque 1990 (in the sense of Pesetsky 1987). With exatraction out of negative islands only the referential/D-linked interpretation survives. Thus (214a) has two interpretations: on the referential interpretation the question may be answered with a specific set of books in mind, e.g., *Ana Karenina, The Idiot, The Adventures of Sherlock Holmes*; on the non-referential interpretation an amount, e.g. *three* is the appropriate answer. Extraction out of weak islands, as in (214b) permits only the referential, i.e., the set interpretation. This distinction can be given a structural account if we posit that the restrictor in *how many books* is reconstructed at LF to its base position in the case of the non-referential interpretation. A syntactic reconstruction in the case of *how many* questions has been proposed by Dobrovie-Sorin 1992 and Heycock 1994. Rullmann 1995 gives a semantic reconstruction analysis of this distinction. Thus the LF of the sentences in (214) will be as follows:

(214) a. How many books did they decide to publish?
Referential: [How many books]$_i$ did they decide to publish t_i
Non-Referential: [How many]$_i$ did they decide to publish t_i books

b. How many books did they decide not to publish?
Referential: [How many books]$_i$ did they decide not to publish t_i

It has been proposed in Frampton 1991 that only certain types of traces - individual traces (of type *e*) can be left inside weak islands. A variation of this approach is pursued in Cresti 1995, who argues that weak islands have a special position adjoined to CP, out of

which *wh*-phrases must pass; this position only allows expressions of type *e*.[28] Aternatively, Kroch 1989, Heycock 1994 argue that the non-referential structure is not available whith extractions out of weak islands because of a pragmatic incoherence. The questions are associated with existential presuppositions - *There is a set of books* and *There is an amount of books* such as only the latter is pragmatically well-formed in the context of a weak island. This type of account may be unified with the LF-reconstruction proposed in (214) if we assume that existential presupposition is over the contents of the phrase in Spec, CP. Since in the structure giving rise to the referential reading this is the whole DP *how many books*, the resulting presupposition is *there is a set of books*; in the structure leading to the non-referential reading, the resulting presupposition will be *there is an amount (of books)*. Finally, Rullmann 1995 provides a semantic account of the absence of the non-referential reading. In his system there is a maximality requirement associated with questions. The non-referential reading then asks for the maximal number such as they have decided not to publish that number of books. There is however no such maximal number for (214b) - if they have decided not to publish three books for instance, then it follows that they have decided not to publish four, five, etc... This analysis is again compatible with the different LF representations described in (214) (although Rullmann is not a proponent of such a syntactic reconstruction account) as maximality can be restricted to the content of Spec, CP.

The structural analysis outlined above can be extended to comparatives as well. In particular, the sensitivity to negative islands can be made to follow from an LF for comparatives in which only the degree *wh*-phrase is in Spec, CP and the predicate of comparison, be it an AdjP, an AdvP, or a nominal, is in the base position. If a structure such as the one proposed by Chomsky 1977 were to be interpreted, we would expect a referential interpretation to be available for comparatives whose comparative clauses contain negative islands. This is not the case, since such comparatives are always unacceptable:

(215) *Mary published more books than John did not.
Referential: Mary published more books than [*wh*-many books]$_i$ John did not publish t_i

[28]Strictly speaking, Frampton's and Cresti's approaches are specific to *wh*-islands.

Subcomparatives too are ungrammatical when the *than*-clause contains a negative island, as we saw in (165). This is because an LF yielding a non-referential interpretation is the only one available to them, given that the predicate of comparison is always in the base position.

A related argument that the LF of comparatives involves degree abstraction rather than entity-abstraction comes from the acceptability of comparatives that involve extraction ot of the position open to the definiteness effect. As argued in Carlson 1977 and Heim 1987, only degree relativization can happen out of the *there is* construction. This accounts for contrasts such as the following:

(216) a. *the books which there were t_i on the desk

b. the books that/$\emptyset$ there were t_i on the desk

The account proposed by Carlson and Heim is that *which* can only abstract over individuals where as *that* and the null relativizer can abstract over degrees. The LFs for the relative clauses in (216) are then as follows:

(217) a. * λx[there are x on the table]

b. λd[there are d many books on the table]

The unacceptability of (217) is then derived from the proposal that individual variables count as strong NPs and are thus prohibited from the definiteness restriction environment. A nominal with a degree phrase, such as *d many books* is a weak NP along with analogous phrases such as *three books*. Grosu and Landman 1998 have proposed a variant of this analysis which preserves the degree/individual abstraction distinction of the Carlson-Heim analysis. In particular, they posit the structures in (218) for the nominals in (216). Grosu and Landman assume Milsark's explanation for the definiteness restriction, namely that in the *there-is* construction an $\exists$ quantifier needs to bind a variable in the position open to the definiteness restriction (modulo downward entailing QPs). *Which*-abstraction is vacuous, as the relevant variable is already bound by the $\exists$ quantifier, therefore (218a) is ruled out. *That* and the $\emptyset$ relativizer abstract over the degree variable in *d many books* leaving the individual variable available for the $\exists$ quantifier to bind, as in (218b).

(218) a. * λx $\exists$x[books(x) and on-the-table(x)]

b. λd ∃x[books(x) and |x|=d and on-the-table(x)]

Constructing the relevant examples in the case of comparatives reveals that comparative deletion in the definiteness restriction site is possible, and so is subdeletion:

(219) a. more books than there were on the table

b. more books than there were magazines on the table

The LF for (219a) cannot be as in (220a) since this would leave an individual variable at the position open to the definiteness restriction – a configuration shown to be prohibited. The LF for the comparative must therefore be as in (220b), i.e., with the predicate of comparison at the base position.

(220) a. more books than [*wh-many* books]$_i$ there were t_i on the table

b. more books than [*wh-many*]$_i$ there were t_i books on the table

Support for this analysis further comes from languages with overt *wh*-phrases, such as Bulgarian or Greek. The only element that surfaces in Spec, CP of the comparative clause is a bare *wh*-pronoun. The *wh*-pronoun is a degree-phrase with the meaning of 'how much/many' and it is identical in all types of comparatives, nominal, adjectival, or adverbial (cf. 221), and furthermore is the same *wh*-pronoun that appears in subcomparatives (cf. (222)).[29]

(221) a. poveče knigi ot-*kolkoto* kupihme
more books from-how-many buy-1PL.PAST
'more books than we bought'

[29]Interestingly, pied-piping of the comparative phrase in subcomparatives is accompanied by a meaning change. Example (ia), to the extent it is possible, has a subtle difference in interpretation compared to a regular subcomparative (one without pied-piping). Here the set of magazines is interpreted referentially. Probably a good way to describe this reading is e.g., in a situation when we are looking at stacks of papers and magazines and we are not really aware of the cardinalty of the stack of magazines but just from the size of the stack we can infer there are less magazines than newspapers. As expected, this reading is very hard to get with extraction out of the definiteness restriction position (cf. (ib)) since the latter prohibits individual variables.

(i) a. ?poveče vestnici ot-*kolkoto* spisanija kupihme
more newspapers from-how-many magazines buy-1PL.PAST
'more newspapers than the magazines we bought'

b. *poveče vestnici ot-*kolkoto* spisanija imaše na masata
more newspapers from-how-many magazines there-were on the-table
'more newspapers than there were magazines on the table'

b. po-tâžen ot-*kolkolto* e Maria
more-sad from-how-much be-3SG Maria
'sadder than Maria is'

c. tolkova bârzo *kolkolto* tja bjaga
as quickly how-much she runs
'as quickly as she runs'

(222) a. poveče knigi ot-*kolkoto* kupihme spisanija
more books from-how-many buy-1PL.PAST magazines
'more books than we bought magazines'

b. po-tâžen ot-*kolkolto* Maria e vesela
more-sad from-how-much Maria be-3SG merry
'more sad than Maria is merry'

c. tolkova bârzo *kolkolto* tja bjaga bavno
as quickly how-much she runs slowly
'as quickly as she runs slowly'

A very interesting piece of evidence for the type of the *wh*-operator in comparatives comes from the facts of quantitative *er* in Dutch. I report the facts here as presented by den Besten (1978). He refers to Blom (1977) and Bennis (1977, 1978) for the facts of *er*. In fact, Bennis (1978) seems to have reached the conclusion that Comparative deletion involves Comparative Subdeletion (deletion of the degree-operator) plus independent ellipsis of the compared constituent under identity with the matrix. (I have not seen the Bennis study.) Den Besten himself however does not consider the implications that these facts have for the structure of the comparative clause (perhaps because his goal is simply to show that Dutch comparatives do have *wh*-movement).

In Dutch, *er* lit. 'there' is obligatory as a clitic, doubling weak countable DPs with overt determiners and non-overt NP/N^0s. Consider (223) (den Besten's ex. (45)):[30]

(223) a. Hij heeft er drie.
he has there three
'He has three (ones).'

b. * Hij heeft er drie huizen.
he has there three houses
'He has three houses.'

[30]Sentence (223b) has an irrelevant grammatical reading where *er* 'there' is interepreted as a locative.

Quantitative *er* is possible in comparatives (comparing countable DPs). See the example below:

(224) a. Hij had meer mensen uitgenodigd dan hij (*er*) vorig jaar had uitgenodigd.
he had more people invited than he there last year had invited
'He invited more people than he invited last year.'

I interpret this data to mean that *er* in comparatives is associated with an ellided NP. Crucially, *er* cannot be doubling an individual *wh*-trace, as (225) indicates:

(225) Ik ken geen van de boeken die Jan (**er*) heeft.
I know none of the books which Jan there has
'I know none of the books which John has.'

Given that *er* cannot be associated with traces of individuals, the LF of (224) should be (226a) and not (226b):

(226) a. ...than [*wh-many*$_i$] he *er* invited [t$_i$ [$\emptyset$ people]] last year

b. ...than [*wh-many* people]$_i$ he *er* invited [t$_i$] last year

The phenomenon of Dutch *er* in fact argues for a stronger version of the degree-abstraction account for comparatives. So far, I have largely argued for LF 'reconstruction', i.e., that the predicate of comparison is in the base position at LF, leaving only the degree *wh*-phrase in an operator position. This is consistent with a theory that proposes movement of the whole phrase, e.g., *wh-many people*, and subsequent lowering (of *people*) or failure of deletion of its base copy at LF. This theory already has the disdvantage of positing pied-piping of non-overt material. The distribution of *er* seems to argue even more strongly that in syntax, movement is of a degree-operator only and not of the whole compared phrase. To see that, consider the following reasoning. The conditions on the distribution of *er* could be stated at LF in two ways. One is in terms of association with a QP whose NP restrictor is marked as being deleted at PF. Assuming the copy theory of movement, this could be a way to have syntactic movement of the whole compared phrase plus subsequent 'reconstruction'. This way of stating the conditions on the distribution of *er* however cannot distinguish between comparatives and *wh*-structures such as relative clauses, for instance. As illustrated in (225), *er* cannot associate with the relativization site,

yet presumably this site under the copy theory also contains an NP marked for deletion at PF.[31] (Incidentally, *er* also seems to argue against deletion approaches to ellipsis.) Note also that doing things this way requires LF to make reference to features relevant only for PF. The other way to state the conditions on the distribution of *er*, perhaps the more plausible one since it doesn't have to make reference to features belonging to another interface, is in terms of association with a proform whose content is being identified through an LF-copying mechanism. Unless one posits phrasal movement of the proform and then its reconstruction (note that the proform has to be reconstructed before its identification, otherwise the condition on *er* will not apply, and the only lileky justification for moving the proform in the first place is so that it may be identified), a better way to account for the facts is through positing degree-operator movement in syntax.

Analogous facts to the Dutch *er* come from Italian as well. In Italian compartives (of count nouns, at least), *ne*-cliticization is obligatory. As an illustration consider (227), Donati's 1997 ex. (12). Importantly, *ne* cannot appear in *how many* questions (cf. (228), Donati 1997 ftn. 6), which suggests that its associate cannot be an individual variable.

(227) Paolo ha mangiato più biscotti di quanti$_i$ ne ha mangiati t$_i$ Maria.
Paolo has eaten more cookies than *wh*-pl of-them has eaten Mary
'Paolo ate more cookies than Mary ate.'

(228) Quanti biscotti (*ne) hai mangiato?
how-many cookies of-them have-you eaten
'How many cookies have you eaten?'

The same explanation as the one given for Dutch *er* applies.

In sum, I have argued in this section that comparative clauses should be given an analysis in terms of degree-abstraction. Whether the LF representation is derived directly after syntactic extraction of a degree phrase stranding the predicate of comparison, or it is derived after syntactic reconstruction, is not that important. Perhaps languages even differ in that respect. Languages that show overt *wh*-phrases such as Bulgarian or Italian are best analyzed as involving overt movement of the degree operator, whereas languages like English are indeterminate in that respect. Crucially, the result of the analysis I developed here

[31]The best comparison case is in fact the distribution of *er* in *how many* questions. See below for analogous examples from Italian.

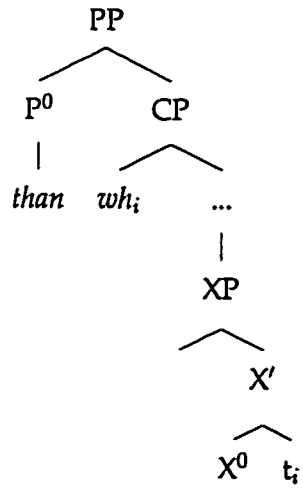
is that the same LF structure is posited for comparatives and subcomparatives. Similarly, nominal, adjectival, and adverbial comparatives can be given the same derivation without being necesary to posit several different types of comparative *er*, as under Kennedy's 1997 analysis.

3.2.4 Degree Free Relative Formation

The discussion in the previous sections was aimed at showing that the same *wh*-movement facts obtain in comparatives and subcomparatives. The particular proposal that I developed was that a degree operator is extracted in all comparative constructions. Comparative Deletion is thus not any different from Subdeletion. Whereas in subcomparatives the remainder of the phrase from which the degree operator is extracted is pronounced, a proform is generated in comparatives in that position and is recovered as in other ACD cases.[32]

The particular structure I proposed for the comparative clause is as follows. The structure in (229) reflects the movement of a degree complement of the compared predicate to an operator position; this structure is posited for all types of comparative clauses.

(229)



My goal in this section is to argue that *wh*-movement in comparatives is part of the formation of a free relative. Moreover, given the proposal in (229), the free relative is one

[32]Kennedy 1997 gives several counterexamples against the proposal that comparatives are an instance of antecedent contained deletion. See Heim 1999 for an alternative explanation of Kennedy's counterexamples to the ACD account of comparatives.

of degree, denoting a definite description of a degree rather than the more common type of a nominal free relative which is a definite description of an entity. The free relative is necessary for the derivation of clausal comparatives because it is nominal in its external syntax and interpretation and yet allows the incorporation of propositional content that only clauses can provide. Restrictive relatives are the only other structure that satisfies this condition, yet they are ruled out in comparatives because they are descriptions of entities rather than of degrees.

Let us briefly see how the syntax of free relatives determines their interpretation. The common meaning of all *wh*-constructions is that of a λ−expression. Further operations on this expression determine the exact meaning of the different *wh*-constructions. Free relatives end up being interpreted just like definite NPs, and when the *wh*-operator is a degree/amount phrase, they denote the highest degree or amount of the set characterized by the predicate. Consider for instance Jacobson's 1995 proposal concerning count free relatives. These end up denoting a maximal plural entity (the unique entity with a given property that is the sum of all other entities with that property). Jacobson's proposal is that the free relative starts out as a predicative expression denoting a set of maximal plural entities (necessarily a singleton). This expression then type-shifts to a maximal plural entity. The type-lowering is accomplished using Partee's 1986 *ι-type shifting rule*, an operation that is defined just in case the set characterized by the predicative expression is a singleton, and that maps the property to the unique individual characterized by that property. The same interpretive procedures apply in degree free relatives. Thus *how(ever) much John earns* starts out as a predicate denoting the set of maximal amounts such that John earns that amount. Type-shifting to an NP denotation results in the free relative being interpreted as denoting the maximal amount that John earns.

How does this work in the case of comparatives? The comparative clause as a *wh*-expression initially denotes a predicate. In the case of (230a), the denotation of the *wh*-expression is the set of maximal degrees to which Ann was sad before, clearly a singleton. After type-shifting, the interpretation of the subcomparative clause is as in (230b): it denotes the highest degree to which Ann was sad before.

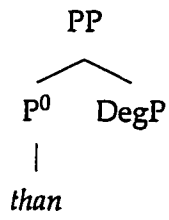
(230) a. ...than $[_{FR}\ [_{\emptyset}$ *to what degree*$]_i$ Ann was sad t_i before].

b. ...than [$_{NP}$ the degree, to which Ann was sad before].

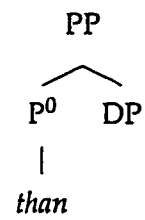
This is the desired interpretation of the comparative clause. Moreover, the same mechanism that is responsible for establishing the denotation of free relatives applies here as well to derive the meaning in (230b) from the syntactic structure in (230a).[33]

The proposal that the comparative clause in clausal comparatives is a free relative allows us to restrict the possible complements of *than* in a way that may be theoretically interesting. Let us suppose that comparative prepositions can only select nominal expressions of two types - DegPs and entity-denoting DPs (the latter being necessary to account for phrasal comparatives).

(231) a.



b.



Comparative *than*, being a preposition, requires a nominal complement. Directly-generated phrasal comparatives [34] such as (232) instantiate the structure in (231b).

(232) John is taller than her.

DegP in (231a) can be instantiated in two ways, a measure phrase such as *5 feet* or a degree free relative e.g., *how much Bill is tall*. Consider (233) and (234) below in this respect. Both of these DegPs are nominal expressions. Degree free relatives are unexceptional in that, like other nominal free relatives, they can appear in argument positions in which DPs can appear.

(233) a. John is taller than 5 feet.

b. John is taller than Bill is.

(234) a. We must have more CDs than (just) 25.

[33]For arguments in support of treating the complement of *than* as a definite description (of a maximal degree) see von Stechow (1984).

[34]Note that I am adopting the position that a class of phrasal comparatives are not derived by ellipsis, cf. Heim 1985 for discussion of the two views on phrasal comparatives.

b. We must have more CDs than Bill has.

From the point of view of selectional requirements on *than* the two DegPs in (233) and (234) are identical. (I will return below to the implications of this fact for the interpretation of comparatives.) Syntactic differences between them, e.g., the fact that only non-free relative DegPs can appear in a pre-head position (cf. (235) and (236)) follow, I believe, from independent facts about the syntactic behavior of free relatives.[35] The facts of (233)-(235) and (234)-(236) are moreover not specific to English.

(235) a. John is more than 5 feet tall.

b. *John is more than Bill is tall.

(236) a. We must have more than (just) 25 CDs.

b. *We must have more than Bill has CDs.

The proposal regarding *than* reveals interesting similarities with other prepositions that seemingly embed clauses, such as *before, after, since.* These have the same range of complements as comparative *than,* they can embed time NPs (cf. (237a)), clauses (cf. (237b)) and individual-denoting DPs (237c):

(237) a. Mary came before 5 o'clock.

b. Mary came before you told us that she had.

c. Mary came before him.

If (237b) can be shown to be a free relative structure, then temporal prepositions will be analogous to comparative ones in their semantic and syntactic subcategorization. It has in fact been argued by Larson 1990 that a covert adverbial with the meaning of *when* is extracted to the Spec, CP of the clausal complements of temporal adverbials. Larson's proposal is designed to account for the fact that sentences like the ones in (237b) are ambiguous. This particular sentence has the two meanings given in (238). It can mean that the event of Mary's coming was prior to the event of telling that she had come, as in

[35]While I cannot provide an account of this fact here, it is certainly suggestive that in many languages free relatives tend to extrapose to clause-final position or are base-generated there in the first place, resulting in correlative structures. This may or may not be related to the difficulty of processing center-embedded structures.

(238a); or that Mary's coming was prior to the time that was reported to be the time of her coming, as in (238b). Extraction of the null adverbial from either of the two embedded clauses derives the ambiguity.[36]

(238) a. Mary came at t_1, and at t_2, you told us about her coming, and t_1 was earlier than t_2.

b. Mary came at t_1, and you told us that she had come at t_2, and t_1 was earlier than t_2.

'Clausal' complements of temporal adverbials can thus be given a free relative analysis too, and thus the range of possible complements of prepositions would be reduced.

It needs to be stressed, that the proposal that clausal comparatives involve degree free relatives concerns the garden-variety of comparatives which in English and some other languages such as German, Dutch, or French are normally introduced by null *wh*-elements. Some complements of comparative *than* are in fact entity-denoting free relatives as, for instance, in the examples in (239a) and (240)[37]. It would indeed be very surprising if such free relatives were not posiible, given the availability of phrasal comparatives such as the ones in (239b) below:

(239) a. Mary is taller than whoever she dates.

b. Mary is taller than anyone she dates.

(240) a. Hij had meer mensen uitgenodigd dan die hij vorig jaar had uitgenodigd.
he had more people invited than which he last year had invited
'He invited more people than the ones he invited last year.'

[36] A further extension of Larson's proposal can be found in Johnson 1988. There he uses the fact that clausal complements of prepositions like *before* and *after* have a null operator in Spec, CP to derive the inability of these prepositions to exceptionally case-mark the subject of a gerund. This accounts for the contrast between (ib) and (iib):

(i) a. Liz left without the story.
b. I left without him explaining the story.

(ii) a. Liz left before/after the story.
b. *Liz left before/after him telling a story.

The (a) sentences illustrate that all three prepositions check case.

[37] Example (240a) is den Besten's 1978 ex. (20).

Interpretive differences can be found between the two types of free relatives available in the comparative construction. As argued by den Besten 1978, there are interpretive differences between sentences such as (240a), which contain entity-denoting free relatives and comparatives with null *wh*-operators in the *than*-clause, as in (241). The former assert that the set of people invited to the party last year is a proper subset to the set of people invited this year. The latter sentence, on the other hand, is compatible with a situation where there is no overlap between the two sets of guests. What is compared is not the individual guests this year vs. last year but the cardinalities of guests.

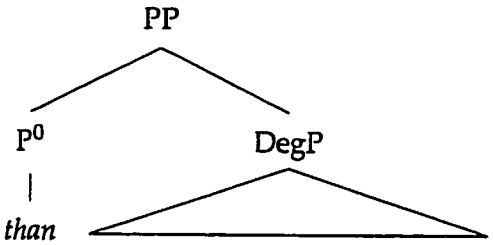
(241) Hij had meer mensen uitgenodigd dan hij vorig jaar had uitgenodigd.
he had more people invited than he last year had invited

Thus, we see that comparative constructions may involve free relatives just as they may have the complement of *than* be a DP. The availability of these entity-denoting free relatives is thus predicted, and it is one way to instantiate the structure in (231b). Crucially, these are not the free relatives that I am proposing are the complements of *than* in 'ordinary' comparative clauses.

The following then are the possible complements of comparative *than*:

(242)

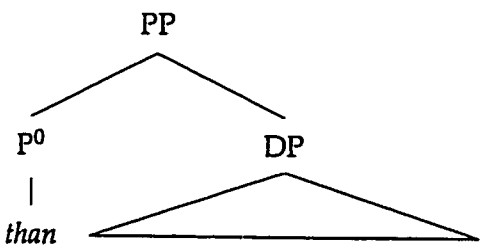
a.



degree, e.g., *5 feet*

degree (denoting) free relative

b.



entity, e.g., John

entity (denoting) free relative

3.2.5 Degree Free Relatives in the Overall Analysis of Comparatives

One of the main results of the degree free relative analysis of comparative deletion is that 'clausal' comparatives come out as a particular instance of phrasal comparatives. Both 'clausal' complements of *than*, as in (243a) and measure phrases, as in (243b), instantiate the structure in (242a) and should receive essentially the same semantic analysis.

(243) a. Mary is taller than John is.

b. Mary is taller than 6 feet.

These sentences contrast with phrasal comparatives in which the surface complement of *than* is a DP, as in (244). The analysis of such sentences is controversial. It is commonly assumed that the DP is a remnant of ellipsis in the comparative clause, as in (244a) (cf. Bresnan 1973, Lechner 1999, among others). However, there are strong syntactic reasons to posit the structure in (244b) for at least some of the cases of phrasal comparatives, as shown in Hankamer (1973), Napoli (1983), Hazout (1995), among others - typically these are extraction and binding facts, as well as case-morphology on the DP. There are also semantic reasons to distinguish between phrasal comparatives and their clausal counterparts, in particular lack of ambiguities in intensional contexts (so-called Russell ambiguity). Furthermore, there have been explicit semantic accounts based on syntactically direct generation of phrasal comparatives (cf. Heim 1985, Gawron 1995, Kennedy 1997).

(244) Mary is taller than John.

a. Mary is taller than [wh_i John [$_\emptyset$ is tall t_i]].

b. Mary is taller than [$_D$P John].

I will not repeat here the arguments in favor of a direct generation analysis of (at least some) phrasal comparatives.[38] I will just add one more example of a difference between phrasal and clausal comparatives that has not been discussed elsewhere as far as I know. Descriptively, *than* PPs can be stacked only when the first *than* has a phrasal complement and the second one has a clausal complement (cf. 245):[39]

(245) a. John is (much) taller than Mary than Bill is.

b. *John is (much) taller than Mary is than Bill is.

c. *John is (much) taller than Mary than Bill.

[38]The above references offer a number of linguistic examples and discussion in support of the direct analysis. Additionally, there is some psycholinguistic evidence that phrasal comparatives are not derived from a clausal source. Fodor and Garrett 1966 found that sentences like *Bill runs faster than John* are easier to process than their clausal counterparts, i.e., *Bill runs faster than John does*. Therefore the former cannot be derived through the latter by ellipsis.

[39]The facts are the same in Bulgarian as well.

Sentence (245a) compares the difference between John's height and Mary's height to the difference between Bill's height and Mary's height. It will be true, for instance, in case John is 20 inches taller than Mary whereas Bill is only 3 inches taller than her. In other words, comparison is between the degrees to which the two sets of heights differ (the difference degrees). Likely, the source for this sentence is a structure such as the following:

(246) a. John is (much) taller than Mary than Bill is [∅ taller than Mary].

b. John is [*-er* than [wh_i Bill is d_i-taller than Mary]] taller than Mary

The unusual thing about (246) is that the comparative operator *-er* appears to be interpreted twice - once as the main operator comparing the two difference degrees and a second time as the operator comparing the absolute degrees of tallness. One may think that some copying mechanism of the comparative operator is responsible for (246), perhaps accompanied by a morphophonological prohibition against spelling-out two adjacent identical morphemes. Complex comparative determiners such as *less* and *fewer* which are arguably decomposable into *-er little* and *-er few* (cf. e.g., Heim 2000) show that such copying should apply only to *-er*. Consider the interpretation of (247) and (248):

(247) a. John is (much) less tall than Mary than Bill is.

b. John is [*-er* than [wh_i Bill is d_i-less-tall than Mary]] less tall than Mary

(248) a. John has (much) fewer CDs than Mary than Bill does.

b. John has [*-er* than [wh_i Bill has d_i-fewer-CDs than Mary]] fewer CDs than Mary

The interpretation of (247) is that the extent to which John is shorter than Mary is *bigger* than the extent to which Bill is shorter than Mary, e.g., Mary is 6 feet tall, John is 5'5" and Bill is 5'9". Similarly, for (248), the difference between the number of Mary's and John's CDs is bigger than the difference between the number of Mary's and Bill's CDs.

Let us assume for the purpose of the argument that indeed *-er* is copied and interpreted twice. The interpretation of (246) will be achieved in the usual way, through raising of the *-er* + *than*-PP, and resolution of the ellipsis in the comparative clause:

(249) a. John is [*-er* than [wh_i Bill is d_i-taller than Mary]] taller than Mary

b. [*-er* than [wh$_i$ Bill is d$_i$-taller than Mary]]$_j$ John is d$_j$ taller than Mary

Importantly for our purposes here, the comparison in the ellipsis site can only be expressed through a phrasal comparative (cf. the contrast between (245a,b)) and the structure in (249) can only be derived if the complement of the *than* associated with the main comparison, that between the difference degrees, is a clause, not a phrase (cf. the contrast between (245a,c)). If all phrasal comparatives had a clausal source, these set of facts would not have occurred.

Interestingly, supporting the parallels between degree free relatives and simple degree phrases such as *10 inches*, and the distinction between those two kinds of degree phrase complements of *than* and DP complements of *than* in phrasal comparatives, the facts in (245) hold for the simple degree phrase *than* complements, as well. Consider the possible and impossible B responses (in (251)) to the A statement (in (250)):

(250) A: John is 10 inches taller than Mary (is).

(251) B: No...

a. ... John is (much) taller than Mary than (just) 10 inches.

b. *... John is (much) taller than Mary is than (just) 10 inches.

The interpretation of (251a) is likely derived over a structure such as (252d):

(252) a. John is [*-er* than (just) 10 inches] taller than Mary

b. [*-er* than (just) 10 inches]$_i$ John is d$_i$ taller than Mary

c. [*-er* than (just) 10 inches]$_i$ John is [d$_i$ [*-er* than Mary]] tall

d. [*-er* than (just) 10 inches]$_i$ [d$_i$ [*-er* than Mary]]$_j$ John is d$_j$ tall

It is possible that the reason why a degree free relative complement of *than* is unacceptable in cases of comparison between differential degrees is that ellipsis would not be resolved properly.

3.3 Conclusion

The main proposals in this chapter concern the overall structure of the comparative construction and the mechanisms behind Comparative Deletion. I argued that clausal comparatives - nominal, adjectival, and adverbial, as well as subcomparatives - have degree free relatives as the complements of the comparative preposition. Comparative Deletion and Subdeletion are the same and they involve the extraction of a degree operator from the internal argument position of the comparative predicate. Clausal comparatives are thus, in essence, phrasal, given that the free relative complement of *than* denotes a DegP. It is furthermore proposed that at least some phrasal comparatives are directly generated. The analysis of comparatives in terms of dergree free relatives may be extended to constructions with *same* and *different* (*Mary saw the same movie as John did*). Such comparatives of identity involve kind free relatives – nominal *wh*-structures that denote definite descriptions of kinds.

Chapter 4

Concessive Free Relatives

The literature on free relatives has concentrated on the properties of these constructions (i) in clause-internal argument or adjunct positions (cf. Bresnan and Grimshaw 1978, Groos and van Riemsdijk 1979; Grosu 1994, 1996, Larson 1987, Jacobson 1995, Grosu and Landman 1998, a.o.); and (ii) in correlatives (cf. Andrews 1985, Dayal 1995, 1996, a.o.). In all these cases, free relatives have the syntactic behavior and interpretation of subclausal phrases - DPs, AdvPs, or AdjPs, depending on the category of their *wh*-word.

Free relatives can also function as FREE or ABSOLUTE adjuncts, i.e., as sentence-level adverbial clauses which do not have an overt logical connective, linking them to the main clause. This chapter identifies a number of syntactic and semantic issues raised by free adjunct free relatives. First, plain *wh*- free relatives cannot appear as absolute adjuncts. The presence of a particle (e.g., *immer* 'ever', *auch* 'as well' in German; *-quier(a)* 'ever' in Spanish; *-kolwiek* 'ever' in Polish) or the subjunctive mood (e.g., in Greek, Spanish) in the free relative is necessary. This restriction promises to shed light on the status of *ever* in free relatives, an issue that has been of continued interest (cf. Larson 1987, Tredinnick 1994, Iatridou and Varlokosta 1997; Jacobson 1995, Rullmann 1995, Dayal 1996, 1997). Second, the availability of free relatives as free adjuncts is surprising, given that DPs and AdjPs in general cannot function as free adjuncts. Indeed, putative cases of free adjunct DPs or AdjPs (perhaps all such cases) must be given a clausal analysis. This suggests that we should reconsider the phrasal-only analysis for free relatives, at least for those free relatives that have no overt heads. Such a conclusion is strengthened by the fact that overtly-headed

free relatives are prohibited from the free adjunct environment. Third, the free relatives allowed as free adjuncts fall into subgroups, depending on their internal syntax. Those free relatives whose *wh*-word incorporates a definite element (e.g., Bulgarian, Greek) require the subjunctive mood, whereas free relatives formed through interrogative syntax (e.g., English, Polish, Hebrew, some free relatives in Bulgarian) may appear in the indicative. The study of free adjunct free relatives thus highlights the structural differences that exist among types of free relatives, within languages and crosslinguistically. Fourth, free adjunct free relatives receive the interpretation of concessive clauses in the absence of an overt concessive connective, which raises the question of how to derive the meaning in a compositional and principled way.

To address the above issues, I propose that free adjunct free relatives are bare CPs, i.e., there is no further syntactic structure that is merged with the CP projection to turn the free relative into a phrase, a DP or some other category, as commonly believed for the structure of free relatives (cf. references above). The syntactic analysis developed in Chapter 1 allows for such a possibility. Instead of the moved *wh*-element projecting, the derivation proceeds in a more conventional way, with the C^0 determining the category of the free relative and the moved *wh*-phrase merging as a specifier to the CP projection. In support of this proposal for free adjunct free relatives, it is shown that these may have multiple *wh*-words and that clearly nominal free relatives, such as *lo que* 'the that' free relatives in Spanish or *afto pu* 'this that' free relatives in Greek, may not function as free adjuncts. I further propose that free relatives in free adjunct position denote an exhaustive set of propositions, determined by alternatives to the *wh*-word. This interpretation can be arrived at in different ways. Variability on the denotation of the *wh*-word, and the set of propositions that it generates, may be contributed by interrogative syntax - the question meaning being characterized by the set of its answers (cf. Hamblin 1973, Karttunen 1977). In case the *wh*-word incorporates a definite element and thus may not receive the interpretation of an interrogative pronoun, variability is ensured through the semantic contribution of the subjunctive (cf. Farkas 1996). Exhaustivity is usually contributed by an additive operator, though in the case of a definite *wh*-words, the additive operator appears to be optional. Indeed, I show that when the free adjunct free relative is formed with a question *wh*-word (as in English, German, Polish, or Russian), an additive focus particle

is required, whereas when the free relative is formed with a non-interrogative *wh*-word incorporating a definite element (Greek, Bulgarian), the subjunctive mood is required. Finally, the free adjunct syntax contributes the semantics of conditional modification (cf. Stump 1985) as the last ingredient necessary for the concessive interpretation of free adjunct free relatives.

4.1 Free Relatives as Free Adjuncts: Initial Characterization

Whereas sentential adjuncts are normally introduced by a connective complementizer (e.g., *because, if, since,* etc.) that determines their semantic relationship with the main clause, the so-called FREE or ABSOLUTE adjuncts are sentence-level adverbial clauses without an overt logical connective. Free relatives can function as such free adjuncts. The free adjunct function of free relatives is exemplified by the sentences in (253):

(253) a. Whatever I say, Ed will quit his job.

b. However hard she tries, Sylvia will not become a movie star.

c. However smart she was, Nina did not solve the problem.

Consider for example (253a). The free relative *whatever I say* is not an argument of the main predicate *quit*. Thus (253a) instantiates a different phenomenon from (254a), where the same free relative appears as the direct object of *like*, and from the correlative-like (254b), where the same free relative is left-dislocated and coindexed with an argument of the main predicate.

(254) a. They like [whatever I say].

b. [Whatever I say]$_i$, they like it$_i$.

Similar considerations apply in the case of (253b) and (253c). Here too there is no (clear) syntactic link between the adjunct and the main clause: neither a chain linking the adjunct to some position in the main clause, nor an explicit logical connective.

Despite the absence of an overt clausal connective, the semantic role of the free relatives in (253) is not arbitrary. The sentences below are close paraphrases of those in (253) but with an overt connective. Some variation in interpretation exists, but the common semantic

role of these free adjunct free relatives is to evoke conditions for the truth of the proposition expressed by the clause to which they are adjoined, and then present the evoked conditions as irrelevant for the truth of that proposition. Such a semantic relationship is known in traditional grammar as CONCESSION. The paraphrases in (255) all involve concessive connectives.

(255) a. Irrespective of anything I say, Ed will quit his job.

b. Even if she tries very hard, Sylvia will not become a movie star.

c. Although she may be smart, Nina did not solve the problem.

The purpose of this chapter is to provide an analysis of the syntax and semantics of free relatives functioning as free adjuncts. A note on terminology is in order before we proceed. I will use the terms FREE ADJUNCTS and ABSOLUTE ADJUNCTS (or simply ABSOLUTES) interchangeably. The term ABSOLUTE CONSTRUCTION or ABSOLUTE ADJUNCT (or ABSOLUTE for short), is commonly used in traditional grammars as a cover term for sentence-level adverbials whose syntactic relationship with the main clause is not expressed through an overt connective (cf. Visser 1972, Quirk et al. 1985, see also Stump 1985). The term FREE ADJUNCT is also used in such a general way, though perhaps less often (cf. Kruisinga and Erades 1953). The following are some examples:

(256) a. *No further discussion arising,* the meeting was brought to a close. (Quirk et al. 1985 p. 1120)

b. We shall assemble at ten forty-five, *the procession to start at precisely eleven.* (Visser 1972, p. 1056)

c. *With John at the wheel,* there wouldn't have been any problem. (Stump 1985, p.13)

d. *Unable to meet his eyes,* Kate looks down at her hands. (Stump 1985, p.4)

e. She awoke that morning earlier than was her wont, *emerging from a delicious sleep into a waking no less pleasant.* (Kruisinga and Erades 1953, p. 52)

Sometimes, the term ABSOLUTE, or ABSOLUTE FREE ADJUNCT is used to refer specifically to a subset of such constructions, namely to those which have an overt subject, as in (256a-c)[1], while the term FREE ADJUNCT is kept for sentential adverbials without an overt subject, as in (256d, e) (cf. Kruisinga and Erades 1953, Stump 1985). I will not be concerned with the fine-grained distinctions here and will use both FREE ADJUNCT and ABSOLUTE ADJUNCT to refer to the function of free relatives examined here.

The free adjuncts in (253) that are the subject matter of this chapter raise a number of interesting syntactic and semantic issues. One is the fact that plain *wh-* free relatives cannot appear as absolute adjuncts. The presense of either a particle such as *ever* or the subjunctive mood (in the languages where subjunctive free relatives are the interpretive counterpart of *wh-ever* free relatives). This is puzzling if plain *wh-* and *wh-ever* free relatives are to be given essentially the same structural and semantic analysis, as some accounts do. The second reason free relative absolute adjuncts are theoretically interesting is that other phrasal categories (assuming that free relatives are externally subclausal) - at least DPs and AdjPs - are not freely allowed in the syntactic configuration of absolute adjuncts. This again promises to shed light on the structure, and likely on the interpretation as well, of free relatives. In particular, this fact suggests that free relatives are not necessarily phrasal in their external syntax. The third issue of interest is the character and the source of the logical relation between the absolute adjuncts and the main clause. At the absence of an overt connective, the concessive interpretation that arises must be constructed from the components of the free relative. The construction of meaning has the potential to not only uncover syntactic and semantic properties of free relatives that may otherwise remain unnoticed but will also have implications for more general issues of compositionality.

In sum, the questions that need to be addressed are (i) why *wh-ever*-type free relatives are special in being able to appear in the absolute construction, and (ii) how and why they trigger the particular interpretations that they do. In answering these questions,

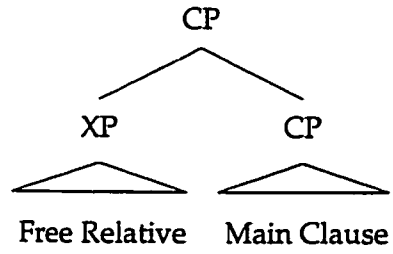
[1]Stump 1985 makes a further distinction between nominative absolute constructions, as in (256a,b), where the subject appears in the nominative case, and augmented absolute constructions, as in (256c), which are introduced by a preposition, typically *with* or *without*. Interesting questions arise concerning the case of the subject in the nominative absolute construction. In Old English the subject could appear in the dative, the instrumental, or the accusative case, in addition to the nominative; since the Middle English period the nominative case is prevalent (cf. Visser 1972, v.II, pp. 1073-1076, pp. 1147-1158). A further notable property of nominative absolutes is that expletive *there* is (and was historically) obligatory, whereas the pro-form *it* is not (and was not historically) obligatory (cf. Visser 1972, v.II, pp. 1161-1162).

we cannot rely on much existing work. Despite the fair amount of attention devoted to free relative clauses in linguistic analyses, there is only one study discussing free relative absolute adjuncts, Quer (1998), as far as I am aware. Dayal (1997) mentions examples like the those in (253) but only in passing (understandably so, given the somewhat different aims of her study). The literature on free adjuncts also does not discuss free relatives in this role (e.g. Stump 1985). Examples of free relatives as free adjuncts are given in the literature on concession (cf. König 1985, 1986, 1988; Haiman 1974, Harris 1988) but only as one of many ways to express the concessive relationship; there are no attempts to relate the concessive role to independent syntactic or semantic properties of free relatives.

4.1.1 Syntactic Considerations

The free adjunct free relatives in (253) can plausibly be assigned a structure as in (257), where the free relative of category XP is adjoined to the CP of the main clause. The XP can plausibly be a DP, AdvP, or an AdjP, respectively, if indeed free relatives have the category of their *wh*-phrase.

(257)



In (253) then, we have a case of a DP, an AdvP, and an AdjP free relative somewhat loosely connected with the main clause. As pointed out above, these free relatives are not in any obvious way linked to a position in the matrix the way correlative clauses are (cf. chapter 1) since there are no overt proforms in the sentences in (253). Moreover, it is not easy to see what argument/adjunct positions could be filled by covert proforms in these cases.

In this section I examine evidence for the *wh-ever* restriction, and for the restriction on the category of absolute adjuncts, and briefly suggest an explanation; a more detailed account for the restrictions is offered in section 4.2. In section 4.2 I also explore the

interpretation of the non-overt logical link between the main clause and the free relative absolute adjuncts.

4.1.1.1 The *Wh-Ever* Restriction

Only *wh-ever*-type of free relatives can appear as clausal adjuncts. Below I discuss data from English, German, Spanish, Catalan, Polish, Russian, and Bulgarian in support of this generalization. These languages instantiate several possible paratmeters for free adjunct free relative formation and it will be instructive to examine them for a range of options for constructing a concessive meaning out of a free relative.

ENGLISH

Example (258) below contains the plain *wh-* free relative corresponding to (253a) and it is ungrammatical. The plain free relative analogues to (253b) and (253c) are independently not well-formed (see (259a) and (259b)), however (260)-(261) give examples of other, independently well-formed *ever*-less free relatives, which are not acceptable as clausal modifiers.

(258) *What I say, Ed will quit his job.

(259) a. *Bill tries how hard she tries.

b. *Don wishes he were how smart she was.

(260) a. *What presents Tom gave her, Phyllis was never happy.

b. cf. Whatever presents Tom gave her, Phyllis was never happy.

c. cf. What presents Tom gave her were never appreciated.

(261) a. *Where you put the sofa, the room will look nice.

b. cf. Wherever you put the sofa, the room will look nice.

c. cf. I want to put the piano where you put the sofa.

Apart from the requirement that the free relative be of the *wh-ever* type, there are no restrictions on the category and syntactic function of the *wh*-phrase. All independently

well-formed free relatives with *-ever* are possible, as the examples in (262) below show. The *wh*-words in the free adjunct free relatives also cover a variety of argument and adjunct roles, as is also illustrated by (262) in addition to the examples in (253).[2]

(262) a. However many students there were in her class, Sarah always graded exams on time.

b. Whichever car we take, the trip to New York is still 4 hours.

c. Whoever asks you to dance, you have to be home by midnight.

[2]Examples of concessive free adjuncts with *whenever* are very hard to come up with. I believe that this is because an alternative interpretation of such clauses as temporal predicate-adjuntcs is easily available given that most predicates readily allow temporal modifiers. Thus, in an example like (ia), the free relative is a temporal adjunct to the matrix predicate, interpreted as a universal quantifier over times. The main clause predicate *be polite* can easily be construed as a predicate of individuals and times, hence the interpretation in (ib).

(i) a. Whenever you call me, I will be polite.

b. ∀t[you call me at t][I am polite at t]

The above logic predicts that when there is another temporal adverbial in the main clause, or when the main clause predicate disfavors temporal modification, a concessive reading should emerge; yet such readings are marginal (cf. (ii), which is not especially felicitous, and (iii), which receives):

(ii) a. ??Whenever you call me, I will be waiting for you tonight.

b. ??Whenever you call me, I have already made up my mind.

(iii) a. Whenever you calculate it, 235 multiplied by 879 equals 206565.

b. ∀t[you calculate 235x879 at t][235x879=206565 at t]

Interestingly, the possible overt paraphrases of the concessive free relatives split into whether they allow a *when*-clause to act as part of a concessive. Consider the examples below:

(iv) a. ??No matter when you call me, I have already made up my mind.

b. It doesn't matter when you call me, I have already made up my mind.

The same facts obtain with free relatives of reason. Larson (1987) points out that in English (and in other languages as well) there is no free relative counterpart of interrogative *why* (cf. (va)). This may or may not be the case: Jacobson (1995) provides the acceptable (vb) as an example of a *why* free relative; yet (vb) is a pseudocleft and the *wh-* term in (some) pseudoclefts may be a question and not a relative clause (cf. Schlenker 1998, den Dikken, Meinunger and Wilder 1998), in which case (vb) will not be an example of a *why* free relative. Still, whether or not there are *why*-free relatives, free relatives formed with *for whatever reason* are well formed, yet they cannot appear as concessive free adjuncts (cf. (vi)).

(v) a. *I am sure John committed the crime why(ever) Bill did. (Larson 1987, p.264)

b. Why John left was to get to the party on time. (Jacobson 1995, p. 470)

(vi) a. John quit school for whatever reason Bill did.

b. ??For whatever reason you quit grad school, you should at least get an MA first.

d. Whoever Heidi dedicates her book to, she should acknowledge her family's help.

e. Wherever he decides to settle, his sister will be happy.

f. In whatever town you decide to settle, you should always come and visit me.

g. However Ralph fixes my TV, I'll pay him.

h. However tall he may be, he won't reach the ceiling.

In sum, all and only *wh-ever* free relatives are allowed to function as free adjuncts (and we will have to put aside the question of why free relatives of time and reason are degraded).[3]

The prohibition against plain *wh-* free relatives in free adjuntcs holds for other languages besides English, among them Bulgarian, Polish, Greek, German, Spanish. Not all of these languages form *wh-ever*-type free relatives in an analogous way with English. Bulgarian and Greek, for instance, must use the subjunctive mood in *wh-ever*-type free relatives, and the subjunctive mood is required in the case of free adjuntcs (see example (303) below for Bulgarian examples). As it turns out, a language may either use an *-ever*-type particle or the subjunctive (or both) in free adjunct free relatives, but never a plain *wh-* indicative free relative.

GERMAN

German is similar to English in that its *wh-ever*-type free relatives are formed by adding a particle to the *wh*-pronoun. German has the option of using *immer* 'ever' or the focus particle *auch* 'as well', or both, in *wh-ever* free relatives in argument positions. When the free relative functions as a free adjunct, *auch*, or both *auch* and *immer* must be present (in case the *wh-* pied-pipes other material):

(263) a. Wie klug sie *auch* ist, sie kann das Problem nicht lösen
how smart she also is she can the problem not solve
'However smart she is, she cannot solve the problem.'

[3]One case where a plain *wh-* free relative appears as a free adjunct is the idiomatic expression *Come what may* (Quirk 1985, p. 1102) where we have an *-ever*-less free relative with a fronted predicate. Predicate fronting is possible in some concessive expressions (cf. *Smart though he was; Strange though it may seem*). Because predicate fronting in free relatives is not productive, I will not consider this case a counterexample to the *wh-ever* only restriction.

b. Wie klug sie *auch immer* ist, sie kann das Problem nicht lösen
how smart she also ever is she can the problem not solve
'However smart she is, she cannot solve the problem.'

c. *Wie klug sie ist, sie kann das Problem nicht lösen
how smart she is she can the problem not solve
'How smart she is, she cannot solve the problem.'

In case the *wh*-pronoun is not part of a larger phrase, some speakers find it possible to have *immer* 'ever' on its own, without *auch* 'as well' (cf. (264a)). The focus particle *auch* is again posible on its own (cf. (264b)), or together with *immer* (cf. (264c)). Crucially, as in (263) above, the *wh* free relative without *immer* or *auch* is not acceptable (cf. (264d)) on the relevant concessive reading (the sentence can be interpreted with the free relative as an argument of the matrix, i.e., a structure resulting in the reading that the dish he cooks is the prize he will win).

(264) a. (??) Was *immer* er kocht er wird gewinnen.
what ever he cooks he will win
'Whatever he cooks he will win.'

b. Was er *auch* kocht er wird gewinnen.
what he also cooks he will win
'Whatever he cooks he will win.'

c. Was *immer* er *auch* kocht er wird gewinnen.
what ever he also cooks he will win
'Whatever he cooks he will win.'

d. *Was er kocht er wird gewinnen.
what he cooks he will win
'What he cooks he will win.'

The fact that *immer* 'ever' on its own cannot license a free adjunct free relative structure suggests that free relatives in such a position are not interpreted exactly the same as *wh-ever* free relatives in argument position. This point will be taken up in more detail in section X.

OLDER ENGLISH

It appears that in older stages in English the *wh-ever*-only requirement held too. The examples of free relative free adjuncts I found in Visser 1972 were all cases of *wh-ever*. Some examples are the following (Visser 1972, v. II, p. 699):

(265) a. I tell thee Mugeroun we will be friends, And fellows to, what euer stormes arise. (1592)

b. If he guard thee..., Whoe'er assails thee, thy success is sure. (1781)

One exception seems to be the now archaic *How be it* where no *ever* is present. Note however the subjunctive mood. This appears to not have been a productive way to form free relative adjuncts historically, which is further suggested by the eventually established spelling (cf. 266b). Examples from Visser 1972 (v. II, p. 811) include the following:

(266) a. How be hit, I wyl not fayle you. (1470-85)

b. Howbeit, in the meantime, the english adventurers ... did winne much ground. (1612)

In some cases/time-periods in the history of English the subjunctive may have been required in concessive free relatives. Thus Visser 1972 (II pp. 912-913) notes that a 1788 grammar of English - *Elements of the Grammar of the English Language* - states that the subjucntive is required after *however*, listing examples like the following:

(267) a. if the citizens and burgesses of any city or borough shall choose such a one, however reluctant he appear, he may be obliged to attend. (1743)

b. His herte is colde, Howsoeuere the game go (1450)

POLISH

Polish is a languages that can use an *-ever*-type particle or the subjunctive to form free adjunct free relatives. The plain *wh-* free relatives cannot have the role of free adjuncts.

Polish free adjunct free relatives behave similarly to their English counterparts. When *-kolwiek* 'ever' is added to the *wh*-phrase, the free relative can function as a concessive free adjunct (268a). Bare *wh-* free relatives are prohibited as free adjuncts (268b).

(268) a. Co*kolwiek* ty zrobisz Jan nie dostanie pracy.
what-ever you do Jan not get job
'Whatever you do, Jan will not get the job.'

b. *Co ty zrobisz Jan nie dostanie pracy.
what you do Jan not get job
'What you do, Jan wil not get the job.'

Interestingly, if the mood of the free relative is changed to subjunctive *and* a seemingly pleonastic negation is added, plain *wh-* free relatives become acceptable, as in the following:

(269) a. Co bys nie zrobil Jan nie dostanie pracy.
what be-SUBJ not done Jan not get job
'Whatever you do, Jan will not get the job.'

b. Co*kolwiek* bys nie zrobil Jan nie dostanie pracy.
what-ever be-SUBJ not done Jan not get job
'Whatever you do, Jan will not get the job.'

The *-ever* particle can co-occur with the subjunctive and the negation, as in (269b) but crucially it is not obligatory (cf. (269a)). I will return later to the question of the role of the subjunctive and the negation.

SPANISH

Consider now the facts of Spanish. Free relatives with definite determiner heads cannot occur as free adjuncts whether in the indicative (cf. 270a) or the subjunctive (cf. 270b).[4]

(270) a. *Lo que cocinó, él no ganariá la competencia.
the that cook-3SG.PAST.IND he not win-3SG.COND the competition
'Whatever he cooked, he did not win the competition.'

b. *Lo que cocine, él no ganará la competencia.
the that cook-3SG.SUBJ he not win-3SG.FUT the competition
'Whatever he cooks, he will not win the competition.'

These free relatives are nominal in syntax and interpretation and thus they may not occur in free adjunction structures. In order for these free relatives to appear as part of a concessive construction, they must be embedded under a higher concessive predicate, such as *no importa* 'it doesn't matter'.

There is another way to use the definite determiner free relatives as part of a concessive construction but in this case they have to be subjunctive and furthermore have to be embedded under a reduplicated copy of their subjunctive predicate. Consider the sentences below:

(271) a. Cocine lo que cocine, él no ganará la competencia.
cook-3SG.SUBJ the that cook-3SG.SUBJ he not win-3SG.FUT the competition
'Whatever he cooks, he will not win the competition.'

[4]The facts discussed is (270), (271), and (272) obtain for Catalan as well. See Quer 1998.

b. *Cocinó lo que cocinó, él no ganariá la
cook-3SG.PAST.IND the that cook-3SG.PAST.IND he not win-3SG.COND the
competencia.
competition
'Whatever he cooked, he did not win the competition.'

The facts of (271) underscore the importance of the subjunctive mood in the absence of an *ever*-type particle. They also show that clearly nominal free relatives cannot occur as free adjuncts. I believe that this is related to the other syntactic restriction exhibited by free adjuncts - namely the prohibition on the extended projections of lexical categories, particularly DPs and AdjPs, to appear as absolute adjuncts. Importantly, it is not the absence of an *-ever*-type reading that rules out these free relatives. In the subjunctive mood, *lo que* free relatives have the free-choice reading of English *whatever* free relatives (e.g., (272), from Quer 1989, ex. (72), p. 188).

(272) Enséñame lo que compres.
show-IMPER the that buy-SUBJ.2SG
'Show me whatever you buy.'

Spanish has another type of free relatives, namely the ones formed with a *wh*-word and the particle *-quier(a)* 'ever'.[5] The *quienquiera* class arose as the result of reanalysis of a relative clause headed by a relative pronoun in the context of *querer* 'want' (cf. Rivero 1991).[6] These can function as free adjuncts; example (273) shows that this is the case. The use of the subjunctive is obligatory as well.

(273) Quienquiera que llame, no abras la puerta.
whoever that call-SUBJ.3SG not open-SUBJ.2SG the door
'Whoever might call, do not open the door.'

These *wh*-free relatives may also occur in structures with a reduplicated subjunctive, just like the *lo que* free relatives illustrated in (271). The following example is from Quer 1998, p.243:

(274) Llame quienquiera que llame, no abras la puerta.
call-SUBJ.3SG whoever that call-SUBJ.3SG not open-SUBJ.2SG the door
'Whoever might call, do not open the door.'

[5]This option is apparently not available in Catalan.

[6]As Köning 1985 points out, predicates of volition (and permission) commonly play a role in the development of concessive constructions, cf. also *hotja* 'although', lit. *want* in Russian.

The fact that *wh-quier(a)* free relatives can occur in structures like (274) should not be taken to mean that these are not free relatives but simple determiners/free-choice items like the *cualquier(a)* 'any' class. The *quienquiera* expressions cannot occur on their own, without a CP, unlike the *qualquier(a)* items, and they may not take relative clauses, again unlike the *qualquier(a)* class. (See Quer 1998 for discussion of these facts.)

BULGARIAN

So far, we have seen that clearly nominal free relatives like the Spanish *lo que* free relatives may not occur as free adjuncts. Furthermore, either an *ever*-type particle is required in free relatives (as in English, German, and Polish) or the subjunctive mood and negation (as in Polish), or both the particle and the subjunctive (as in Spanish *wh-* free relatives and possibly in older English as well). Now we turn to Bulgarian which is an example of a language that does not have *-ever*-type particles but employs the subjunctive to express the meanings associated with *wh-ever* free relatives - the free choice and the identity meaning. Only subjunctive free relatives are acceptable as free adjuncts in this language (and the same facts obtain for Greek as well) (cf. (275a)). Indicative free relatives are not possible in this function (whatever the tense) as (275b, c) show.

(275) a. Kakvoto (i) da kaža toj veče e vzel rešenie.
what alos SUBJ say-1SG he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

b. *Kakvoto kazvam toj veče e vzel rešenie.
what say-1SG.PRES he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

c. *Kakvoto šte kaža toj veče e vzel rešenie.
what will say-1SG he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

An interesting thing to note is that in both Bulgarian and Greek an additive particle with the meaning of *also* is preferably used in conjunction with the subjunctive (cf.(275a)). It appears not to be obligatory, although it is the better option, and its use is not peculiar to the free adjunct free relatives, i.e., it is also found in free relatives in argument/adjunct positions inside the matrix clause.

Bulgarian and Greek also have a class of free relatives with a CP-external demonstrative heads. These are similar in their syntax and interpretation to the *lo que* free relatives of Spanish. Importantly, just as the Spanish *lo que* relatives, these cannot appear as free adjuncts, no matter what their mood. The following examples from Bulgarian illustrate that the free relatives headed by demonstratives may not be free adjuncts:[7]

(276) a. *Tova koeto (i) da kaža toj veče e vzel rešenie.
this which and SUBJ say-1SG he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

b. *Tova koeto kazvam toj veče e vzel rešenie.
this which say-1SG.PRES he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

c. *Tova koeto šte kaža toj veče e vzel rešenie.
this which will say-1SG he already be-3SG taken decision
'Whatever I say, he has already made his decision.'

Bulgarian has another option of forming a free adjunct free relative. This involves a clause with an interrogative *wh*-pronoun,preferably an interrogative complementizer and obligatory use of negation. Consider (277):

(277) Kakvo li ne mu kazah, toj pak si napusna rabotata.
what$_Q$ Q not him told-1sg he still refl. quit job
'Whatever I told him he still quit his job.'

HEBREW

The facts of Hebrew free adjunct free relatives are similar to the Bulgarian case in (277). A negative particle is obligatorily present in the free relative, and the free relative is formed with an interrogative *wh*-word:

[7]These free relatives may be embedded under concessive predicates just like other DPs can be and in this case they require a preposition as a case assigner. Questions in the same environment do not require such preposition.

(i) a. nezavisimo ot tova koeto kaža
independently of this which say-1SG
'irrespective of what I say'

b. nezavisimo kakvo kaža
independently what say-1SG
'irrespective of what I say'

(278) ma she-Dan lo 'asa, hi himshixa li-x'os 'alav
what that Dan not did, she continued to-be-angry at-him
'Whatever Dan did she continued to be angry at him.'

The following table summarizes the crosslinguistic facts discussed above:

(279)

	external-head FRs	FR with wh_Q		FR with wh_R
		'particle' required		subjunctive required
		indicative	subjunctive	
English	-	√	-	-
Older English	-	√	√	-
German	-	√	-	-
Polish	*	√	√	-
Russian	*	-	√	-
Spanish	*	-	-	√
Catalan	*	-	-	-
Bulgarian	*	√	-	√
Greek	*	-	-	√
Hebrew	*	√	-	-

We can see that in none of the languages that have independently well-formed FRs with CP-external heads can these FRs function as free adjuncts. When free relatives are formed with a question *wh*-word, a 'particle' is required to license the free adjunct role. With the exception of Russian, the subjunctive is not obligatory in case the *wh*-word is interrogative. When free relatives are formed with a *wh*-word distinct from the question *wh*-word, the subjunctive mood is required to license the free adjunct role.

The variuos facts regarding the type of free relatives in the different languages discussed above come together in a meaningful pattern. The following generalizations can be made (and will be defended in section 4.2):

(280) a. *FR External Syntax*:

Free relatives with CP-external heads cannot function as free adjuncts

b. *FR Internal Syntax*:

(i) When free relatives are formed with a question *wh*-word, an additive particle or negation is required to license the free adjunct role

(ii) When free relatives are formed with a *wh*-word distinct from the question *wh*-word the subjunctive mood is required to license the free adjunct role (and an additive particle may be necessary, too)

This is how the data discussed so far conforms to the above generalizations. Spanish and Catalan *lo/el que* free relatives and Bulgarian and Greek free relatives headed by demonstratives have a CP external head - *lo/el/tova/afto*, respectively. Thus they are ruled out as free adjuncts based on (280a). In English, German, and Polish free relatives are formed with the question *wh*-word, thus these free relatives require an *ever*-type particle to form a free adjunct free relative. Additionally, Bulgarian and Polish have free relatives formed with question *wh*-words that require negation in order to appear as free adjuncts. Greek and other Bulgarian free relatives, as well as Spanish *wh*-free relatives have non-interrogative *wh*-pronouns. Bulgarian and Greek free relatives are formed with a relative pronoun that is decomposable to a *wh*-pronoun plus a definite element (cf. (281)). Therefore, following (280b ii), free relatives in these languages need to be subjunctive in order to function as free adjuncts.

(281)

kojto	'who$_{FR}$' (Bulgarian)	*o-pjos*	'who$_{FR}$' (Greek)
koj	'who$_{Q}$'	*pjos*	'who$_{Q}$'

Spanish *wh*- free relatives also have non-interrogative syntax (a relative *wh*-, thus they too are subject to the generalization in (280b ii) and they require the subjucntive mood in order to function as free adjuncts.

4.1.1.2 The Clausal-Only Restriction

In addition to being restricted to *wh-ever* free relatives, the structures in (253) appear to be quite exceptional in their own right, because replacing the free relatives with their closest headed relative analogues leads to ungrammaticality, as the examples in (282) illustrate.[8]

[8]The headed AdjP counterpart, (ia) is acceptable and this is not likely due to the fact that the sentential adjunct actually contains a hidden clausal structure, as in (ib). The two sentences differ in meaning, (ib) not

(282) a. *{Anything/everything/the things} I say, Ed will quit his job.

b. * Hard as she tries, Sylvia will not become a movie star.

The ungrammaticality of the sentences in (282) is in fact not surprising. It seems to be the case that whenever DPs and AdjPs appear adjoined to a clause, they are either extracted from that clause or are linked to some clause-internal position by an anaphoric chain. The sentences in (283)-(284) illustrate examples of such chains for DPs[9] and AdjPs:

(283) a. $[_{DP}$ The movie$]_i$ I liked e_i very much.

b. $[_{DP}$ That new student$]_i$, I am impressed how smart she$_i$ is.

(284) a. $[_{AdjP}$ Very tall$]_i$ John is not e_i.

b. $[_{AdjP}$ Famous$]_i$, that$_i$ is what Bill wants to be.

The example in (285) is an attempt to license a $[_{CP}\ [_{DP}]\ [_{CP}]]$ structure through an interpretive-only link, i.e., without an explicit syntactic dependence between the adjoined DP and the host clause. The reference of *the cast* is recoverable from the prior occurence of *the movie* and yet the structure is not interpretable. Compare the ungrammatical (a) sentence with the minimally different, and acceptable, (b) sentence.

(285) a. * $[_{DP}$ The movie] I found the cast exceptional.

b. $[_{DP}$ The movie$]_i$ I found its$_i$ cast exceptional.

Perhaps we should not expect that just any interpretation should be licensed in a syntactic configuration such as $[_{CP}\ [_{DP}]\ [_{CP}]]$. It may be the case that the concessive

being a concessive. Likely, what is going on in (ia) is predicative fronting, of the type seen in footnote 3.

(i) a. Smart as she was, Nina could not solve the problem.

b. Being smart as she was, Nina could not solve the problem.

In fact Quirk 1989 (p. 1098) points out that such predicate fronting is limited to constructions with *though* and *as*, it being obligatory in the case of *as*.

[9]There is the further constraint that quantificational DPs and non-specific indefinite DPs cannot be left-dislocated:

(i) a. * Every movie$_i$, I liked it$_i$ very much.

b. * {*Sm*/a} movie$_i$, I liked it$_i$ very much.

This is to remind us that the requirement that non-clausal DP adjuncts be linked to some position in the clause is a necessary, but not a sufficient condition for the licensing of such structures.

interpretation that the free relatives in (253) give rise to, is only one of few permissible interpretations licensed by the particular syntactic configuration. Yet even when the semantic content of the main clause and the DP adjunct favor a concessive interpretation, the sentences are unacceptable (cf. (286)):

(286) a. * [$_{DP}$ His stupidity] I (still) love him.

b. * [$_{DP}$ Her many good qualities] she (nevertheless) did not get the job.

Thus, it appears to be the case that DPs and AdjPs cannot function as clausal adjuncts. The structures in (253) are then unique - if they indeed involve sub-clausal categories adjoined to CP.

Before we reach the conclusion that structures such as [$_{CP}$ [$_{DP}$] [$_{CP}$]] and [$_{CP}$ [$_{AdjP}$] [$_{CP}$]] are precluded, we need to consider some cases of free adjuncts which on the surface appear to have just such structures.

An interesting case which is an apparent instance of the [$_{CP}$ [$_{DP}$] [$_{CP}$]] structure is presented by examples like the following:

(287) a. The letter in his hand, David was strolling in the park.

b. The manuscript finally done, John was able to relax.

The question is what sort of a constituent the main-clause modifier in (287a) and (287b) is. If it is a DP modified by a relative clause, then this is a case where a DP is adjoined to a clause but is not linked to a position in the clause. An alternative analysis is that these are instances of the nominative absolute construction, which has a subject-predicate structure (cf. Stump 1985). A 'DP plus a reduced relative clause' analysis appears inappropriate. Thus, the interpretation of *the letter in his hand* is not one where the PP restricts the set of contextually relevant letters, resulting in the predicate *λx(letter(x) and in-d's-hand(x))* which then combines with the determiner to yield the contextually unique letter in David's hand. Such an interpretation, *ιx(letter(x) and in-d's-hand(x))*, would be supported by a structure as in [$_{DP}$ the [$_{NP}$ [$_{NP}$ letter] [$_{PP}$ in his hand]]]. Instead, the DP *the letter* has a reference independent of the PP, suggesting a structure such as [[$_{DP}$ the letter] [$_{PP}$ in his hand]], perhaps a small clause structure with a propositional interpretation, *ιx(letter(x)) λx(in-d's-hand(x))*. Similar considerations apply in the case of *the manuscript finally done* to rule out

a DP-with-a-modifier structure in favor of a small-clause structure.

Furthermore, an additional argument in favor of treating examples like the ones in (287) as nominative absolutes, is that they display the semantic variability discussed in Stump (1985). As he observes, given an episodic, i.e., non-modal and non-generic, main predicate, when the predicate in absolute adjuncts is stage-level, the semantic role of the adjunct with respect to the main proposition is one of temporal modification; when the predicate is individual-level, the adjunct is interpreted as an adverbial of causation or reason. The same semantic variability is observed in the case of (287). The stage-level interpretation of the PP predicate *in his hand* determines a cotemporaneous reading for the free adjunct in (287a) - the interval of David's strolling in the park is included in the interval of him holding the letter in his hand. The individual-level interpretation of the perfect-of-the-passive in (287b) yields a *because*-interpretation for the logical connection between the free adjunct and the matrix clause i.e., (287b) has the meaning *Because the manuscript has finally been done, John was able to relax.*[10]

Thus, (287a) and (287b) do not present instances of a DP adjoined to a clause without being linked to a position in that clause through a movement or an anaphoric chain. This supports the speculation expressed earlier that such structures appear to be generally unavailable. Therefore, *wh-ever* free relatives seem to be in a class of their own with respect to the syntactic configuration in (253).

The final set of examples we are going to consider are free adjuncts like the following:

(288) a. A promising young composer, Jon was the pride of his family.

b. The best student in her class, Lola easily won the scholarship.

c. Sick with the flu, Miriam could not attend the meeting.

On the surface, such free adjuncts appear to be sub-clausal, a DP in (288a, b) and an AdjP in (288c). I will however argue that we again have here clausal-like structures, perhaps a small clause with a PRO subject.

The first thing to note about such examples is that the DP in the clausal adjunct position must be predicative. Neither referential (deictic demonstratives or proper names)

[10]A final piece of evidence against treating the clausal adjunct in (287b) as DP, is the fact that *finally done* does not make a good reduced relative (cf. *a manuscript finally done).

nor quantificational DPs are allowed in this environment (cf. (289)).

(289) a. *That promising young composer, Jon was the pride of his family.

b. *Superman, Clark Kent will prevent the disaster.

c. *Most students in the class, {they/Lola} easily won the scholarship.

Strengthing the conclusion that free adjunct DPs and AdjPs as in (288) function as predicates, is the fact that adding the predicative copula to the free adjunct is always possible (cf. (290)):[11]

(290) a. Being a promising young composer, Jon was the pride of his family.

b. Having been the best student in her class, Lola easily won the scholarship.

c. Being sick with the flu, Miriam could not attend the meeting.

It does not necessarily follow that just because the copula may be freely added to the examples in (289), these sentences contain extra structure when the copula is not there. Yet there are reasons to believe just that. Note that unlike the facts in (290), in reduced relative clauses the copula cannot be added without a change of meaning. Consider the sentences below:

(291) a. We talked to a student (*being) interested in working on our project.

b. A woman (*being) in a red dress was offering Philippe a drink.

Under accounts that assume that reduced free relatives are full CP structures whose relative pronoun and *be* are left phonologically covert facts such as those in (291a, b) are

[11] Adding the non-finite copula can even sometimes save the structure (cf. (i)):

(i) a. *(Being) friends with Susana, Paul objected to her proposed dismissal.

b. *(Being) president of the company, Emily was the one chosen.

c. ??(Being) sick, Tim asked Aaron to leave.

It is not clear why the predicative XPs in (i) require the copula whereas those in (290) do not. Some sort of heaviness requirement appears to preclude (ic); it is also operative in reduced relatives (cf. **a boy sick* vs. *a boy sick with the flu*). Turning now to the DPs in (ia) and (ib), we should note that predicative DPs are not always licensed in reduced structures. For instance, reduced relatives do not permit predicative DPs (cf. *John is a student in a nearby school* vs. **a boy a student in a nearby school*). Free adjuncts are obviously not as restrictive as reduced relatives, given the acceptability of the DPs in (290). Still, perhaps there is a link between the complete unacceptability of predicative DPs in reduced relatives and the restricted acceptability of such DPs in free adjuncts.

difficult to explain (cf. e.g., Huddleston 1971, Hudson 1973, Williams 1975 for arguments against the *whis-deletion* accounts of reduced relatives). Suppose that reduced relatives are syntactically (as opposed to purely phonologically) reduced structures with the overt predicate occupying the highest projection (cf. Iatridou, Anagnastopoulou, and Izvorski 1999, Bhatt 1999) and furthermore that this projection must be nominal. It would then follow that no copulas will be allowed in reduced relatives. Aspectual projections are apparently present and can in fact be instantiated (cf. *one of the papers being assigned to us*), strengthening the suggestion that no syntactic position corresponding to the copula exists in (291). This in turn supports the proposal that examples in (289) contain non-overt clausal structure.

To sum up, the above discussion suggests that there are no known independent cases of DPs and AdjPs functioning as free adjuncts. Possibly, the syntactic restriction is linked to case/agreement requirements on DPs and AdjPs which requirements cannot be checked in a CP-adjunction structure without the recourse of 'reconstruction' into the clause. The non-availability of DP and AdjP free adjuncts suggests that we should reconsider the categorial status of the free relative cases in (253a) and (253b). If these indeed were nominal and adjectival projections as commonly assumed, then they would be an exception to the apparently universal lack of DP and AdjP absolutes. Rather, the free relatives in (253a) and (253b) are likely CPs.

It still may be possible that (253c) is a case of an AdvP being adjoined to the main clause CP. The constraints at clausal adjunction are looser in the case of Adverb Phrases. Thus, there is the class of adverbs, as in (292), which are not predicate modifiers but sentence-level adverbials, and which appear adjoined to CP.

(292) a. {Fortunately/Amazingly}, they have accepted the book for publication.
≈ It is fortunate/amazing that they have accepted the book for publication.

b. {Usually/Possibly}, Bob is writing a paper.
≈ It is usually/possibly the case that Bob is writing a paper.

Importantly, although the adverbs in (292) are not syntactically CPs, semantically they may be given an analogous treatment with clauses (as the paraphrases suggest). Thus, the semantic requirement that clausal adjuncts have propositional interpretation is respected,

otherwise composition would fail. Perhaps the syntactic requirement that only clauses appear as clausal adjuntcs is relaxed in the case of adverbs, because they are not lexical categories (cf. Larson 1987 for an analysis deriving adverbs from adjectives) and do not have to check case/ϕ features. But even if this is the case, and examples like (292) are a counterexample to the claim that sub-clausal categories may not appear in a CP-adjoined position, these examples are still not entirely analogous to free adjuncts. Note that interpretively, the adverbs in (292) function as predicates embedding as arguments the CP to which they are adjoined as their argument. Thus, they do not play the role of semantic adjuncts, unlike free adjuncts. Therefore, there is no real counterexample to the generalization that no phrases may be free adjuncts.

In summary, it appears that in order for a constituent to be a clausal adjunct it must have a propositional interpretation and likely clausal syntax. Constituents which may at first seem to be DPs modified by reduced relative clauses receive a more appropriate analysis as small clauses. The non-clausal adverbs which appear as clausal adjuncts are also propositional in interpretation (and besides they are not interpreted as adjuncts). This suggests that the free relatives in at least (253a, c) and likely (253b) as well, may not be subclausal phrases (DPs, AdjPs, or AdvPs) after all. This is in fact the analysis I propose - that *wh-ever* free relatives which function as free adjuncts are bare CPs.

4.1.2 The Interpretation

The syntactic position of the free relative in the structure [$_{CP}$ [$_{XP}$ Free Relative] [$_{CP}$ p]] is open to a variety of interpretative roles. Crucially, these roles are all semantically subordinate to p. The free relatives evoke certain situations and relate them to the truth of p in a particular way. In this respect, the free relative adjuncts function similarly to a class of adverbial clauses known as ADVERBS OF CONTINGENCY in traditional grammar (cf. Quirk 1985). These include conditionals (e.g., *if q, p*), resultatives (e.g., *p, so q*), causatives (e.g., *because q, p*), exceptives (e.g., *p, except (that) q*), purpose clauses (e.g., *p, so that q*), and concessives (e.g., *although p, q*). All these adverbial clauses, however, are introduced by overt connectives which determine the semantic relationship between main and subordinate proposition. The semantic role of the free relative free adjuncts is similar

to that of concessives. There is the intuition that the free relatives in this position evoke certain conditions for the truth of p and then present the evoked conditions as irrelevant for the truth of p. The main proposition p is asserted to hold at the time/possible world of evaluation irrespective of q. The goal of the next section is to make this intuitive interpretation more precise.

4.1.2.1 Concessives: An Overview

Concessive expressions have been given much less attention in the literature than, e.g., causative (*because* q, p) and conditional (*if* q, p) constructions, with which concessives share certain aspects of syntax and interpretation. Consequently, there are no formal analyses of concessives nor many detailed studies of natural language concessive constructions[12]. Examples of typical English concessive expressions are the following:

(293) a. {Although/even though/whereas/ while} q, p

b. q, {yet/nevertheless/nonetheless/however/but} p

c. {despite/in spite of} q, p

In (293a) and (293b) q is syntactically expressed as a clause; in (293c) it must be somehow constructed from a DP. Consider (294a) and (294b) and some likely propositional paraphrases of q (though of course others are possible, given a rich enough context).[13]

(294) a. In spite of George's efforts, Miriam left for England.
= In spite of George making efforts to stop her, Miriam left for England.

b. Despite the incident, Paul was soon promoted.
= Although the incident occurred, Paul was soon promoted.

[12]Old English is one language where concessives have been described in some detail; cf. Burnham 1911, Quirk 1954.

[13]Syntax constrains the concessives in another way. The concessive 'connectives' in (293b) and in (293a) but not those in (293c) may operate just on predicates, at least as far as surface syntax is concerned, as (i) shows:

(i) a. friendly although somewhat reserved; happy even though a bit apprehensive

b. expensive yet of questionable quality; loudly but nevertheless clearly

It may be the case, of course, that these should be properly analyzed not as conjunctions of predicates but elliptical structures.

Interestingly, the concessives in (293) can coocur in correlative structures (cf. Quirk 1985). Expressions such as *although, (even) though, even if, while, whilst, granted (that)* occur in the correlative clause, and *yet, still, however, nevertheless, nonetheless, regardless* occur as correlative proforms, in a structure such as (295).

(295) CORRELATIVE *q*, PROFORM *p*

The fact that concessive connectives can occur in correlatives underscores the typological and historical similarity between them and free relatives. The connection is in fact larger and appears to encompass other contingency clauses such as conditionals and *because*-clauses. In many languages, e.g., in the Indo-Aryan family, the latter types of clauses are formed as correlatives. As Geis and Lycan (1989) point out, conditionals with *then* are the last remnant in English of a once productive correlativization strategy; see also Iatridou (1994) and fon Fintel (1994) who point out the structural similarities between conditionals and correlatives. These are good reasons to treat the connectives in (293b) as anaphoric elements of the correlative proform type. More importantly for our purposes, the connectives in (293a) and the clauses they introduce may be treated analogously to free relatives in sentence-adjunct structures.

The structural and typological similarities between concessives and conditionals have implications for their analysis. The accepted wisdom from traditional grammar is that a concessive is a reversed conditional - "indicating circumstances in which a result would ensue irrespective of the content of the concessive clause" (Quirk 1985, p. 644). Thus, whereas *if q, p* asserts the truth of *p* in case of *q*; CONCESSIVE *q, p* asserts *p* unconditionally, specifically indicating that the truth of *q* is irrelevant for the truth of *p*. I will show below that concessives have conditional presuppositions, in the sense that normally *p* is true in case *q* is true.

The truth of *p* is always asserted in concessives. The truth of *q* may or may not be conveyed. Depending on whether *q* is interpreted as true, concessives come in two varieties. If the truth of *q* is conveyed (disregarding for now whether this is a matter of presupposition, implicature, or assertion), the implication arises that normally, *q*'s truth makes *p*'s truth unlikely. As an illustration, consider (296). In sentence (296a), for instance, *q*, i.e., *Nina is smart* is presented as true. This results in the implication that the normal state

of affairs is for Nina to solve the problem, i.e., for $\neg p$ to be the case. In other words, when the truth of q is conveyed, the accompanying interpretation is that normally, if q then $\neg p$. Similar considerations apply in the case of (296b).

If the truth of q is not conveyed, the strong implication that *if q, then, ¬p is more likely than p* does not necessarily arise (although it may). Examples of this latter type are given in (297). Thus in (297a) there is the interpretation that normally, when q is true, $\neg p$ is true as well. This interpretation is absent in (297b). There q's truth, i.e., Michael's coming to the party, is not normally associated with p's truth, our having fun. There is only a weaker presupposition of relevance - that normally q's truth has an effect on the value of p. Concessives as in (297) are also known as CONCESSIVE CONDITIONALS or *irrelevance conditionals* (König 1985, 1986, 1988), to be distinguished from the 'true' concessives in (296).[14,15,16]

(296) a. Although Nina is smart, she will not solve the problem.

b. Even though Michael will come, we will have fun at the party.

(297) a. Even if Nina is smart, she will not solve the problem.

b. Whether or not Michael comes, we will have fun at the party.

Both sets of examples assert their main clause proposition. For instance, both (296a) and (297a) assert that Nina will not solve the problem. Sentence (296a) presupposes the truth of the proposition expressed by the adverbial, namely that Nina is smart. Explicitly asserting that the opposite is true results in a contradiction: cf. the unacceptability of (298a). The interpretation that Nina is smart, i.e., that q is true, is a presupposition rather

[14]Of course, *even if* may be used as a 'true'concessive, as the following sentences will attest:

(i) a. ... late-night discussions with her about Georgian and Icelandic and other important life-issues have lightened my life, even if she does cut her bananas funny. (Harley 1995, p.6)

b. Her sense of humor and uniquely sane perspective made her an irresistible companion, even if she did insist on the misguided notion that I cut my bananas funny. (McGinnis 1998, p.6)

[15]Zaefferer 1991, noting the semantic parallels between the concessives in (297) and conditionals, uses the term UNCONDITIONALS for such sentences.

[16]Quer 1998 points out that in Catalan and Spanish the use of the subjunctive mood in *even*-conditionals results in a concessive conditional interpretation, e.g., as in (297), whereas the use of the indicative results in the 'true' concessive interpretation e.g., (296). These correspond to the English *even if* and *even though*, in their most natural use.

than a conversational implicature. This is clear from the fact that it survives embedding in negative, interrogative, and modal contexts; consider (298b-d):

(298) a. #Although Nina is smart, and we know she isn't, she will not solve the problem.

b. It is not the case that although Nina is smart she will not solve the problem.

c. Will Nina not solve the problem although she is smart?

d. Maybe although Nina is smart she will not solve the problem.

There is an additional presupposition that the conditional *If Nina is smart she will most likely solve the problem* is true. We can see that this inference survives the embedding in (298b-d).

Example (296b) behaves analogously to (296a). That Michael will come is presupposed; it is further presupposed that normally, if Michael comes, we do not have fun. This example also allows us to conclude that the latter presupposition, namely that normally q's truth makes p's truth unlikely, arises independently of the contents of p and q. Whereas, real world knowledge tells us that normally smartness is a precondition for solving a problem (and thus the relevant presupposition in (296a) may be claimed to arise through extralinguistic means), there is no analogous real world belief with respect to someone's coming to a party and us not having fun. The presupposition then, is triggered by the meaning of the particular concessive connective.

Sentence (297a), on the other hand, does not presuppose that Nina is smart. Asserting that Nina is not smart does not result in a contradictory statement: consider (299):

(299) Even if Nina is smart, and we know she isn't, she will not solve the problem.

In this type of concessive we also have the presuppostion that normally q implies $\neg p$. Finally, *whether or not*-concessives do not have the above presupposition.

Now that we have an understanding of what the range of interpretations associated with concessives in general are, we can turn to the meanings available to free adjunct free relatives. As is the case with other concessives, the truth of the proposition p expressed by the main clause is always asserted. Furthermore, the concessives discussed above came in two varieties - those presupposing the truth of the proposition q expressed by the concessive clause (the *although/even though* concessives) and those that do not presuppose the truth of

q (the *even if, whether or not* concessives). It is not clear how to talk about the proposition *q* in the context of concessive free relatives, however. Free relatives are standardly taken to be nominals denoting either entities (of type *e*), or generalized quantifiers (of type <<*e*,*t*>,*e*>). As I will argue later in this chapter, the phenomenon of free adjunct free relatives suggests that we should reconsider what a free relative can denote. For now, I will discuss the two concessive readings associated with free adjunct free relatives as the *p, no matter what* and *p, no matter that* readings. The propositional content needed for the right interpretation of free adjunct free relatives will be arrived at via a common semantics with questions (this is possible only for those free relatives that are formed with question *wh*-words) or through the semantics of the subjunctive (this is required for the free relatives introduced by non-interrogative pronouns).

4.1.2.2 p, No Matter What

As I said above, intuitively, the sentences in (253) assert their main clauses. The sentences can be quite accurately paraphrased by the uniform *no matter X, p* (other suitable paraphrases are given below) where X is the indirect quesion corresponding to the free relative (cf. (300)).[17]

(300) a. {No matter/It doesn't matter/Irrespective of/Never mind} what I say, Ed will still quit his job.

b. {No matter/It doesn't matter/Irrespective of/Never mind} how hard she tries, Sylvia will not become a movie star.

c. {No matter/It doesn't matter/Irrespective of/Never mind} how smart she was, Nina could not solve the problem.

Or, as in the heading of this section, the single paraphrase *p, no matter what* characterizes appropriately the meaning of the sentences.

All the above paraphrases explicitly assert that the contents of the embedded clause are irrelevant in determining the truth conditions of the main clause. It is quite straightforward to derive this interpretation from the structures in (300). The complement X of *no matter/it*

[17]For a brief discussion of some of the syntactic properties of some of these various constructions see Nakajima 1998.

Tense *not matter* is an indirect question. Evidence for that comes from several sources, though here I will only consider three arguments, because they are sufficient to show that X is syntactically a question and not a free relative. First, the range of *wh*-phrases that are permited (cf. (301) for a non-exhaustive illustration) argues that X is indeed a question. Whereas *ever*-less free relatives in English can be freely formed only with certain *wh*-phrases, questions place no such restrictions on their *wh*-phrases.

(301) a. No matter whose book is featured in the New York Times, ...

b. It won't matter in which direction we'll be going,...

c. No matter how you solve the problem, ...

Second, multiple *wh*- phrases are possible, which is again a feature of questions and not of free relatives in English (cf. (302)).

(302) a. No matter who wrote what to whom, ...

b. It doesn't matter who knows where to buy what, ...

Finally, in languages which morphologically distinguish between interrogative and free relative pronouns (e.g., Bulgarian, Modern Greek), the *wh*-phrase used in the constructions corresponding to (300) are unambiguously the question pronouns and not the free relative ones. As an illustration, consider the Bulgarian examples in (303), which correspond to the embedded questions in (300), and the examples in (304), which are the counterpart of the free relatives in (253):

(303) a. Bez znavenie *kakvo/*kakvoto* kaža, ...
without relevance what-Q/what-FR say-1SG
'No matter what I say, ...'

b. Njama znavenie *kolko/*kolkoto* se opitva, ...
there-is-no relevance how-much-Q/how-much-FR REFL try-3SG
'It doesn't matter how hard she tries, ...'

c. Nezavisimo *kolko/*kolkoto* e umna, ...
independently how much-Q/how-much-FR be-3SG smart
'No matter how smart she is, ...'

(304) a. *Kakvoto/*kakvo* i da kaža, ...
What-FR/what-Q and SUBJ say-1SG
'Whatever I say, ...'

b. *Kolkoto/*kolko* i da se opitva, ...
how-much-FR/how-much-Q and SUBJ refl. try-3SG
'However hard she tries, ...'

c. *Kolkoto/*kolko* i da e umna, ...
how-much-FR/how-much-Q and SUBJ be-3SG smart
'However smart she is, ...'

Let us see how the meaning of *no matter wh-* concessives is derived. Given that X is a question, its denotation can be taken to be a set of propositions, following Hamblin 1973, Karttunen 1977, among others. This is the set of answers to the question, determined by the alternatives to the interrogative *wh*-word. Since *matter* is a factive predicate, the set can be restricted to the set of true answers (as in Karttunen 1977) (cf. (305)a). The predicate embedding X, e.g., *no matter*, then would take the set of propositions as a complement and would exhaustively distribute over the member propositions (cf. (305)b). Its semantic contribution is to assert that any of the propositions is irrelevant for the truth of *p* (cf. (305)c).

(305) no matter what I say, *p*

a. [what I say]= $\lambda r\ \exists q\ [r(w)\ \&\ r=$I say $q]$

b. [no matter what I say](w) = 1 iff
no matter that I say q_1 (w) & no matter that I say q_2 (w) & ... & no matter that I say q_n (w)

c. [no matter what I say, p](w) = 1 iff
$p(w)\ \&$ Most w_i [$wRw_i\ \&\ \exists q$[I say $q](w_i)$][$\neg p(w_i)$]

The above semantics can be improved on, since it assumes that *no matter* can semantically subcategorize both for sets of propositions and for propositions. A unified approach would posit that a predicate of relevance like *no matter* takes a proposition as a complement. The semantics of questions then needs to be modified. Several lines of work are available in this respect. Questions may be taken to denote a proposition (as in Groenendijk and Stokhof 1982, 1984 or Berman 1991), maximality can be introduced to the Karttunen denotation (as in Rullmann 1995), or interrogative complements may be assumed to raise at LF, leaving a propositional variable behind (as in Lahiri 1991, 1998).

While the interpretation of (300) is straightforward to derive, the same cannot be said about the free relative cases in (253). As I discussed in chapter 1, there are two views on the interpretation of free relatives with *-ever*: one takes them to be universally quantified DPs (Larson 1987, Tredinnick 1994, Iatridou and Varlokosta 1997) and the other treats them as plural definites (Jacobson 1995, Rullmann 1995, Dayal 1995, 1996, 1997, among others). However, neither a structure containing a universal DP nor one with a definite DP is interpretable. We cannot compose a quantifier, e.g., *every proposition, such that I say it*, of type <<e,t><s,t>> and a proposition *Ed will quit his job*, of type <s,t>. Similarly, a definite individual *the unique (contextually determined) plurality of propositions, such that I say it*, presumably of type <e> cannot compose with a proposition, of type <s,t>.

What seems to be necessary is quantification over possible worlds/situations. So, consider the candidate in (306):

(306) $\forall w_i[wRw_i \ \& \exists r[\text{I say r}](w_i)][p(w_i)]$

The LF in (306) appears initially to yield the desired interpretation. It says that any situation in which I say something, is a situation of *p*, effectively resulting in the reading that for anything I say, *p* obtains. Yet, there is a problem. The LF in (306) could as well represent the interpretation of the conditional *If I say something, p*. It restricts the assertion that *p* obtains, to only those worlds in which I say something, saying nothing about the worlds in which I don't say anything. But in uttering *Whatever I say, p* we have the intuition that, in fact, something is being said even about the worlds in which I don't say anything. After all, this is the interpretation of *p, no matter what* that we said captures quite accurately the meaning of the sentences in (253). A close conditional rendering of the desired meaning is *Even if I say something, p*. The *even if* conditional implies the truth of *p* and presents my saying something as irrelevant for the truth of *p*. The semantics of *even if* is by no means uncontroversial (cf. Bennett 1982, Cross 1985, Lycan 1991, Barker 1994, among others) so reducing the meaning of the free relative clausal adjuncts to that of *even if* conditionals is not going to immediately solve the problem of interpretation, but at least this is a place to start. However, before we address the question of what the proper semantics of *even if* is, we need to consider another problem with the LF in (306) and, then, in the next subsection, consider another possible reading for free relative clausal adjuncts.

Quantification over possible worlds as in (306) is appropriate given the non-episodic interpretation of both clauses in (253a). Indeed, such a sentence need not be read as making an assertion about a particular event of Ed's quitting his job, nor about a particular instance of me saying something to him. However sentences with free relative clausal adjuncts also allow for a non-episodic interpretation, as is, for instance, easy to see in the case of (253c). This sentence has a reading which is about a particular instance of Nina's not managing to solve a certain problem. Quantifying over possible worlds is not the right way to go about representing the meaning of such a sentence.

4.1.2.3 p, No Matter That

In addition to the *p, no matter what* reading discussed above, all of the sentences in (253) are ambiguous. It is easiest to detect the additional reading in example (253c), repeated below:

(307) However smart she was, Nina did not solve the problem. (same as (253c))

a. No matter whether she was smart or not, Nina did not solve the problem.

b. No matter that she was smart, Nina did not solve the problem.

The two readings of (253c) are given in (307a, b). The first of those is the reading we discussed so far - the one that can be closely paraphrased by an interrogative-taking predicate of relevance (i.e., *no matter what* and that plausibly can be said to have the semantics of an *even if* conditional. Under this reading the speaker does not imply that Nina is smart; rather, what is said is that *even if* she were smart, that would be irrelevant since she did not, in fact, manage to solve the problem. This is a case where p is asserted but the truth of q is not presupposed (cf. see the discussion above surrounding examples (296) and (297)).

The second reading has the implication that Nina is smart (not just the trivially true *smart to some degree,* but smart to a degree that is at or above contextually determined relative cut-off point). Under this reading, the appropriate *no matter*-paraphrase does not embed an interrogative clause but a *that*-clause. Thus, what is said is that *even though* Nina was smart, that turned out to be irrelevant, because she did not manage to solve the problem. This is the reading of concessives asserting p and presupposing the truth of q.

The two readings are also there in (253b), as (308a) and (308b) below indicate:

(308) However hard she tries, Sylvia will not become a movie star. (same as (253b))

a. No matter whether she tries hard or not, Sylvia will not become a movie star.

b. No matter that she tries hard, Sylvia will not become a movie star.

The *what/that* ambiguity is present also in the case of (253a), although it is hardest to observe there. The *no matter what* interpretation, as discussed above, presents the question of whether I say anything or not as irrelevant. There is also a *no matter that* reading and it implicates that I will, in fact, say something. It presents p as true not *even if* I say something but *even though* I will say something.

To sum up, we have identified two interpretations for free relative clausal adjuncts. One reading evokes a set of alternative propositions (e.g., {I say q_1, I say q_2, ... I say q_n}) and asserts p in case any member proposition obtains. This reading has suggestive parallels with questions and *even if* conditionals. The other reading implies the truth of some proposition, q (whose content is determined by the contents of the free relative) and asserts p despite the truth of q. This reading has affinities with factives and *even though* constructions. The eventual formalization of the meaning of free relative clausal adjuncts in section X will aim at characterizing those parallels more precisely.

4.2 The Analysis

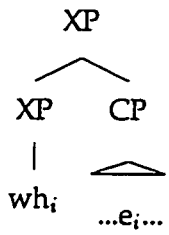
4.2.1 Concessive Free Relatives Are Bare CPs

Free relatives have undeniably the internal syntax of clauses. The proposal developed here is that concessive free relatives are maximally CPs, i.e., that there is no further syntactic structure that is merged with the CP projection to turn the free relative into a phrase, a DP or some other category. This proposal runs against what is commonly believed to be the structure of free relatives. Proponents of both the HEAD-analysis, as in (309a), (cf. Bresnan and Grimshaw 1978, Larson 1987, 1998) and of the COMP-analysis, as in (309b), (cf. Groos and von Riemsdijk 1979, Suñer 1983, 1985, Harbert 1983, Hirshbühler and Rivero 1983, Grosu and Landman 1998, among others) assume that there is a syntactic

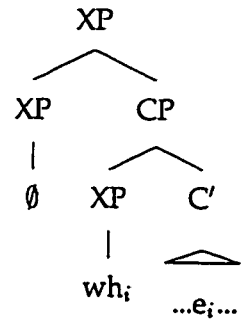
layer above the clausal level; where these analyses differ is in whether the head is posited to be the *wh*-phrase or a phonologically non-overt form (see Chapter 1 for a more detailed discussion).

(309) Commonly Assumed Syntactic Structures for Free Relatives

a.



b.



The proposal that concessive free relatives are bare CPs has several advantages.

4.2.1.1 The Issue of Case- and ϕ-Features

The first advantage of treating concessive free relatives as CPs rather than DPs concerns the issue of lexical features such as case- and ϕ- features that are present on nominals and require checking in the course of the derivation. The external head of nominal free relative, whether it is an overt *wh*-pronoun or a null element, as in the structures above, is a lexical item and as such it should bear case- and ϕ- features. These case features need to be checked, just as is required in the case of any other DP. However the free relative is a CP-adjunct and thus cannot check its case- and ϕ- features. Thus all nominal free relatives should be prohibited as concessive adverbials. This is not what happens, as the acceptability of free relatives with nominal *wh*-phrases in the numerous examples throughout this chapter indicates.

4.2.1.2 (Sub-Clausal) Phrases Cannot be Free Adjuncts

The earlier discussion (see section 4.1.1.2) showed that DPs are generally restricted from occurring as free adjuncts. Cases where a predicative DP apparently appears as a sentence-level adjunct were reanalyzed as involving a non-overt functional structure, like a small clause. Could it be the case that whenever a nominal free relative appears as a free adjunct,

it is actually a predicative DP in a small clause? In other words, perhaps a free relative free adjunct as in (310a) is the predicate of a null copula that can be lexicalized, as in (310b) on analogy with cases like (288)/(290). Here the free relative would arguably be a predicative DP, functioning just like *a linguist* in *Being a linguist, Jon makes them all proud.* However note the following two facts: (i) in the absence of an overt copula the free relative cannot be interpreted as a predicate anymore (cf. 310a); and (ii) in the presence of the copula the free adjunct is not interpreted as a concessive (310b).

(310) a. Whatever his family wanted him to be, Jon makes them all proud.

b. Being whatever his family wanted him to be, Jon makes them all proud.

Adopting the proposal that concessive free relatives are bare CPs preserves the generalization that only clauses can be free adjuncts.

4.2.1.3 Concessives and Appositives

Free adjuncts without an overt subjet can appear not only in their CP-adjoined position but also following the subject, as appositives. This position is more restricted for concessive free relatives (as it is for free adjuncts with an overt subject).

(311) a. A prolific writer, Svetlana just published her 23rd book.

b. Svetlana, a prolific writer, just published her 23rd book.

(312) a. Whatever he cooks, Daniel will win the chef contest.

b. ?? Daniel, whatever he cooks, will win the chef contest.

The free relative free adjuncts can also appear in sentence-final position, likely right-adjoined to the CP of the main clause (cf. (313)). This is not possible in the case of predicative small clauses (cf. 314)

(313) Daniel will win the chef contest, whatever he cooks.

(314) Svetlana just published her 23rd book, a prolific writer.

4.2.1.4 Multiple *Wh-* Phrases in Concessive Free Relatives

Concessive free relatives in some languages allow multiple *wh*-phrases. Bulgarian is such a language (and so are the other Slavic languages, for instance).[18] Example (315) illustrates the availability of multiply-'headed' free adjunct free relatives:[19]

(315) a. Kojto kakvoto i da mu kaže, Ivan šte napusne rabotata si.
who what also SUBJ him say-3SG Ivan will quit job self
'No matter who says what to him, Ivan will quit his job.'

b. Na kogoto kolkoto i točki da dadat Maria šte spečeli
to whom how-many also points SUBJ give-3PL Maria will win
sâstezanieto
the-competition
'No matter who gets how many points, Maria will win the competition.'

The availability of multiple *wh*-words in concessive free relatives favors a bare CP analysis. Otherwise we would have to posit nominal structures with multiple heads.

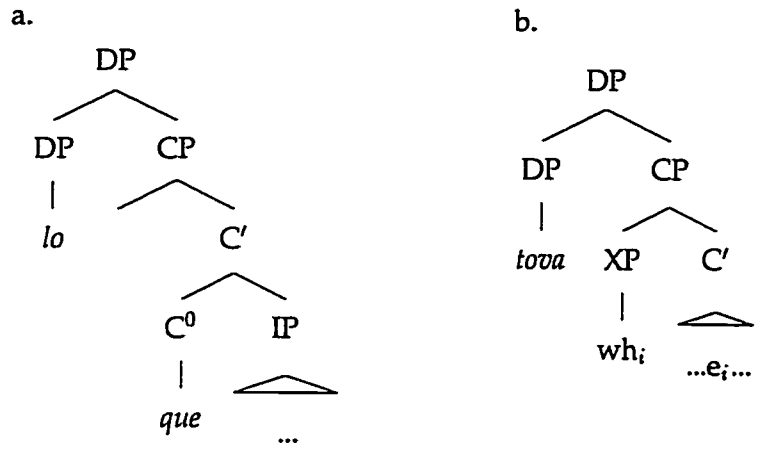
4.2.1.5 Determiner-Headed Free Relatives

The syntax of free relatives differs across languages. There is evidence that some free relatives are have CP external structure, in particular they are headed by determiners such as the Spanish *lo*, Greek *afto*, Bulgarian *tova*, etc. See (316) as an illustration for the posited structure. The structure in (316a) underlies the Spanish and Greek determiner-headed free relatives; the one in (316b) corresponds to the Bulgarian cases.

[18] It is not clear to me what exactly is the property that allows multiple *wh*-phrases in one language but not in another. No language will have a multiply-'headed' free relative in an argument position since a nominal denotation (entity or generalized quantifier) may not be derived from such a structure. Yet when the free relative is a sentential adjunct, as in e.g., correlatives, multiply-'headed' relatives are possible - in Slavic and in the Indo-Aryan languages but not in German, for example.

[19] The position of the additive particle *i* 'also' in (315b) may appear unusual. Note that this particle always cliticizes to the *wh*-word in free relatives.

(316) Structures for determiner-headed free relatives



Importantly, as shown earlier, these free relatives cannot function as concessive free adjuncts (cf. (317a)). In order for the Spanish *lo que* free relatives to appear in a concessive structure, the concessive adjunct must be headed by a subjunctive verb which moreover must be a copy of the subjunctive predicate in the main clause (cf. (317b).[20] The fact that a verbal element heads the free adjunct is indicative of a clausal projection.

(317) a. *Lo que diga Juan, Maria dejara el trabajo
DET that says-SUBJ Juan, Maria quit-FUT the job
'Whatever Juan says, Maria will quit her job.'

b. Diga lo que diga Juan, Maria dejara el trabajo
says-SUBJ DET that says-SUBJ Juan, Maria quit-FUT the job
'Whatever Juan says, Maria will quit her job.'

4.2.1.6 Compositionality Problems with DP-Denotations

Any DP interpretation for the free adjunct free relative - entity, predicate, or a generalized quantifier - would be impossible to compose with the main clause proposition, unless we posit a null connective and assign it the appropriate meaning. But since the phenomenon we are discussing is cross-linguistically general, positing null connectives will be uninsightful. A better approach is to try to derive the concessive interpretation based solely on the semantics of free relatives. In the discussion of the meaning of concessive adjuncts

[20]The same facts obtain in Catalan, see Quer 1998.

above we saw that the interpretive component makes reference to a propositional meaning. A bare CP is the appropriate syntactic structure to derive a propositional meaning.

I next turn to the interpretive contribution of the various elements in the free adjunct free relative construction. My goal is to sketch a compositional analysis bringing the syntax and semantics together; I will not offer a formal semantic analysis here, leaving such an analysis for future work.

4.2.2 The Role of Interrogative Semantics

I propose that certain concessive free relatives, namely the ones formed with an interrogative *wh*-phrase (before the addition of *-ever*-type particles), have the basic semantics of questions. This is the case for the English, German, and Polish free adjunct free relatives of which we saw examples earlier. Hebrew and Bulgarian free adjunct free relatives formed with an interrogative *wh*-word, complementizer and negation, are also of this kind.[21] Bulgarian and Greek *wh*-free relatives formed with relative pronouns do not fall into this class because of the definite morphology of the *wh*-pronoun introducing the free relative. Spanish *wh*-free relatives formed with the complementizer *que* do not fall into this class either as they are formed with relative *wh*-pronouns. As pointed by Rivero 1991, the *quienquiera* class arose as the result of reanalysis of a relative clause headed by a relative pronoun in the context of *querer* 'want'. Thus *quien-* may still have relative pronoun features which would explain why the subjunctive is necessary to allow the free relative to function as a concessive adjunct, unlike the case of English. Finally, free relatives with determiner heads - the *lo que* free relatives of Spanish, the *afto pu* free relatives of Greek, the *tova koeto* free relatives of Bulgarian - are not even considered here because they cannot be concessive (given their nominal syntax and interpretation).

The question denotation contributes a set of alternative propositions to interact with the other interpretive elements in the free adjunct construction. The multiplicity of propositions is a desired component of the concessive meaning. The question meaning is characterized by the set of its answers (cf. the semantics of Hamblin 1973, Karttunen 1977).

[21] Apparently the non-interrogative complementizer in the Hebrew case does not prevent the necessary interpretation from arising, which underscores the fact that C^0 is not interpreted as interrogative in the case of free relatives.

The set of possible answers is determined by the alternatives to the *wh*-word. In effect this gives us the desired set of alternative propositions.

For a question as in (318), the propositions in the set of possible answers are of the form *Daniel cooked* a, where *a* ranges over dishes. For simplicity, I've assumed in (318) that the variable of *what* ranges over individuals. It should in fact be allowed to range over pluralities, since the question permits answers where e.g., Daniel cooked moussaka and šiš kebab. This is not a problem to do since *what* is not specified for number.

(318) What did Daniel cook?

a. $\lambda p \exists x[\text{dish}(x) \ \& \ p=\text{cooked}(d,x)]$

b. {Daniel cooked moussaka, Daniel cooked šiš kebab, Daniel cooked gjuveč}

The same basic syntax underlies the question in (318) and the free relative in (319). I posit that their basic semantics is also the same. The free relative denotes the set of propositions of the form *Daniel eats* a.

(319) Whatever Daniel cooks

a. $[_{CP}\ \textit{whatever}_i\ [[_C{}^0]$ Daniel cooks $t_i]]$

b. $\lambda p \exists x[\text{dish}(x) \ \& \ p=\text{cooks}(d,x)]$

c. {Daniel cooked moussaka, Daniel cooked šiš kebab, Daniel cooked gjuveč}

Just as is the case with questions, the free relative in (319) would be associated with an existential presupposition on the existence of elements in the denotation of the *wh*-word. This is a desired result, since as a concessive free relative, (319) has the presupposition that Daniel indeed will cook something (obviously, if he doesn't cook anything, Daniel cannot win the cooking contest).

(320) Whatever Daniel cooks he will win the contest.

4.2.3 The Role of the Subjunctive

Free relatives that are not formed with an interrogative *wh*-word may not resort to the semantics of questions to arrive at the desired component of meaning - a multiplicity of

propositions. The problem is that the definite element in the relative *wh*-word prevents the generation of a set of alternatives. The uniqueness presupposition that comes with the semantics of definiteness prevents variability on the referent of the *wh*-word. This is where the interpretive contribution of the subjunctive comes into effect. The role of the subjunctive is to expand the model of evaluation to include not just the base world but also additional worlds (cf. Farkas 1991, 1996). Thus the subjunctive introduces a modal dimension to the interpretation and a variability to the reference of the *wh*-word. A free relative such as the one in (321a) denotes the unique set of properties that its referent has in all of the alternative worlds, with the built presupposition such as tha in (321b). Once we have variability on the referent of the *wh*-word, we can generate the set of alternative propositions, as in (321c). (See also Iatridou and Varlokosta 1998, Dayal 1997 for related proposals about the meaning of free relatives with *-ever*.)

(321) a. Kakvoto (i) da sgotvi Ivan...
what also SUBJ cook-sc 3sg Ivan
'Whatever Ivan cooks...'

b. $\exists w', w''[\iota x$ [Ivan cooks x in w'] $\neq \iota x$ [Ivan cooks x in w'']

c. {Ivan cooks moussaka in w', Ivan cooks šiš kebab in w'', Ivan cooks gjuveč in w'''}

Thus, it follows that free relative adjuncts formed with interrogative *wh*-words do not need the subjunctive, whereas those formed with a relative *wh*-word require the subjunctive. The result in either case is that we derive a plurality of propositions. I will return later on to the question of how this element of meaning is incorporated into the ultimate concessive interpretation.

4.2.4 The Conditional Meaning

The concessive meaning arising for free relatives functioning as free adjuncts is conditioned by their semantics in a further way. Specifically, I propose that free adjunct free relatives are WEAK, in the terminology of Stump 1985. Their being weak adjuncts determines the way in which they semantically compose with the main clause to arrive at the particular

meaning. I argue that the concessive interpretation is derived through a stage where the free adjunct relates to the main clause as a conditional.

4.2.4.1 Semantic Variability in Free Adjuncts

Let us briefly present Stump's 1985 characterization of adjuncts. As he shows, the semantic relationship between free adjuncts and their main clauses is subject to variability. To a large extent, this variability is determined by the type of the free adjunct. As an illustration, consider the sentences below (the examples (322) are Stump's (3a,b), p.98; the examples in (323) are his (5a) and (1a), respectively, p.41)

(322) a. Being a sailor, John sometimes smokes a pipe.

b. Lying on the beach, John sometimes smokes a pipe.

(323) a. Being a master of disgiuse, Bili would fool everyone.

b. Wearing that new outfit, Bill would fool everyone.

Sentences (322a) and (323a) are similar in that their free adjuncts are interpreted as adjuncts of reason or cause. Thus, (322a) is best paraphrased by sentence with a *because*-adjunct: *Because he is a sailor, John sometimes smokes a pipe.* Not so for the examples in (322b) and (323b). These are best paraphrased by structures with conditional/temporal adjuncts: *If/when he lies on the beach, John sometimes smokes a pipe* and *If/when he wears that new outfit, Bill would fool everyone.* In accordance with this difference in interpretation, the (a) sentences entail the truth of their adjuncts, whereas the (b) sentences do not.

Stump arrives at a formalization of this distinction in positing two classes of adjuncts. In Stump's terminology, adjuncts of the kind in (322a) and (323a) are STRONG and those like the ones in (322b) and (323b) are WEAK. Importantly, he shows, the classification of adjuncts into strong and weak is very systematic and it corresponds to the stage-/individual-level distinction (cf. Carlson 1977, Kratzer 1995). This is a strong argument in favor against more traditional approaches to the interpretation of free adjuncts, who claim that the logical link between the free adjunct and the main clause is determined entirely by context (cf. Quirk et al. 1972). This is evidence that the interpretation of the free adjunct is grammatically determined, despite the absence of an overt connective.

Turning to the characterization of the two classes of free adjuncts, Stump argues that the former are adsentential and thus their interpretation is not affected by the contents of the main clause[22], the latter function as conditional adjuncts and thus they are within the scope of sentential operators in the main clause. The LFs assigned to the structures in which the two kinds of free adjuncts participate are as follows.

(324) Strong adjuncts

a. Being a sailor [Sometimes [John smokes a pipe]]

b. Being a master of disguise [Would [Bill fools everyone]]

(325) Weak adjuncts

a. Sometimes [lying on the beach] [John smokes a pipe]

b. Would [wearing that new outfit] [Bill fools everyone]

The semantic role of weak adjuncts is to function as the first argument of operators, temporal adverbs of quantification as in (324a) or modals as in (324b).[23] According to Stump, free adjuncts restricting modals and those restricting temporal adverbs differ in their category, the former have the basic category of conditional clauses, the latter have the category of eventuality-level time adverbs.

Regarding the interpretation of free adjuncts in modal contexts, Stump's proposal relies on Kratzer's theory of modality (cf. Kratzer 1981, 1991) and of conditional modality specifically (cf. Kratzer 1979). In Kratzer's enriched system of possible worlds semantics modal words are analyzed as existential or universal quantifiers over possible worlds. In addition to contributing a modal (quantificational) force, modals are associated with

[22]Beyond the specification of the logical link as one of reason/cause. Stump believes that this particular interpretation is due to extralinguistic inference. As he describes the state of affairs concerning free adjuncts, the interpretation that they have is *determined* by the linguistic system but is not fully *specified*, leaving room for context to choose between several options.

[23]Free adjuncts may also restrict the generic operator of e.g., Carlson 1977. Consider the following sentences and the LFs that can be assigned to them:

(i) a. Lying on the beach, John smokes a pipe.

b. Gen [lying on the beach][John smokes a pipe]

The same *if/when-because* distinction between the interpretation of free adjuncts arises here, and correspondingly the same analysis can be provided as the one presented above for modals and the relative frequency adverbs.

two contextually determined parameters: a MODAL BASE and an ORDERING SOURCE, both functions from worlds to sets of propositions. (We will ignore the ordering source in the discussion here for reasons of simplicity.[24]) The modal base assigns to every possible world w the set of propositions that are known in w, or that constitute the law in w, etc., depending on context. Since in possible worlds semantics propositions are identified with the sets of worlds in which they are true, ultimately the modal base specifies for every world a set of worlds accessible from it, where accessibility is defined as compatibility relative to a knowledge state, to a normative situation, etc. This general analysis of modal sentences in terms of restricted quantification has immediate relevance for modal conditionals. In this case, the set of propositions that constitutes the modal base is not just contextually specified but also contains the proposition expressed by the *if*-clause. The union of propositions results in restricting the set of worlds over which the modal quantifies. In abstraction, at LF conditional clauses restrict modals.

(326) a. if q, modal p

b. Modal [q] [p]

Kratzer's treatment of conditionals in modal context may be extended to conditionals in the context of adverbs of quantification (cf. Lewis 1975, Kratzer 1991b, also Farkas and Sugioka 1986). Frequency adverbs such as *sometimes, usually,* etc., may be thought of as quantificational operators over times/situations. Again, the role of conditionals is to restrict the domain of such operators such that the proposition in the main clause is asserted to hold only over the set of situations determined by context and the meaning of the *if*-clause.

(327) a. if q, AdvQ p

[24]The ordering source, Kratzer's innovation to possible worlds analysis of modality, imposes a particular ordering among the accessible worlds determined by the modal base. Worlds can be ordered, for instance, with respect to how close they are to what the normal course of events is in a given world. Such a STEREOTYPICAL ordering source is responsible for universal modal statements not entailing their non-modal counterparts. If *must* was interpreted simply as a universal quantifier over the worlds accessible from w, then *must p* would indeed entail the truth of p in w. Taking into account the stereotypical ordering source prevents this undesirable result. The ordering source assigns to every world the set of propositions that constitute what is normally the case in that world, and imposes an ordering on the accessible worlds with respect to that set of propositions. Universal quantification is then only over the set of closest worlds. Since it is not necessary for w to be an element of the set of worlds that come closest to what normally happens in w, *must p* will not entail p in w.

b. AdvQ [q] [p]

If a view like the one above is adopted, it may not be necessary to posit distinct interpretations for free adjuncts in modal context and in the context of adverbs of quantification. The semantic role of all weak free adjuncts can then be said to be one of conditional modification.

4.2.4.2 Free Relatives are Weak Adjuncts

I propose that conditional modification is the necessary element in the meaning components associated with the concessive free relative construction. The syntax of free adjunction is what determines this aspect of the interpretation of concessive free relatives and in that respect they are not special but exhibit the behavior of other weak free adjuncts. It remains to be shown that indeed the concessive free relatives have the interpretation of weak adjuncts. This is not something obvious, given that concessives always assert their main clause. Thus a structure *Concessive, Modal p* or *Concessive, AdvQ p* would assert *Modal p* and *AdvQ p*, essentially leaving the quantificational operators in these predicates unrestricted (or rather, restricted solely by the context). The meaning of the concessive free adjunct does not seem to be calculated in deriving these interpretations. Yet I submit that this is the case only because we are trying to interpret tthe concessive as a conditional; the steps in the semantic composition actually proceed the other way around - the concessive interpretation is derived *after* a conditional configuration is established.

Consider first the case of free adjunct free relatives in a modal context. My proposal is that before the concessive interpretation is arrived at, there is a stage in the interpretation in which the free adjunct free relative functions just like a conditional. Consider the sentence in (328a), in the context of a cooking competition. Thus, a structure with a free adjucnt free relative, as in (328a) has as parts of its meaning the interpretation in (328b). This is not all that there is to the meaning of (328a) - the concessive element needs to be incorporated, but that I argue, happens on a structure that already looks like (328c). The transition from a free relative syntax to a structure such as *Daniel cooks something* - the *if*-meaning coming from the free adjunction structure - is conditioned in part by the fact that the free relative *whatever Daniel cooks* comes with an existential presupposition that Daniel indeed

will cooks something. My intuition is that in a context in which Daniels fails to cook anything, a sentence such as (328a) will have an undefined truth-value. The LF in (328c) is appropriate to represent the meaning of the sentence.

(328) a. Whatever Daniel cooks he must win the competition.

b. If Daniel cooks something he must win the competition.

c. Must [Daniel cooks something] [he wins the competition]

Importantly, once the concessive interpretation is stripped away, the free adjunct free relative has a conditional interpretation, just like the weak adjuncts discussed above, and not a *because*-interpretation like the one derived for strong adjuncts.[25]

The same facts obtain in the case of free adjucnt free relatives in the context of adverbs of quantification.[26]

(329) a. Whatever Daniel cooks he usually wins the competition.

b. If Daniel cooks something he usually wins the competition.

c. Usually [Daniel cooks something] [he wins the competition]

The free adjucnt free relative, stripped of its concessive meaning, functions as a restrictor to the adverb of quantification (cf. (329c)) just like a conditional clause would (cf. (329b)). Again, no meaning of cause or reason arises. This suggests that the free adjunct free relative is not a strong adjunct.

Finally, the interpretation available to free adjunct free relatives when the main clause has episodic interpretation, i.e., it has no modal or another quantificational operator, supports the conclusion that free relatives form weak adjuncts. As Stump shows, strong

[25]Interestingly, traditional grammar has pointed to the parallels between concessives and causatives. Concessives have been have been considered the dual of causatives (Quirk 1985, König 1988); see example (i):

(i) a. Because I worked hard, I finished the project.

b. Although I worked hard, I didn't finish the project.

Perhaps led by examples like (i), Stump claims that the causative interpretation of free adjuncts is not specified grammatically. Rather, given its membership in the strong class, the free adjunct is both entailed as true and impossible to interpret cotemporaneously with the eventuality in the main proposition. Thus speakers infer the causative relationship as the most likely one, provided an appropriate context (i.e. the extralinguistic relationship that obtains between working hard and finishing projects). If context is not appropriate for a causal inference to arise, e.g., as in the case of (ib), another logical relationship between the adjunct and the main clause may be inferred. The fact that a causal reading is not available for the free adjunct in (328a) suggests even more strongly that free relative free adjuncts are weak.

[26]Generic main sentences are similar in this respect and I am not going to address them here.

adjuncts do not change their meaning between quantificational and non-quantificational environments, rather they are uniformly interpreted as adjuncts of reason or cause. Consider, for instance the minimal pairs (322a) and (330a), and (323a) and (331a):

(330) a. Being a sailor, John smoked a pipe.

b. Lying on the beach, John smoked a pipe.

(331) a. Being a master of disgiuse, Bill fooled everyone.

b. Wearing that new outfit, Bill fooled everyone.

In the (a) sentences above, just as in (322a) and 323a, the adjunct is interpreted as an adjunct of reason/cause. Furthermore, in both quantificational and non-quantificational contexts the truth of the free adjucnt is entailed. This is not the case for the weak adjuncts. In quantificational contexts their truth is not entailed (cf. (322b) and (323b)) since they are interpreted as restrictors to the operator. In the case of (330b) and (331b), the truth of the free adjuncts is entailed and they are interpreted cotemporaneously with the event in the main clause.

Free adjunct free relatives pattern with weak adjuncts again. When they are adjoined to a clause which has an episodic interpretation they are interpreted as .[27]

(332) a. Whatever Daniel cooked he won the competition.

b. Daniel cooked something and he won the competition.

Notice that there is a sense in which a conditional interpretation may be assigned to (332a), although this interpretation will not be the result of a restricted quantificational structure. The interpretation of the adjunct free relative in the example above is related to the *relevance conditionals* discussed in Iatridou 1991. These are conditionals clauses such as *If you are thirsty, there is beer in the fridge* which present the relevant circumstances for asserting the consequent.

[27] Quer 1998 claims that free relatives can only occur as free adjuncts in contexts of modals, future tense, imperative, generic and habitual sentences, i.e., contexts involving non-veridical models of evaluation. Example (332), and also (253c) earlier in the text illustrate that this is not the case. One might think that perhaps, because Catalan and Spanish free adjunct free relatives are formed with the subjunctive, they are subject to a licensing condition (cf. Farkas 1991, 1996, Giannakidou 1997) to which the English *wh-ever* free relatives are not. Yet, at least in Bulgarian, which forms free relatives with the subjunctive, free adjunct free relatives are felicitous in veridical contexts.

4.2.5 The Concessive Element in the Meaning

As we saw above, the free adjunct structure determines the underlying interpretation of the free adjunct free relative to be one of a conditional. Whereas conditionals of the form *if q, p* relate the truth of a single proposition q to the truth of p, the free relatives are associated with a multiplicity of propositions q_n and relate those to the truth of p. The role of the additive particle (in English, German, Polish) is to apply exhaustively over the set of propositions.[28]

The additive particles contribute a concessive interpretation to the conditional by exhausting the set of conditions under which p obtains.

It remains to be seen how the concessive reading is derived in the case of free relative free adjuncts employing negative particles, e.g., Hebrew, Russian, some cases in Bulgarian and Polish. The basic proposal is that these have the interpretation of rhetorical questions. As proposed in Han (1998), *wh-* rhetorical questions are interpreted as assertions mapping the *wh*-word onto negative quantifiers. Thus a sentence such as (333a) is interpreted as in (333b) (example (393) from Han 1998, p. 214).

(333) a. Who has lifted a finger to help Mary?

b. $\neg\exists$x[x lifted a finger to help Mary]

It follows then that *negative* rhetorical *wh*-questions would be interpreted as universally quantified.[29]

Thus we derive a similar interpretation for the different classes of free adjunct free relatives, despite the differences in underlying structure.

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[28] In that respect *also* acts similarly to a conditional *even*. Note the analogous role of *even* and *also* in conditionals:

(i) a. Even if *John comes to the party* we will have fun.

b. Also if *John comes to the party* we will have fun.

See Bennet 1982, Cross 1985, Barker 1994 among others on the compositional interpretation of *even if*-conditionals.

[29] This is the reason why, according to Han, negative rhetorical questions do not license NPIs.

4.3 Conclusions

This chapter presented an analysis of a little-studied phenomenon involving free relatives. The main conclusions are that certain free relatives are bare CPs and moreover have propositional interpretation. I identified a range of possible meanings available to free adjunct free relatives and related these meanings to the the syntactic elements present in the structure. Crosslinguistic differences in the syntax were shown to converge to a common meaning in a principled way.

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