THE GRAMMATICAL FUNCTIONS OF COMPLEMENT CLAUSES*

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1 Introduction

Current syntactic theories differ greatly in how abstract syntactic structure is represented. In theories in which grammatical functions are defined in terms of phrase structure configuration (for example, Speas 1990), the subject or external argument is distinguished from the nonsubject arguments on the basis of phrase structural criteria, and differences among nonsubject arguments are ascribed to differences in their phrasal position. In HPSG (Pollard and Sag 1994) and some versions of categorial grammar (Dowty 1982), grammatical functions are defined in terms of a functional hierarchy, usually taken to represent relative syntactic obliqueness. In such theories, syntactic distinctions among arguments follow from their relative position on the functional hierarchy. In more recent versions of HPSG (Manning and Sag 1999), the subject is given a special status, different from other grammatical functions, but any differences among nonsubject grammatical functions are assumed to follow from the functional hierarchy.

Still other theories assume a much more informationally rich representation of grammatical functions; each argument of a predicate is identified as bearing a particular grammatical function such as subject, object, complement, or oblique, each with different grammatical properties. Lexical Functional Grammar (Bresnan 1982; Dalrymple et al. 1995) is an exemplar of such a theory, as are the theories of Relational Grammar (Perlmutter 1983) and Construction Grammar (Kay 1998). It is reasonable

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to ask whether this more elaborate representation is in fact warranted, or whether a simpler theory of grammatical functions would suffice.

We will show that the fine distinctions among different grammatical functions provided by a theory like LFG are necessary in the description of the syntax of clausal complementation. A clausal complement can bear one of two grammatical functions to a predicate: some clausal complements bear the OBJ function, while others bear the COMP function, the grammatical function traditionally assumed for clausal complements in LFG. In some languages, all clausal complements bear the same grammatical function. More interestingly, clausal complements in what we call *mixed languages* can bear either grammatical function: some clausal complements are COMP and some are OBJ, depending on the requirements of the matrix predicate.

Evidence from mixed languages shows that a binary distinction between subject and nonsubject arguments of a predicate is insufficient to capture the syntactic behavior of clausal complements. Even a hierarchically-defined distinction among grammatical functions cannot predict the different behavior of clausal complements in mixed languages. Consider, for example, a two-argument predicate subcategorizing for a SUBJ and a clausal complement in a mixed language: the distinction between OBJ and COMP clausal complements does not follow from their position on the functional hierarchy, since both arguments occupy the same hierarchical position relative to the SUBJ argument. Some additional abstract syntactic distinction is also necessary.

In the following, we will provide a sketch of several languages that demonstrate that clausal complements are not restricted to realizing a single grammatical function. We will focus primarily upon finite declarative clausal complements, the clearest cases illustrating a COMP/OBJ distinction. An interesting further question, which we will not address here, concerns the status of infinitival clauses. Since, as we will show, some clausal arguments bear the OBJ function, it is natural to suppose that at least some infinitival complements (those that are anaphorically controlled) can also be OBJ: see Lødrup (1991) for discussion.

We will also focus on sentences with no nonthematic or pleonastic arguments, and thus we will not discuss examples involving 'extraposed' clauses such as:

(1) It surprised me that it snowed.

Under some analyses, extraposed clauses are analyzed as a kind of apposition to the nonthematic argument (Berman 1998), while other approaches analyze extraposed clauses as bearing the same grammatical function as the nonthematic argument (Berman et al. 1998). In fact, however, extraposed clauses seem to have the same grammatical properties that we expect a COMP to have (Culy 1994), so that a crosslinguistic examination of the syntactic behavior of extraposed arguments could provide further evidence for the existence of mixed languages.

2 The grammatical functions of complement clauses

In some languages, all clausal complements bear a uniform grammatical function. For example, all complement clauses bear the grammatical function OBJ in Icelandic, Nor-

wegian and Spanish, as described by Thráinsson (1979), Lødrup (1991), and Plann (1986).[1]

Alsina et al. (1996b) propose that all clausal complements bear the grammatical function OBJ, and that any differences in syntactic behavior between NP objects and clausal complements should be accounted for only in terms of the difference in their phrase structure category. They argue that this leads to a generally more parsimonious theory, and further that the grammatical function COMP has no place in Lexical Mapping Theory and should therefore be eliminated. Indeed, Alsina et al. (1996a) hint at an analysis in which a language with no syntactic differences between NP objects and clausal complements is assumed to have clausal complements of the category NP.

We believe that there are several difficulties with this proposal. Most importantly, we will show that mixed languages exhibit no distinction in phrase structure category between OBJ and COMP clausal complements. In these languages, there is no basis for an appeal to phrase structure distinctions to explain the differing syntactic behavior of complement clauses.

We also do not believe that the limitations in linking analyses of clausal arguments constitute a serious argument against the existence of COMP. There is general agreement that LMT in its classical version is too limited, and current research on linking seeks to extend it in various directions. One way of integrating COMP into LMT is outlined by Zaenen and Engdahl (1994), who propose that COMP and XCOMP bear the thematic role PROPOSITION. They claim that this role is intrinsically associated with a restricted grammatical function and bears the feature +R. This is a welcome step towards a complete theory of linking and clausal arguments, but it has a serious drawback: it does not allow for clausal complements to bear the OBJ function. We will not discuss an alternative LMT treatment of clausal complements here, but the idea that COMP is +R will be important to our approach as well.

In what follows, we will discuss the grammatical properties we expect COMP and OBJ clausal complements to have, and show how these expectations are borne out by data from English, German, Swedish, and Slave.

3 Mixed languages: English, German, Swedish

Clausal complementation in English, German and Swedish is fundamentally similar. In all three languages, a clause with the complementizer *that/dass/att* can be either COMP or OBJ: all three are mixed languages. This similarity has not been systematically recognized in traditional or generative grammar. German grammar has always made a distinction between what we take to be COMP and OBJ clausal complements (see, for example, Duden 1984:668; Breindl 1989; Webelhuth 1992; Zifonun et al. 1997:1097). English grammar, on the other hand, usually assumes a single type of clausal complement. Traditional grammar assumed that they are objects (Jespersen 1924:103; Quirk et al. 1985:1049), while generative grammar since Emonds (1970) has assumed that they are (what we take to be) COMPs. An interesting exception is Foley and Valin (1984:252–254), who assume that English has two kinds of clausal

[1] Lødrup (1991) points out a handful of exceptional predicates in Norwegian that seem to take COMP complement clauses; one example is the adjective *glad* 'happy'.

complements, along the lines proposed here. Swedish grammar has never really focused upon this question (but see Ralph 1975; Teleman et al. 1999:533–534).

An objective clausal complement in English, German, and Swedish can also appear as the second of two objects, as in (2):

(2) He told us [that it is raining].

In example (2), the OBJ of *told* is *us*, and the complement clause *that it is raining* bears the grammatical function OBJ_θ. In such cases, we expect the complement clause to share grammatical properties with nominal OBJ_θs. However, we will not focus upon verbs that take double objects, to avoid the complications raised by variation in double object systems.

In the following, we will show that verbs such as English *believe*, German *glauben* 'believe', and Swedish *tro* 'believe' take either NP or CP OBJs. These verbs contrast with verbs that take COMP clausal complements, such as English *hope*, German *sich freuen* 'be happy', and Swedish *yrka* 'insist'.

Alternation with NP object We expect a verb that takes a clausal OBJ to take a nominal OBJ as an alternative; if subcategorization requirements are stated purely in terms of grammatical functions, and no semantic factors preclude a nominal OBJ, either type of OBJ should be possible.[2]

In English, German and Swedish, verbs that take OBJ clausal complements also allow NP objects:

(3) Eng: I believe [that the earth is round] / it

Ger: Ich glaube [dass die Erde rund ist] / es
I believe [that the earth round is] / it
'I believe [that the earth is round]/it.'

Swe: Jag tror [att jorden är rund] / det
I believe [that the.earth is round] / it
'I believe [that the earth is round]/it.'

In contrast, verbs that take COMP clausal complements do not allow nominal proforms:

(4) Eng: I hope [that it will rain] / *it

Ger: Ich freue mich [dass Hans krank is] / *das / *es (Webelhuth 1992:104–105)
I am.happy Refl that Hans sick is / it
'I am happy [that Hans is sick]/it.'

Swe: Kassören yrkade [att avgiften skulle höjas] / *det
the.cashier insisted that the.tax should be.increased / it
'The cashier insisted [that the tax should be increased]/it'

[2]To be more exact, our claim concerns alternation with a thematic OBJ. Non-thematic OBJs are possible with a much larger set of verbs, as shown by a sentence like:

(i) He complained himself hoarse about the bad coffee. (Pesetsky 1993)

Coordination In some languages, an NP object can be coordinated with a clause. In these cases, the clause also bears the OBJ function:

(5) Pat remembered [the appointment] and [that it was important to be on time].
(Sag et al. 1985:165)

All three languages allow, to some extent, an NP object to be coordinated with a clause. Sag et al. (1985:164–165) claim that such coordinations are permitted by 'many speakers ... in certain environments' in English, and they seem to have roughly the same status in German and Swedish.

(6) Ger: Er vergass [die Verabredung] und [dass es wichtig war, pünktlich zu sein].
he forgot the appointment and that it important was on.time to be
'He forgot the appointment and that it was important to be on time.'

(7) Swe: Han glömde [mötet] och [att det var viktigt att vara precis]
he forgot the.appointment and that it was important to be on.time
'He forgot the appointment and that it was important to be on time.'

It has also been noted that not all examples of this structure are acceptable:

(8) *He proposed [a 20% reduction for the elderly] and [that the office be moved to the suburbs].
(Emonds 1970:85)

We do not believe that the unacceptability of example (8) constitutes clear evidence against our analysis, however, since a number of poorly-understood grammatical and extragrammatical factors influence the acceptability of coordination.[3] Examples like (8) show that the acceptability of coordinating with an NP OBJ cannot be a necessary property for a clausal complement to be an OBJ.

Passive We follow Zaenen and Engdahl (1994) in assuming that COMP is a restricted grammatical function, thus differing from OBJ, which is unrestricted. At the level of a-structure, the semantic argument which is realized as OBJ is classified as $-\mathrm{R}$, while the semantic argument which is realized as COMP is (possibly lexically) classified as $+\mathrm{R}$. We predict, then, that the $-\mathrm{R}$ argument can be realized as a SUBJ if the external argument is demoted, as in the passive, while the $+\mathrm{R}$ argument cannot be realized as a SUBJ. This prediction is borne out in English, German and Swedish:

(9) Eng: That the earth is round was not believed

[3] For example, even though examples (i) and (ii) are syntactically very similar, (ii) is much less acceptable than (i):

(i) Pat is a Republican and proud of it.

(ii) ??Pat is a Republican and stupid.

Ger: Dass die Erde rund ist, wurde nicht geglaubt
that the earth round is was not believed
'That the earth is round was not believed.'

Swe: Att sosserna vinner valet antas allmänt
that the.social.democrats win the.election is.assumed generally
'That the Social Democrats win the election is generally assumed.'

(10) Eng: *That it would rain was hoped

Ger: * Dass Hans krank ist wurde ihn nicht informiert
that Hans sick is was him not informed
'That Hans was sick was not informed him.'

Swe: *Att avgiften skulle höjas yrkades
That the.tax should be.increased was.insisted
'That the tax should be increased was insisted'.

Of course, a verb that takes a COMP is not precluded from appearing in passive voice; passivization is possible if another argument besides the COMP becomes the subject of the passivized verb:

(11) John was informed that it would rain.

(12) It was hoped that it would rain.

Unbounded dependencies OBJ arguments can enter into an unbounded dependency; for example, a topicalized argument can fill the OBJ function. In contrast, most languages do not allow a COMP to enter into an unbounded dependency. This is true of English, German and Swedish, as shown by the following examples.

(13) Eng: That it would rain, everybody believed

Ger: Dass Hans krank ist glaube ich (Webelhuth 1992:103)
that Hans sick is believe I
'That Hans is sick, I believe.'

Swe: Att sosserna vinner valet antar man
that the.social.democrats win the.election assumes one
'That the Social Democrats win the election, one assumes.'

(14) Eng: *That it would rain, everybody hoped.

Ger: *Dass Hans krank ist freue ich mich (Webelhuth 1992:105)
that Hans sick is am.happy I Refl
'That Hans is sick, I am happy'

Swe: *Att avgiften skulle höjas yrkade kassören
that the.tax should be.increased insisted the.cashier
'That the tax should be increased, the cashier insisted.'

The data in (13–14) is usually discussed in terms of Higgins's Generalization (Higgins 1973), expressible as in (15):

(15) A clausal argument can enter into an unbounded dependency only if it is in an NP position, i.e. a position in which an NP is possible as an alternative to the clausal argument.

How this insight should be implemented has often been discussed (Stowell 1981; Kaplan and Bresnan 1982; Emonds 1985; Kaplan and Zaenen 1989; Webelhuth 1992; Postal 1994; Bošković 1995; Büring 1995; Berman 1996; Odijk 1998; Bresnan 2000). In our framework, all that is needed is a stipulation that a COMP cannot enter into an unbounded dependency (or that a COMP cannot be identified with a TOPIC). This was originally proposed by Kaplan and Zaenen (1989). However, Kaplan and Zaenen assume that a clausal complement is always a COMP when it is not a part of an unbounded dependency. In their analysis, a verb like *believe* takes either a COMP or an OBJ, and the grammaticality of an example like (13) is due to the fact that the topicalized clause is associated with the OBJ function rather than COMP (see also Bresnan 2000:215). Our analysis is different in that the clausal complement of a verb like *believe* always bears the OBJ function; Lødrup (2000) provides further discussion.

The prohibition against topicalizing COMP does not seem to hold for all languages. Languages allowing topicalized COMP include older German (Breindl 1989:181, 206) and Slave (see Section 4).

Complementation of nouns, adjectives and prepositions Nouns and adjectives are intransitive categories, and we expect them not to take OBJ clauses. There is no reason they should not take COMP clauses, however, and nouns and adjectives do take COMP clauses in English, German and Swedish.[4]

(16) Eng: certain that we will win.
the certainty that we would win

(17) Ger: froh, dass es alle geschafft haben
happy that it everyone made has
'happy that everybody has made it'

die Sorge, dass ihrem Sohn etwas zustossen könnte
the fear that their son something happen could
'the fear that something could happen to their son'

(18) Swe: stolt att han skall befordras (Ralph 1975)
proud that he should be.promoted
'proud that he will be promoted'

hoppet att han skall befordras
the.hope that he should be.promoted
'the hope that he will be promoted'

[4]It might be claimed that German adjectives are transitive, since some adjectives can take a nominal complement. These NPs are dative or genitive, however, and should probably be considered oblique phrases; see, for example, Riemsdijk (1983).

A language that has only OBJ clausal complements is predicted not to have clausal complements with nouns and adjectives; this is the situation in Spanish, Icelandic, and Norwegian.[5] We assume that a complement to a noun such as *belief* is an apposition (*the belief that we will win*), and that these complements can appear even in a language with no COMPs; see Stowell (1981) and Lødrup (1991) for discussion.

In contrast, prepositions are a transitive category, and we expect them to take OBJ clauses. This is a point that is not without its problems, and it is clear that English, German and Swedish behave in different ways. Swedish prepositions take OBJ clauses without any special restrictions:

(19) Swe: Jag väntade på [att hon skulle komma] (Andersson 1974:7)
I waited for that she should come
'I waited for her to come.'

English is a more complicated case, since a clause cannot appear in the complement position of a PP. However, an English preposition can take a displaced clausal OBJ:

(20) That he might be wrong he didn't think of. (Kaplan and Bresnan 1982:242)

A clausal OBJ is also (to some extent) possible if it is coordinated with an NP OBJ, as in (21), originally discussed by Sag et al. (1985):

(21) We talked about Mr. Colson and that he had worked in the White House.

The unavailability of in-situ clausal objects of prepositions in English must be due to constraints on constituent structure configurations, not functional syntactic factors; see Section 5 for further discussion of this point.

German is an even more complicated case. A couple of prepositions (*anstatt* 'instead of', *ohne* 'without') can take finite clausal complements, while the majority cannot.[6] German sentences like (20) are unavailable for independent reasons: German does not allow preposition stranding. Sentences like (21) seem to be marginally possible, and thus give meager evidence for the possibility of OBJ clausal complements of prepositions. The fact that only a few German prepositions take clausal complements represents a problem for our theory — and probably for most other theories as well. We return to this problem in Section 5.

We have shown that there is solid evidence that English, German and Swedish are mixed languages with both COMP and OBJ clausal complements. Some problems remain, however; for instance, Bresnan (1995) argues that the reason for the unacceptability of example (21) is that, contra our assumptions, clausal OBJs are not possible in English:

(22) *On the roof was written that enemies are coming.

[5] As noted in footnote 1, there are a few exceptional Norwegian adjectives which take COMP arguments.

[6] As pointed out by Jane Simpson (p.c.), the preposition *without* can take a clausal complement in some nonstandard dialects of English: *You don't know about me without you have read a book by the name of The Adventures of Tom Sawyer* (Mark Twain, *Huckleberry Finn*). See Dubinsky and Williams (1995) for more discussion.

We do not have an alternative explanation of why (22) is unacceptable. One might want to base an explanation upon the function of the clausal argument as a presentational focus, but this seems to be difficult. Bresnan notes that the Chichewa counterpart of (22) is fully grammatical, and the same is true of its corresponding presentational focus sentence in Norwegian. (Norwegian does have a restriction that is similar to the English one; the difference is that it only concerns active sentences.) A more general point is that presentational focus sentences are subject to a number of restrictions that are not fully understood; for example, they often disallow manner adverbs, agent phrases, and so on. This makes the evidence from presentational focus sentences somewhat delicate.

4 Another mixed language: Slave

Rice (1989) shows that Slave, an Athapaskan language spoken in western Canada, has both OBJ and COMP clausal complements. Rice represents this difference in grammatical function in phrase structure terms, proposing that the clausal complements that behave as OBJ are dominated by an NP, while those that behave as COMP are not dominated by NP. Thus, according to her analysis, the difference between OBJ and COMP in Slave is mirrored by a difference in phrase structure category. However, there is no morphological or phrase structural evidence for this distinction. Rather, we take her evidence as supporting a functional distinction between OBJ and COMP clausal complements.

Slave verbs are morphologically complex, including incorporated pronominal affixes, adverbs, and derivational affixes. A Slave sentence may consist of a single verb:[7]

(23) káseyı̨hkw'i — Rice (1989:634)
's/he pinched me'

Slave has an object pronominal affix *go-*, which Rice refers to as an 'areal' affix, observing that it 'mark[s] that the object indicates time, place, or situation' (p. 634). It appears with an object like 'house' but not an object like 'snowshoes':

(24) **go**htsı̨ — (Rice 1989:635)
's/he builds it (a house)'

(25) yehtsı̨ — (Rice 1989:635)
's/he makes it (e.g. snowshoes)'

Rice further observes that the areal object marker *go-* is unlike the other Slave pronominal affixes in that it functions as an agreement marker, present whether or not there is a full nominal object:

(26) kǫ́é **go**dı̨tl'é — (Rice 1989:635)
house 2sg.paint.area
'you (sg.) paint the house'

[7] Rice (1989) does not indicate morpheme boundaries and often does not give word-by-word glosses of the examples she presents, and we will not attempt to add them.

Morphological marking Rice (1989:1230) shows that the OBJ affix *go-* is used for agreement with OBJ clausal complements, as with the verb 'be surprised':

(27) [lą́ ráse] begha gudeyídli (Rice 1989:1230)
really 3.is.strong 3.for 1pl.was.surprised
'we were surprised that he was so strong'

In contrast, with other verbs whose clausal complement is COMP such as 'say', using the areal pronominal affix *go-* results in ungrammaticality:

(28) metá [ʔekǫ́ ʔahndeh gha] ndi (Rice 1989:1224)
3.father there 1sg.go FUT 3.say
'His dad said that he is going there'

(29) *metá [ʔekǫ́ ʔahndeh gha] ʔagodi (Rice 1989:1224)
3.father there 1sg.go FUT 3.say.**area**
'His dad said that he is going there'

Alternation with NP object Example (27) shows that the verb 'be surprised' takes a clausal object. According to Rice, the verb 'be surprised' also takes nominal objects, although she gives only an example with a pronominal object:

(30) sudeyįli (Rice 1989:1231)
'I surprised him/He was surprised by me'

This is expected; since the verb subcategorizes for an object, either a nominal or a clausal object can appear. In contrast, the verb 'say' does not appear with a nominal object or object affix. Rice provides the following ungrammatical example of the use of a pronominal 'fourth person' object affix with the verb 'say':[8]

(31) *ʔayedi (Rice 1989:1224)
3 say 4

Unbounded dependencies Rice shows that in a clause with a third person subject and a topicalized object, a pronominal object affix must appear on the verb:

(32) lį ʔehkee kayįhshu (Rice 1989:1197)
dog boy 3.bit
'the dog bit the boy'

(33) [ʔehkee] lį kayeyįhshu (Rice 1989:1197)
boy dog 3.bit.**4**
'the boy, a dog bit him'

When the COMP of the verb 'say' is topicalized, no affix appears on the verb:

[8]Rice (1989) observes that the 'fourth person' nonreflexive object pronoun is used when the subject is a third person form.

(34) [ʔekǫ́ ʔahndeh gha] metá ndi (Rice 1989:1224)
there 1sg.go FUT 3.father 3.say
'His dad said that he is going there'

Unfortunately, Rice provides no example of a topicalized clausal object of a verb such as 'be surprised', but our analysis predicts that an object pronominal affix would appear in such a case.

Complementation of P Clausal arguments can appear as the object of an oblique phrase, as with a verb like 'help':

(35) [dene k'ę́ gudee] goghǫ bets'ę́ ráhídí (Rice 1989:1230)
Dene like 3.opt.talk area.about 3.to 1pl.help
'We are helping him to talk Dene'

In this example, the clausal complement is the object of the postposition *gogho* 'about', which is marked with the areal agreement affix *go-*.

These tests show that Slave is also a mixed language: clausal OBJs behave like nominal objects, and clausal COMPs behave differently.

5 C-structure and f- structure constraints

The architecture of LFG reflects the fact that the syntax of clausal complements is two-faceted. What is an OBJ in f-structure can have different realizations in c-structure: as an NP, a clitic, an affix, or a clause. Constituent structure constraints make reference to phrasal category information, while functional constraints depend on more abstract functional syntactic organization. Thus, we would expect that CPs, whether COMP or OBJ, would obey similar constituent structure constraints despite their difference in grammatical function, and that NP and CP arguments might behave differently, even when they both bear the OBJ function. Connections between the two syntactic levels can also be exploited to impose constraints on the c-structure form of f-structure arguments.

5.1 C-structure generalizations

It is an old insight that there are restrictions on the distribution of clauses in c-structure (see, for example, Kuno 1973, Dryer 1980). A CP may not appear in the canonical subject position in English. Instead, a CP subject must appear in topic position. Functionally, it is interpreted as both subject and topic (Bresnan 1994, 1995, 2000):

(36) *Does that he left bother them?
(cf. Does it bother them that he left?)
That he left bothers them.

In the same way, the canonical object position is not a possible position for a CP in English. Instead, a CP complement must appear closer to the end of the sentence, as Emonds (1970:74–75) observed:

(37) *She won't tell she is sick to the doctor.
She won't tell the doctor she is sick.

This is true of all clausal complements, whether they are COMP or OBJ. We assume that there is a position at the end of the VP for both COMP and OBJ clausal complements. (The clausal complement can also be "extraposed" to the end of the sentence, but this is a general possibility for heavy constituents.) The descriptive generalization for English is that the canonical subject and object positions can only contain NP/DP, the prototypical category for realizing subjects and objects.[9] Within a theory like LFG, with its insistence on c-structure and f-structure as different levels of representation, this situation is expected: arguments that have the same grammatical function do not necessarily have the same behavior at c-structure.

Other languages allow CP in the canonical subject and object positions to a varying extent. German and Swedish are like English concerning subjects, but Spanish allows CP in the canonical subject position (Plann 1986). German allows CP in the canonical object position of verbs (to some extent, cf. 5.2 below), and Swedish allows CP in the canonical object position of prepositions (cf. example (19) above). Such generalizations concerning what categories can appear in what positions in c-structure must be part of a syntactic description of any configurational language.

There is an interesting interaction between the functional and the structural parts of our theory. The functional part predicts that a language that allows OBJ clausal complements should allow clausal complements with prepositions. The structural part says that a language can forbid a preposition to have a clause in object position in c-structure. Taken together, this gives a perfect account of the situation in English. It also gives an account of at least the main rule in German, if we allow ourselves to put aside the two exceptional prepositions discussed in Section 3 above. The functional part predicts that German prepositions should allow clausal complements, but the structural part says that these clausal complements cannot be in object position in c-structure. This leaves them with no place to go, since preposition stranding is not possible in German.

5.2 Functional constraints on c-structure configuration

Functional information can also influence phrasal organization. For example, German COMP and OBJ clausal complements can appear in different phrase structure positions. The unmarked position for a clausal complement is at the end of the sentence, but there is one position where an OBJ clausal complement can occur (at least for some speakers; see Webelhuth 1992, Büring 1995), but not a COMP: the 'middle field'. An

[9] This also accounts for the fact that clausal complements do not take secondary predicates:

(i) *I believe that he left to be outrageous.

OBJ clausal argument is possible (for the speakers in question) in the middle field with a verb like *glauben* 'believe', but not with a verb like *(sich) freuen* 'be happy':

(38) Ger: weil ich [dass Hans krank ist] nicht glauben kann (Webelhuth 1992:107)
because I that Hans sick is not believe can
'because I cannot believe that Hans is sick'

(39) Ger: *weil ich [dass Hans krank ist] mich nicht freuen kann (Webelhuth 1992:107)
because I that Hans sick is Refl not be-happy can
'because I cannot be happy that Hans is sick'

5.3 Phrasal category constraints

Grimshaw (1982) pointed out that a verb like *express* requires a nominal and not a clausal OBJ:

(40) *The grammar expresses that the rule is obligatory.

The requirement for an OBJ of a particular phrase structure category is statable within LFG by means of the predicate CAT (see Kaplan and Maxwell 1996 for a definition), which associates f-structures with the set of category labels of the c-structure nodes corresponding to that f-structure. The CAT predicate is also relevant in the analysis of verbs such as *grow*, which require complements of a particular phrase structure category (*Kim grew political/*a success, Kim became political/a success*; see Pollard and Sag (1987) for more discussion). By using the CAT predicate, we can impose the special requirement, relevant only for particular verbs, for the OBJ to be of a nominal and not a clausal category. In the general case, and in the absence of semantic restrictions, we assume that either a clausal or a nominal OBJ can appear.

6 Alternative proposals

In accounts of the varying syntactic behavior of clausal complements, treatments involving preposition deletion have been proposed: on these accounts, a deleted or unpronounced preposition appears with the clausal complements that we call COMP (Rosenbaum 1967). This proposal has its roots in the observation that the COMP of a two-place verb often alternates with an OBL prepositional phrase. On this analysis, preposition deletion in English must be treated as obligatory, except when the clause is topicalized or passivized (in a pseudo-passive):

(41) That John would come, we all hoped for.

(42) That the plane flew at all was marveled at by them. (Rosenbaum 1967:83)

A different preposition deletion analysis would have to be proposed for Swedish, where preposition deletion would be optional (with some predicators) when the clause is in complement position, and impossible when the clause is topicalized or passivized (see Ralph 1975; Teleman et al. 1999:533). A similar analysis involving optional deletion

of a head could also be made for German: in this case, deletion of a 'prepositional proform' like *darüber* 'thereover'. An equivalent analysis can be found in traditional German grammar, where our COMPs are included in the set of *Präpositionalobjekte* 'prepositional objects', a functional term that corresponds roughly to OBL_θ in LFG. See, for example, Duden (1984:668), Breindl (1989), and Zifonun et al. (1997:1097).

There are several reasons that preposition deletion should be abandoned. One problem is that it is not clear what the output of the operation of preposition deletion would be, though the most natural expectation would be a PP with an unexpressed head. We would then expect the resulting phrase to have the syntactic properties of an OBL_θ phrase, but this is not correct: there are important syntactic differences between COMP and OBL_θ.

Consider the following German data. Example (14) above shows that COMP cannot be topicalized; in contrast, OBL_θ can be topicalized:

(43) Ger: über die Situation habe ich ihn informiert
about the situation have I him informed
'I have informed him about the situation.'

Example (39) above shows that COMP cannot appear in the middle field, whereas OBL_θ can:

(44) Ger: weil ich ihn über die Situation informiert habe
because I him about the situation informed have
'because I have informed him about the situation'

And OBL_θ and COMP cannot be coordinated:

(45) Ger: *Ich informierte ihn dass Hans krank ist und über die Situation
I informed him that Hans sick is and about the situation
'I informed him that Hans is sick and about the situation'

Two of these differences are also relevant for English and Swedish: OBL_θ can enter into an unbounded dependency, whereas COMP cannot, and COMP and OBL_θ cannot coordinate. These facts would be impossible to account for in a natural way in a preposition deletion analysis. Moreover, we do not believe that the postulation of deleted material or unpronounced elements is a desirable feature of any grammatical theory, especially a non-derivational theory like LFG.

Other proposals have been made for treating mixed languages. For example, Pesetsky (1993) hints at an analysis that is not worked out, but which seems similar in some respects to our proposal: verbs which on our analysis take COMP clausal complements are those that specify that their thematic object must take zero case. Other proposals (Stowell 1981; Webelhuth 1992; Bošković 1995) also analyze differences between clauses in terms of abstract case. These proposals are like ours in positing an abstract syntactic distinction between different kinds of complement clauses, lexically governed by properties of the main verb.

7 Conclusion

An important question is why clausal complements are treated in different ways in the world's languages. We have claimed that there is a grammatical function COMP that is only realized by clausal complements, but that not all clausal complements realize it. There is a solid empirical basis for this claim. The typologist and functionalist tradition has contributed important insights concerning clausal complements in the world's languages that have so far not found their way into generative grammar. Foley and Valin (1984) show that the use of a finite clause as a core argument is a marked situation in UG, which is only allowed for verbs of saying in some languages. A finite clause can be grammaticalized as a core argument in more than one way. In some cases, the finite clause is not really integrated into the syntax of the sentence; it is what Foley and Valin (1984) call a peripheral argument, which does not take part in syntactic processes like other core arguments. These peripheral arguments are COMPs in our terms. In other cases, the finite clause is syntactically integrated, and will be an object in our terms. Foley and Valin (1984) point out that peripheral and integrated clausal complements can co-occur in the same language, using English as an example; in our terms, these languages are mixed.

We have shown that a distinction between two kinds of clausal complements is necessary in English, German, Swedish and Slave, languages that are typologically very different. We have also shown that LFG, with its rich representation of grammatical functions, is a framework that is especially well suited to account for this situation.

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