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The Contribution of Sentence Position: The Word *also* in Spoken German*

Maria Alm
PhD Program, Lund University
maria.alm@tyska.lu.se

Abstract

The German word *also*, similar to English *so*, is traditionally considered to be a sentence adverb with a consecutive meaning, i.e. it indicates that the propositional content of the clause containing it is some kind of consequence of what has previously been said. As a sentence adverb, *also* has its place within the core of the German sentence, since this is the proper place for an adverb to occur in German. The sentence core offers two proper positions for adverbs: the so-called front field and the middle field. In spoken German, however, *also* often occurs in sentence-initial position, outside the sentence itself. In this paper, I will use excerpts of German conversations to discuss and illustrate the importance of the sentence positions and the discourse positions for the functions of *also* on the basis of some German conversations.

1 The Position of Sentence Adverbs in German

The German word *also*, similar to English *so,* is traditionally considered to be a sentence adverb. In spoken modern German its most frequent use is as a discourse particle. The two word classes are associated with different positions within the German sentence, and these are associated with different functions. In order to understand the discussion of functions and sentence positions in the following analysis of *also*, it is necessary to be familiar with the German sentence positions and their status.

The position of a word within the German sentence is important, as the sentence position is often used as a classification criterion for determining word classes. The word classes are, in turn, ascribed certain typical functions. If the same word form can occur in positions that are typical of different word classes, the problem arises whether this is a case of homonymy, i.e. two words with the same form but different functions, or whether this is actually just one

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word — and how are the functions of this word affected by the different positions?

The German sentence is often described as consisting of sentence fields that hold the elements of the clause. These sentence fields are defined in relation to the two German verbal positions, as seen in table (1) below, the first verbal position being at the beginning of a sentence and the second verbal position at the end. In an assertive clause, the first verbal position is preceded by the so-called front field. Between the two verbal positions is the middle field, and after the second verbal position there might be an end field:

(1) SCHEMATIC ILLUSTRATION OF A GERMAN ASSERTIVE CLAUSE:

front field	**1st verbal position**	middle field	**2nd verbal position**	end field

Also, roughly corresponding to English *so*, is traditionally described as a sentence adverb. According to Auer, this is its original use (Auer 1996: 317). As a sentence adverb, it has its position in the core sentence fields: either in the front field or in the middle field, as seen in the constructed examples (2a) and (2b), respectively. Both of these positions are compatible with the word class *adverb*, and with respect to word class functions, the choice between the two positions is free:[1]

(2) a. **Also** bin ich mit dem Bus gefahren, um dahin zu kommen.
Also *have I withthe bus gone, in order there to get.*
'So, I took the bus in order to get there.'

b. Ich bin **also** mit dem Bus gefahren, um dahin zu kommen.
I have also *with the bus gone, in order there to get*.
'So, I took the bus in order to get there.'

The front field usually holds only one syntactic constituent at a time. If there are two constituents in front of the first verbal position, the first one is described as being in the pre-front field. *Also* is often used in this position in spoken German, as in (3):

[1] In some approaches, *also* in the middle field position is considered to be a so-called *modal particle*, whereas other approaches, including Auer (1996), consider middle field *also* to be a sentence adverb. As this paper is concerned with an empirical study of the functional differences between the within-sentence *also* and the outside-sentence *also*, the terminological question of its middle-field status is of minor importance here.

(3) **Also** jedenfalls hatte mir Naumburg so gut gefallen, und daß ich dann
also *anyway had me Naumburg so much pleased, and that I then*
beschloß...
decided...
'So, anyway, I had liked Naumburg so much, and that I then
decided…'

Table (4) shows the sentence from example (3) with respect to the sentence fields:

(4) SENTENCE (3) IN A SCHEMATIC ILLUSTRATION OF THE SENTENCE FIELDS:

pre-front field	front-field	**1st verbal position**	middle field	**2nd verbal position**	end field
Also	jedenfalls	hatte	mir Naum-burg so gut	gefallen	und daß ich dann be-schloß...
So	*anyway*	*had*	*me Naum-burg so much*	*pleased*	*and that I then deci-ded...*

According to a strict definition of adverbials, *also* can no longer be considered a sentence adverb when it occurs outside the traditional sentence fields. The concern of this paper is to examine if and how the functions of *also* change according to its position inside or outside the core sentence fields. This is done by a comparison of the pre-front field and the middle field position.[2]

2 Grammaticalization: From Adverb to Particle?

Auer argues that the pre-front field is a grammaticalization position. In this position, *also* has gone from being a sentence adverb to being a discourse particle (Auer 1996: 313). Auer calls this development the 'grammar-to-interaction cline', since the items taking part in this kind of development change from being items involved in the structuring of sentences into being items concerned with the structuring of discourse. The development process for *also* is shown in (5) below: in the inner sentence fields, *also* is a sentence adverb lexeme ($also_1$). It then gains access to the pre-front field, where it where it with time changes into a discourse marker, i.e. into a new lexeme

[2] Here, only the sentence-internal position in the middle field can be taken into consideration, since there is no occurrence of *also* in the front field in the material used for the analysis (which is presented in section 3.1).

(*also*$_2$) (Auer (1996: 313). In (5) below the functions of *also* as described by Auer (1996) are mapped onto the sentence positions in which they occur:

(5) *The grammar-to-interaction cline:*
the inner sentence fields the pre-front field the pre-front field
also$_1$ = sentence adverb –> *also* – function(s)? –> *also*$_2$ = discourse marker

The question mark after *function(s)* in (5) above indicates that I am not sure that an *also* with adverbial meaning and function could not appear in the pre-front field. Auer, however, seems sure that it cannot.

According to Auer (1996: 317), *also* as a sentence adverb indicates 'some kind of consequence of what has been previously said', whereas the discourse particle *also* is a pure text-structuring device. Auer concludes that the pre-front-field *also* (i) is semantically bleached; (ii) takes on pragmatic meaning from the surrounding context; and (iii) has text-structuring functions (Auer 1996: 317-318). The discourse particle *also* can function as a repair marker, a pre-closing token, a 'semantically unspecific opening for a turn or a move', and a hesitation marker (Auer 1996: 317-318).

Auer considers it impossible for the discourse particle *also* to move into the sentence frame without changing back into the adverb *also*: 'Positionally, adverbial usage in the inner sentence frame and pre-front field usage exclude each other' (Auer 1996: 318; see also Auer 1997: 86, n. 14). Thus, according to Auer's suggestion there is a clear division of functions and meanings of *also* according to its sentential position.

Thim-Mabrey (1985, 1988) also ascribes a unique contribution of the pre-front field to the interpretation of an expression in that position: the expression acquires a meta-communicative function (Thim-Mabrey 1988: 53). For sentence adverbs such as *also*, she claims that they are not meta-communicative in themselves but only have this function in the pre-front field (Thim-Mabrey 1988: 55). The meta-communicative function, however, is not in contrast with the consecutive meaning of *also*; in fact, the consecutive meaning is a precondition in Thim-Mabrey's model. Thim-Mabrey is only concerned with those instances of pre-front-field *also* that display a consecutive meaning along with the meta-communicative function (Thim-Mabrey 1985: 32-33) — that is, instances that do not exist according to Auer.

The 'adverbial' meaning of *also* Thim-Mabrey defines as paraphrasable by 'consequently'. This definition fits rather well with Auer's meaning description of the adverb *also* as indicating a consecutive relationship. On the other hand, Thim-Mabrey does not give any explanation at all for the occurrences of semantically bleached pre-front field *also*, although she does recognize their existence; she simply rules them out of her study (Thim-Mabrey 1985: 33).

Thus, both kinds of *also* — adverbial and non-adverbial — seem to occur in the pre-front field, and Auer and Thim-Mabrey have chosen to concentrate

on diametrically opposite kinds. This leads us to the question of what kinds of functions *also* actually fulfils in the pre-front field, and whether these functions are or are not compatible with a consecutive meaning interpretation.

3 An Empirical Analysis of *also* in Spoken German

In the empirical analysis presented in this section, I will examine whether the occurrences of *also* in my material support the analysis of *also* given by Auer or the one given by Thim-Mabrey. In order to do this I compare the pre-front-field *also* to the middle-field *also*.[3] The following two questions serve as the basis for the investigation:

- What functions and meanings does the pre-front-field *also* have?
- Is there a significant difference between the functions and meanings of the pre-front-field *also* and the middle-field *also*?

3.1 The Material

The material for this study, which was ordered from the German Language Archives in Mannheim, Germany, consists of two conversations between native speakers of German.[4] The topics are partly predetermined but the participants treat them rather freely. In total, the conversations consist of about two hours of talk. Because of space limitations, I will only be able to present a few illustrative examples from the material. For an explanation of the transcription signs, see the appendix.

3.2 Functions and Meanings in the Pre-front Field

When working with the empirical material, I considered not only the sentence position (pre-front field versus middle field), but also the sequential environment or discourse position — that is, whether the pre-front field was in a turn-medial or turn-initial position. In the turn-medial position, *also* is the first word uttered by the same speaker in a new utterance. In turn-initial position, *also* is the very first word uttered by a new speaker. I will call the former occurrences within-turn pre-front fields and the latter turn-initial pre-front fields, in order to keep them clearly separate. I then investigated the pre-front fields from the point of view of their discourse position: do the functions

[3] I could not consider the front-field position, since *also* did not occur in this position in the examined material.

[4] The conversations, BR001B and BR006A, were ordered from the corpus Biographical and Travel Stories from the German Language Archives at the Institute for the German Language (Institut für deutsche Sprache) in Mannheim, Germany.

of *also* in the pre-front field vary with respect to the discourse position, or is it of no consequence if the pre-front field is turn-initial or turn-medial?

3.2.1 The Within-turn Pre-front Field

In the within-turn pre-front field, *also* can have different, and sometimes combined, functions. It often has the following functions:

- it marks the return to a previous topic that has been temporarily lost (text-structuring level);
- it restates something already obvious or inferable from the previous conversation (propositional level).

In example (6), Barbara has given evidence against Thomas's claim that the demonstrations in Leipzig were peaceful. After Barbara finishes her story, Thomas defends his position. *Also* in (6j) prefaces the restatement of his position. It can also be seen as a restriction to his restatement in (6h): there was no violence, or at least he had not seen any:

(6) BR006A: *Thomas has claimed that there was no violence at the demonstrations in Leipzig. Barbara has told a story that shows the opposite. Thomas is now restating his position:*

a. Thomas: Also- ich bin dann in den Wochen danach / also- (.) bestimmt vier-, fünf-, sechsmal bin ich 'ner jeden, äh – wann war das immer, dienstags wohl, (.) nee mon- ((tiefe Stimme))
b. Gisela: =montags ne[e.]
c. Thomas: [oder] [war 's mon[tags?]]
d. Barbara: [(…)]
e. Gisela: [(War das nich] immer diese) Montagsdemo?
f. Thomas: Ja, montags. Ja. ((lachend))
g. Gisela: ((lacht))
h. Thomas: Ha, is schon schon wieder vor- ((lachend, verzweifelt)) ((lacht kurz)). Ja. Bin ich also dann dabei gewesen noch 'n paar Wochen, und da war NIE was mit Gewalt.
i. jemand hm.
j. Thomas: **Also** ich hab's jedenfalls nie was gesehn, ich hab immer nur gesehen, daß es gewaltfrei abgegangen is un- und da is ooch nie was randaliert worden oder was umgeschmissen worden,

a. Thomas: *also* I was then in the weeks afterwards / *also* (.) four, five, six times I was there every eh – when was that always, Tuesdays right, (.) no Mon- ((deep voice))
b. Gisela: =Mondays [right.]

c.	Thomas:	[or] [was it Mon[days?]]
d.	Barbara:	[(…)]
e.	Gisela:	[(Wasn't it] always this) Monday-Demonstration?
f.	Thomas:	Yes, Mondays. Yes. ((laughingly))
g.	Gisela:	((laughs))
h.	Thomas:	*Ha*, is already over- ((laughingly, desperately)) ((laughs shortly)). Yes. So, I was then there yet a couple of weeks, and there was <u>never</u> anything with violence.
i.	someone:	hm.
j.	Thomas:	***Also***, anyway, I never saw anything, I only just saw, that it passed off peacefully an- and nothing was ever vandalized or overthrown,

In example (6), *also* prefaces an instance of topic continuation: in (6h) Thomas has already completed his argument with the very emphatic statement that there was no violence at the demonstrations. This could be seen as the end of his argument, but in his *also*-prefaced utterance in (6j), Thomas picks up the previous topic once more, continuing it for a little while longer.

It is difficult to say what difference *also* actually makes to Thomas's utterance in (6j). Cases like this have probably contributed to Auer's conclusion that *also* just takes on pragmatic functions from the environment and has no function or meaning of its own. This impression is especially conspicuous given that the function of *also* in (6) seems to have very little to do with marking a consecutive relationship between statements, as the adverbial *also* is supposed to do. Instead, the function *also* in (6) is thematic: in the case of a restatement/return, it shows topic continuation, marking the 'red thread' in the thematic continuity; and in the case of a restriction of previous statements, it just marks thematic relevance. I believe, however, that the notion of continuity and the notion of consequence are somehow related, and I do not want to exclude the possibility that even in cases like example (6) *also* has a meaning of its own.

Some instances of *also* in the within-turn pre-front field seem to have an adverbial function, though: in example (7) below, *also* can be interpreted as indicating that the following utterance is a conclusion or consequence of the previous utterance/sentence (i.e. it functions on the propositional level of the utterances):

(7) BR001B: *Dirk is telling his friends about his walk through the woods on his way to Freyburg:*

Dirk:	und (1 Sek) <u>kam</u> dann aber irgendwann an- (.) an die <u>kleine</u> <u>saale</u>. ((atmet ein)) (.) das erzäh- zählte ich vorhin ja schon **also** es wär (.) jetzt doppelt, ((atmet tief ein)) aber d- <u>da</u> hats mir jedenfalls <u>sehr</u> gut gefallen,
Dirk:	and (1 sec) <u>came</u> then anyway at some time to - (.) to the <u>small</u> <u>saale</u> river. ((inhales)) (.) that I tol- told you before already ***also*** it would (.)

now be double, ((inhales deeply)) but anyway th- there I liked it very much,

3.2.2 The Turn-initial Pre-front Field

In example (8), *also* prefaces objections: one of the interaction partners, Dirk, states that weepy emotions are feminine (turns a-m). Thomas and Gisela object to this in lines (8n) and (8o):

(8) BR001B: *Dirk has told his friends about how touched he felt on his way to visit Nietzsche's grave:*

a. Thomas: des is schon fast schnulzig
b. Gisela: ((lacht, während Thomas versucht, noch etwas zu sagen))
c. Dirk: ((spricht während Gisela lacht:)) jaja! ((lacht))
d. Dirk, Gis: ((lachen))
e. Dirk: das war ich aber ((lacht)) manchmal. ((leise, lachend))
f. VIELE: ((lachen))
g. Dirk: des MACHT nichts, aber ((lacht)) manchmal. ((lacht)) hab ich etwas=
h. Gisela: ((lacht, während Dirk spricht))
i. Dirk: =feminine empfindungen, ((atmet ein)) und ((lachend)) (.) ((sagt etwas, aber wird von Gisela unterbrochen))
j. Gisela: was für welche?
k. Dirk?: ((versucht etwas zu sagen, aber wird von Gisela unterbrochen))
l. Gisela: feminine?
m. Dirk: j-ja.
n. Thomas: **also** darüber läßt sich ja [streiten. schnulzig!]
o. Gisela: [**also** das find ich ja nu allerhand.]
p. Thomas: ((sagt etwas Unhörbares))
q. Gisela: jahaha! jahaha! ((lacht))
r. Th, Dirk: ((lachen laut))

a. Thomas: that is almost weepy
b. Gisela: ((laughs while Thomas tries to say something more))
c. Dirk: ((talks while Gisela laughs:)) yes yes! ((laughs))
d. Dirk, Gis: ((laugh))
e. Dirk: but I was that ((laughs)) sometimes. ((low, laughingly))
f. VIELE: ((laugh))
g. Dirk: it doesn't matter, but ((laughs)) sometimes. ((laughs)) I have somewhat=
h. Gisela: ((laughs while Dirk talks))
i. Dirk: =feminine emotions, ((inhales)) and ((laughingly)) (.) ((says something but is interrupted by Gisela))
j. Gisela: what kind?
k. Dirk?: ((tries to say something, but is interrupted by Gisela))

l. Gisela: feminine?
m. Dirk: yes.
n. Thomas: ***also*** that can be [discussed. weepy!]
o. Gisela: [***also*** that's the limit.]
p. Thomas: ((says something unhearable))
q. Gisela: yehehes! yehehes! ((laughs))
r. Th, Dirk: ((laugh loud))

In example (8), Thomas and Gisela object to Dirk's *claiming* that weepy emotions are feminine. They do *not* object to the fact that weepy emotions are feminine, which would be the interpretation of *also* on the propositional level: 'Weepy emotions are feminine, and as a consequence of that you can discuss them.' Instead, Thomas and Gisela want to question this very claim before the statement becomes conversational history and is more difficult to question. The objections are relevant as some kind of meta-communicative reaction to Dirk's claiming that weepy emotions are feminine and are therefore probably placed on the speech act level: 'you claim that weepy emotions are feminine, and as a consequence of that I have to say this: that can be discussed'.[5] The objections can in this way still be considered consequences of the previous interaction, although they cannot be described on the propositional level. From this perspective, which is in line with the suggestion made by Diewald and Fischer (1998) and Fischer (2000), the consecutive meaning of *also* would still be intact, but it would refer to a different domain than in the propositional use.

There are also examples of functions found in the within-turn pre-front fields and in the turn-initial pre-front fields, namely functions of topical coherence and drawing conclusions from what has previously been said. Since space is limited, I will only give an example of a turn-initial pre-front field *also* with a function on the propositional level — that is, marking that the following utterance draws a conclusion from what has previously been said:

(9) BR006A: *Gisela has just asked Thomas if the participants in the demonstrations against the GDR regime in autumn 1989 were mainly students:*
a. Thomas: [Nee also-] / ich hatte den Eindruck 'nen ganz gemischtes Publikum.
b. Gisela: Ja. Mm.
c. Thomas: =((atmet ein))
(1,5 Sek)
d. Thomas: Also ich glaub nich, daß die Studenten da äh 'ne besondere Rolle gespielt haben, (.) die hatten äh meistens / Bedenken wegen ihrem Studienplatz,

[5] Actually, the paraphrase offered here is quite consistent with Thim-Mabrey's suggestions (1988: 63), but this paraphrase approach itself requires further discussion, which is beyond the scope of the present study.

d. Gisela: Mm.
e. Thomas: zu dem Zeitpunkt [noch.]
f. Gisela: [Mm.]
(1,5 Sek)
g. Gisela: **Also** es waren nich so sehr diese Montags-eh(.)-gottesdienst-besucher, (.) die da warn.
(1,5 Sek)
h. Thomas: Na die [Gottes]dienstbesucher, das das sin ja ooch no- äh=
i. Gisela: [(…)]
j. Thomas: =((Schnalzer)) normale Leute gewesen, es sin ja nich [best-]

a. Thomas: [No *also*-] / I had the impression of a very mixed audience.
b. Gisela: Yes. Mm.
c. Thomas: =((inhales))
(1,5 sec)
d. Thomas: *Also* I don't think that the students were an important part there, (.) they usually had eh / apprehensions about losing their right to study,
d. Gisela: Mm.
e. Thomas: at this time [still.]
f. Gisela: [Mm.]
(1,5 sec)
g. Gisela: ***Also*** it weren't that much these Monday-eh(.)–service participants, (.) who were there.
(1,5 sec)
h. Thomas: Well the [service] participants, that was also eh=
i. Gisela: [(…)]
j. Thomas: =((clicking his tongue)) normal people, it weren't any [spec-]

In example (9), Thomas says that the students did not make up a large part of the demonstration participants (9a-e). From that Gisela concludes that the demonstration participants then were people other than the participants at the Tuesday evening religious service (9g). She comes to this conclusion because she believes that the service participants were mainly students. This also becomes evident in her utterance in (9g). It turns out that her conclusion is based on false premises: the service participants were not mainly students (9h-j).

3.2.3 Results of the Analysis of the Pre-front Field

The pre-front field contains both the text-structuring kind of *also* observed by Auer (1996, 1997) and the conclusion-marking kind (propositional level) examined by Thim-Mabrey (1985, 1988). Objections, however, are found only in the turn-initial pre-front field, probably because there is no speaker change in the within-turn pre-front fields. It would be rather strange for a speaker to object to something that she herself has just said. She can restrict it, modify it, maybe even take it back — but she can't object to herself. In this first pilot study, I did not find any instances of *also* on the speech-act level in the within-

turn pre-front field, but I would not exclude this possibility on the basis of such a limited study as this one.

It has also turned out that the functions of *also* are sometimes difficult to identify and to keep separate. The functions seem to form a continuum rather than being clearly defined. The contribution of the sequential position may also be a continual one rather than involving clearly separate functions — that is, involving tendencies rather than an absolute division of functions. However, exactly what functions the turn-initial pre-front field and the within-turn pre-front field tend to have must be determined on the basis of a more extensive study.

The element *also* could still be described as indicating a consecutive relationship in many of its pragmatic functions, but not always a consecutive relationship on the propositional level (cf. Schiffrin 1987; Sweetser 1990; Diewald and Fischer 1998; Fischer 2000). The suggestion was also made that there is some kind of affinity between the notion of consequence and the more general notion of continuation.

3.3 How 'Adverbial' is the Middle-field *also*?

Auer and Thim-Mabrey define the 'adverbial' *also* as indicating that the utterance containing it is some kind of conclusion drawn from what has previously been said. They seem to agree on this definition of 'adverbialness' for *also*. In the material, there are occurrences of this kind of *also* in the middle field, as one might expect given the grammatical tradition in which adverbs should occur in the inner sentence fields:

(10) BR006A: *Thomas has previously said that he went to his first demonstration with a friend, in order to make sure that the friend did not go to the front line and get herself into trouble. Thomas made sure that they stayed back. Barbara now tells about her first demonstration, were she went with a friend, who made sure that they did get to the front line:*

a. Barbara: =Also man hätte dort (n-) und ich war da mit 'nem Freund, der- der konnte gar nicht dicht genug [ran,] das war **also** genau=
b. Gisela: [m.]
c. Barbara: =umgekehrt, ((lachend:)) [((atmet ein)) und ich] hatte=
d. Gisela: [((lacht))]
e. Barbara: =fürchterliche Angst ja,

a. Barbara: =*Also* you could there- (n-) and I was there with a friend, he- he just couldn't get close [enough,] that was ***also*** exactly=

b. Gisela: [m.]
c. Barbara: =the other way round, ((laughingly:)) [((inhales)) and I] was=
d. Gisela: [((laughs))]
e. Barbara: =terribly afraid, right,

In (10a-b), Barbara concludes that 'it was exactly the other way around': Thomas kept his enthusiastic friend back, whereas Barbara was dragged to the front line by her enthusiastic friend.

Middle-field *also* is, however, often reminiscent of pre-front-field *also*, and especially of within-turn pre-front-field *also*. Example (11) below can be compared to the pre-front field *also* in example (6) above: *also* has a text-structuring function, as it marks the return to and the repeating of a topic that has been temporarily lost:

(11) BR006A: *Thomas is returning to the main topic 'violence at the demonstrations':*

a. Thomas: Also- ich bin dann in den Wochen danach / also- (.) bestimmt vier-, fünf-, sechsmal bin ich 'ner jeden, äh – wann war das immer, dienstags wohl, (.) nee mon- ((tiefe Stimme))
b. Gisela: =montags ne[e.]
c. Thomas: [oder] [war 's mon[tags?]]
d. Barbara: [(….)]
e. Gisela: [(War das nich] immer diese) Montagsdemo?
f. Thomas: Ja, montags. Ja. ((lachend))
g. Gisela: ((lacht))
h. Thomas: Ha, is schon schon wieder vor- ((lachend, verzweifelt)) ((lacht kurz)). Ja. Bin ich **also** dann dabei gewesen noch 'n paar Wochen, und da war NIE was mit Gewalt.

a. Thomas: *also* I was then in the weeks afterwards / *also* (.) four, five, six times I was there every eh – when was that always, Tuesdays right, (.) no Mon- ((deep voice))
b. Gisela: =Mondays [right.]
c. Thomas: [or] [was it Mon[days?]]
d. Barbara: [(…)]
e. Gisela: [(Wasn't it] always this) Monday demonstration?
f. Thomas: Yes, Mondays. Yes. ((laughingly))
g. Gisela: ((laughs))
h. Thomas: *Ha*, is already over- ((laughingly, desperately)) ((laughs shortly)). Yes. I was ***also*** then there another couple of weeks, and there was NEVER anything with violence.

In (11a) Thomas is about to continue his story (or argument) when he suddenly stops, asking himself what day the demonstrations actually took place. Gisela helps him (11b), and they agree that this was on Mondays (11f). After this side sequence, Thomas comments that this is already over (11h), before he returns to the previous topic and activity (story or argument) (also in (11h)). The return to the temporarily interrupted topic and activity is made by a middle-field-*also* utterance. In cases like this one, it is difficult to say what difference it makes whether *also* is in the pre-front field or not. It does not, however, seem to be very 'adverbial' in the sense defined by Auer and Thim-Mabrey.

4 Conclusions

In this study I investigated the functions of *also* in the pre-front field and the middle field. It turned out that the functions presented here could appear in both the pre-front field and the middle field. The only function that could not appear in the middle-field was *also* as used in objections. This was at least partly attributed to the nature of the act of objecting: there has to be a change of speakers. Therefore, this function could only be found in the turn-initial pre-front field. When prefacing objections, *also* was determined to refer to the speech-act level. The function of *also* could still be seen as indicating a consecutive relationship: the objection is a consequence of a statement by the previous speaker (ex. (8)).

In text-structuring functions (on the thematic level), the adverbial meaning of *also* could also be seen as intact, given the proposal that there is a relation between the semantic notion of consequence and that of continuation. This was supported by the observation that not only pre-front-field *also* (as in example (6)) but also middle-field *also* (as in example (11)) was able to have text-structuring functions, even though the middle field is traditionally seen as the stereotypical adverb position, and the adverb meaning of *also* was (as noted in section 2.1) described by Auer (1996, 1996) and Thim-Mabrey (1985) as involving a propositional function.

Perhaps there are no clearly delimited functional contributions of each sentence position in the German sentence. Instead, we can assume a continuum of functions where different parts of the continuum are associated with particular prototypical syntactical positions, thereby accounting for the use of adverbial *also* as a consecutive marker on the propositional level. A more extensive study of the functions and meanings of *also* is needed to prove whether this is the case.

It is nevertheless clear that *also* in the middle field is not a straightforward consecutive, as Auer and Thim-Mabrey claim. To return to Auer, the adverbial usage in the inner sentence frame and the pre-front field usage do *not*

positionally exclude each other (cf. Auer 1996: 318; section 2 above). Thim-Mabrey, on the other hand, would probably exclude from her model all instances of *also* in the inner sentence frame that could not be paraphrased with 'consequently', but she fails to explain the relationship between the different meanings and functions of *also*.

References

Auer, Peter. 1996. The Pre-front Field in Spoken German and Its Relevance as a Grammaticalization Position. *Pragmatics* 6: 295-322.

Auer, Peter. 1997. Formen und Funktionen der Vor-Vorfeldbesetzung im gesprochenen Deutsch. In Peter Schlobinski, ed., *Syntax des gesprochenen Deutsch.*. Westdeutscher Verlag, Opladen, pp. 55-91.

Diewald, Gabriele and Kerstin Fischer. 1998. Zur diskursiven und modalen Funktionen der Partikeln *aber*, *auch*, *doch* und *ja* in Instruktionsdialogen. *Linguistica* 38: 75-99.

Fischer, Kerstin. 2000. *From Cognitive Semantics to Lexical Pragmatics.* Mouton de Gruyter, Berlin/New York.

Schiffrin, Deborah. 1987. *Discourse Markers.* Cambridge, Cambridge University Press.

Sweetser, Eve. 1990. From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure. Cambridge, Cambridge University Press.

Thim-Mabrey, Christiane. 1985. *Satzkonnektoren wie* allerdings*,* dennoch *und* übrigens*: Stellungsvarianten im deutschen Aussagesatz.* Peter Lang, Frankfurt am Main.

Thim-Mabrey, Christiane. 1988. Satzadverbialia und andere Ausdrücke im Vorvorfeld. *Deutsche Sprache* 16: 52-67.

Appendix

TRANSCRIPTION INVENTORY:

((laughs)) meta-comment, description of what happens
(…) unintelligible speech
(was) uncertain interpretation
(.) short pause
(1,5 sec) measured pause
/ tone boundary without specification of intonation
, tone boundary, short pause, progressive intonation
. tone boundary, short pause, terminal intonation
? tone boundary, short pause, rising intonation
= at end of line: is continued without break on the next line of the same speaker;
= at beginning of line: either a continued turn by a previous speaker, or a new speaker starts to speak immediately after the previous speaker, without a pause between the two speakers
an- interrupted word
<u>and</u> stressed word
<u>AND</u> very much stressed word
[and] square brackets=
[yes] =show the extensions of overlapping speech

Saliency and Contrast in Colloquial Bulgarian: Clitic Left Dislocation versus Contrastive Topicalization*

Olga Arnaudova
University of Ottawa
arnaudova_olga@yahoo.com

Abstract

The claim advanced in this paper is that the presence of a left-dislocated element together with a resumptive clitic in Bulgarian is a special case of argument saturation with implications for the focus structure of the clause, while contrast involves discontinuous focus (contrastive topics/foci) with no clitics present in the derivation. Contrastive topic/focus constructions in Bulgarian can be united on the view that they involve (sets of) ordered pairs where the higher element is valuing a contrastive feature (cf. OCC in Chomsky 2001) while the element in the VP is a non-contrastive topic or focus. The contrastive feature participates in *wh*-structures but not in clitic-left-dislocated structures where pairing between arguments is 'accidental'.

1 Introduction

In this paper, I discuss two distinct types of topics: inherent topics in clitic-left-dislocated structures above the CP domain, and topics participating in topic-focus sets in the TP and vP domain of the clause. The analysis draws on the view that the predicate-argument relation is not necessarily obtained uniquely within the VP(vP) and that Clitic Left Dislocation Structures 'externalize' an argument by saturating it in a higher domain.

The paper is organized in the following way. First, in section 2, I present Clitic Left Dislocation in Bulgarian, a construction which until recently has been overlooked in generative studies of Bulgarian. It involves obligatory clitic resumption and thematic 'redundancy'. Section 3 contains a general overview of clitics, their relation to focus, and syntactic properties. Briefly summarizing some previous accounts, I adopt the view that clitics are

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argument variables generated in Specifier positions in the verbal domain. Section 4.1 deals with contrastive topics, which are never doubled by clitics, and their semantics. Contrastive topics are argued to be semantically related to (sets of) ordered pairs and to value a contrastive feature, while CLLDed topics are inherently topical in nature and are not ordered. They do not depend for their interpretation on a focused item found in the clause and are never focused themselves. Section 5 discusses T-F 'pairings' and the fact that CT-F (and Contrastive Focus-Topic) relations can be obtained in a 'split focus' fashion where the higher element of the pair is related to a set of alternatives and the lower element is non-contrastive. As shown in 5.3, contrastive (focus) features are not limited to declaratives and are also found in *wh*-questions. Section 6 provides additional evidence that CLLD topics are quite distinct from contrastive topics and are situated in a domain above the TP-level containing contrastive topic/focus. In section 7.1, I present Baker's Polysynthetic Parameter, according to which arguments are basically generated in two predication domains. The general proposal for Bulgarian is outlined in section 7.2. I propose that CLLD and contrastive structures in Bulgarian exemplify two different types of argument saturation. In the case of CLLD, saturation is achieved through clitic variables but is incomplete; consequently, a 'double' can properly saturate the predicate. Conclusions are given in section 8.

2 Clitic Left Dislocation Structures

It has been noted for Bulgarian that in some cases a noun phrase or a full pronoun can 'double' a clitic in the same sentence. These sentences seem to have 'redundant' thematic structure, since the verb appears to be simultaneously assigned two identical thematic roles: one to the clitic, and one to the noun. Clitic reduplication/doubling, in general, is cited as one of the distinguishing characteristics of Bulgarian (see Franks and King 2000 and Rudin 1991 for references and discussion) but has been described as 'optional'.[1] As proposed in Arnaudova 1999, 2002, these constructions are cases of clitic left dislocation rather than doubling constructions.[2] CLLD has

[1] According to Rudin (Rudin 1991, n. 10), 'clitic doubling is obligatory in some idioms and highly preferred in a few other constructions but is generally optional.' Franks and King (2000: 251) note that 'in Bulgarian, most clitic doubling is, at least superficially, optional.' In representative grammars of Bulgarian, it is acknowledged that we may have to deal with two different varieties of Bulgarian and with some kind of 'avoidance' of certain structures in literary Bulgarian due to influence from Russian (see Andrejcin et. al 1977: §522, p. 376).

[2] Clitic doubling is a case where the clitic and the noun, in situ, are both 'arguments', as in the Spanish *Lo vimos a Juan*. The noun in this case is interpreted as focused information. Clitic Left Dislocation was studied first by Cinque (1990) for Italian — a language where clitic doubling is not attested — and in many other languages, such as Greek (Iatridou 1991)

no syntactic analogue in English or in any other Slavic language. In (1), a left-dislocated element is obligatorily linked to a coindexed resumptive clitic pronoun.

(1) Ivan Marija go vidja.
Ivan Mary Cl-ACC see-Past
'Mary has seen Ivan.'

In (2), multiple nouns appear as dislocated, each doubled by a clitic (with the exception of dislocated subjects, such as *az* 'I', which do not have a corresponding (overt) clitic:

(2) Az uchebnika na Stojan *(mu) *(go) dadox.
I textbook-the to Stojan Cl-DAT Cl-ACC give-1P,Past,Sg
'I gave to Stojan the textbook.'
(lit. 'As for me, the textbook and Stojan, (I) gave it to him.')

Clitic left-dislocated elements are not limited to DPs and can also be CPs. An example with a CLLDed CP is given in (3):

(3) [$_{CP}$ Che Simeon shte specheli izborite] go znajat vsichki.
that Simeon will win elections-the Cl-ACC.SG know everybody
'Everybody knows that Simeon will win the elections.'

The phenomenon of *clitic reduplication* in constructions where a left-dislocated noun appears in the clause is attributed to the specific, definite, topical, or referential features of the nominal expressions (see, e.g., Guentcheva 1994, where it is argued that 'clitic doubling' codes the 'themacity' of the object). In other studies, it is argued that clitics are realization of (optional) agreement markers associated with functional agreement projections (Franks and King 2000) and, finally, clitics are seen as arguments of the verb (Penchev 1993). Therefore it is worth exploring if clitics are indeed topicality markers and what their status in grammar is.

3 Bulgarian Clitics as Argument Variables

Bulgarian clitics are non-tonic, short non-emphatic forms of the personal pronouns of the first, second and third person singular and plural, encoding features of the direct object (*go*-CL,Sg Masc; *ja*-CL, Sg, Fem, *gi*-CL,Pl), the indirect object (*mu*-CL,Sg, Masc, *j*-CL, Sg, Fem; *im*-CL, Pl) and, in noun

and French (Hirschbühler 1975). Alexiadou & Anagnostopoulou (1998) propose for Greek that the subject does not occur in the EPP position but in the thematic vP domain or in an A′-adjoined position coindexed with a null argumental pronominal. See also Krapova 2002 for Bulgarian. Krapova & Cinque (2003) have observed that CLLD is also attested in *wh*-questions.

phrases, of the possessor. Every clitic has a corresponding full pronoun form (*go– nego;ja – neja*; *gi – tjax*; *mu –na nego*; *j – na neja*; *im – na tjax*). There are no subject clitics in Bulgarian but recently SE has been claimed to be an overt manifestation of subject-like properties (see Rivero 2001 for more discussion). Clitics never co-exist with full forms of the personal pronouns unless focus is involved.[3] In this section I will present some evidence for this claim and for their argument-like behaviour.

The relative order of clitics is strictly indirect object–direct object, as in (4a), whereas the order in the presence of a full pronoun is reversed, as in (4b), and two full pronouns cannot be used to replace both clitics regardless of the order, as shown in (4c):

(4) a. Dadox mu gi.
give-1P,Past,Sg-1St Cl-DAT.MASC Cl-Pl.
'I gave them to him.'

b. Dadox gi na nego/na Ivan.
give-1P,Past,Sg Cl-Pl to him/to Ivan

c. *Dadox tjax na nego/*Dadox na nego tjax.
gave-1P,Past,Sg them to him/ give-1P,Past,Sg to him them

Another property of clitics is that they are deficient and cannot occur without the verb, while full NPs and pronominals can, as shown in (5a) and (5b, c), respectively:

(5) Q: Whom did (you/he/she) see?

sA: a. *Ja.
Cl-Acc.Fem

b. Petar

c. Neja.
her

To the inventory of sentential clitics can be also added the reflexive clitic SE and *pro* as realizations of the subject clitic. *Pro* is the non-overt subject clitic, as in (6), while SE is found in passive constructions, as in (7), and as deficient arguments lacking person and number in 'feel-like' constructions, as in (8) (with the interpretation in (9)) (see Rivero 2001 for more discussion of the nature of SE in Romance and Slavic).

(6) *Pro* iznenada go.
surprised him-Cl.ACC
'He/she surprised him.'

[3] Full pronouns are also attested as salient dislocated elements.

(7) Tuk se raboti.
here Refl work.
'Here people work.'

(8) Na Ivan mu se stroi kashta.
to Ivan Cl-ACC Refl build house

(9) Ivan feels like building a house (preferred reading: 'feel-like')

(10) A house is been built for the benefit of Ivan (passive reading)

The most natural claim about clitics appears to be that they are argument variables, which are never found in focus-accented final positions in the sentence. When the sentence contains only clitics, as in (4) or (6) above, there are no alternatives to the arguments, deriving in my view the 'topicality' effects discussed in the literature.

The controversy surrounding the argument/non-argument status of clitics has been handled differently for different languages, depending on advancements in the theory itself. For Bulgarian, Rudin (1997) and Franks & King (2000) adopt the view that clitics are functional agreement heads which may optionally associate with full DPs located in the VP.[4] According to this view, the associated arguments appear in the usual thematic VP-internal positions (overt or null) 'doubling' the clitic. Unlike genuine object agreement markers, object clitics in Bulgarian are not, as this analysis predicts, always attested.[5] It also remains mysterious why clitic doubling of arguments is not attested and the noun appears more often in the left periphery of the clause (with or without a clitic).

In a (2001) proposal, Bošković claims that pronominal clitics are actually generated in Specifier positions (being ambiguous X max/min elements)[6] and the verb moves through empty heads, so that clitics left-adjoin to the verb in accordance with Kayne 1995. IO and DO clitics check phi-features against the same head but in distinct projections, and the verb and clitic cluster, consisting

[4] See also Penchev 1993 and Dimitrova-Vulchanova & Hellan 1996 for the view that AgrIO and AgrO form a single constituent. Franks and Rudin (2004) revise this analysis and view clitics as K heads taking the noun as a complement. Clitics are claimed to be overt whenever their DP complement is silent, i.e., vacated (for various reasons, including TOPIC and *pro* as topic). They are silent when the DP is overt and *in situ*. This analysis would predict, however, that all topics are equal and require an overt clitic, i.e., it takes all topics to involve clitic reduplication. As will become clear from this paper, the semantic and distributional properties of contrastive topics are quire distinct from those of clitic-left-dislocated (inherent) topics.

[5] Joseph (2001) and Kalluli (2001) provide convincing arguments against the agreement-marker hypothesis for other Balkan languages.

[6] The idea that clitics are argument-like elements is not new. In Kayne 1975, object clitics are *pronominal arguments* generated in the canonical internal argument position of the verb.

of auxiliary and pronominal clitics, end up in the same head position (the highest projection in the inflectional domain).

In what follows, I adopt the essentials of this proposal without further discussion (and omitting technical details of the analysis that are not relevant to the claims made in this paper) and argue that clitics are argument variables while syntactically they are realized in Spec positions of verbal rather than agreement heads, as outlined in (11):

(11) Base-generation of clitics and *pro* prior to cluster formation under T/AgrP

[$_{VP}$ *pro/SE* [$_{V'}$ [$_{VP}$ *mu* [$_{v'}$ [$_{VP}$ *gi* [$_{V'}$ [$_{VP}$ *V*]]]]]]]

4 Left-peripheral Elements in the Clause: Contrastive versus Dislocated Elements

In this section I distinguish CLLD from another construction in the left periphery of the clause — namely, contrastive topicalization — and present the general differences between the two: contrastive topicalization involves ordered pairs and feature valuing in T, while CLLD does not impose any pair ordering and is inherently salient/topical in nature.[7] Clitics are absent in contrastive topicalization constructions, while they are obligatory in CLLDed structures.

4.1 Contrastive Topics

Contrastive topics (CT)[8] participate in constructions which are similar to the English CT-F constructions discussed by Büring (2003), and can involve sets of ordered pairs, as in (12a), where the set of pairs is {(Marija, hat), (Milena, bag)} and the CTs are the persons, while the F are the items purchased.

[7] Another type of dislocation which I will omit from the discussion here is Hanging Topic Left Dislocation (HTLD), which is also possible. In HTLD, which roughly corresponds to Left Dislocation in English (see Cinque 1990 for relevant discussion), there is no syntactic connectedness between the dislocated element and the rest of the sentence and the dislocated element above the clause basically belongs to a different discourse unit. The dislocated element and the full pronoun inside the clause behave in this case more or less like two NPs in two different sentences.

(i) Brat ti, ama i toj e edin glupak.
brother-Cl-Poss, EXLAM. and he i a fool.
'Speaking of your brother, he is a fool.'

[8] I exclude from the discussion cases where additional discourse-related contrast/emphasis and alternatives are evoked and consider here only contrast built into the grammar of the language.

Interestingly, in Bulgarian, the order subject-object can be reversed and constructions with D-linked objects as in (12b) are also attested. In this case the ordering in the pairs is reversed, the set becoming {(hat, Marija), (bag, Milena)}, and the D-linked information is the objects, while the persons are the 'new information' answering the *wh*-question. As seen from the context questions, both orders in (12) involve CT on the higher element in the pair.

(12) a. Q: Who (from those people) bought what?

What did Maria and Milena buy?

A: **Marija-CT** kupi shapka-F, a **Milena-CT** (kupi) chanta-F
Marija(Top) bought hat, while Milena (Top) (bought) bag
'Marija bought a hat and Milena — a bag.'

b. Q: Who bought what?

Who bought a hat and who bought a bag?

A: **Shapka-CT** kupi Marija-F, a **chanta-CT**(kupi) Milena-F
hat(Top) bought Marija,while bag (Top) (bought)Milena
'Marija bought a hat and Milena — a bag.'

As shown in (13), the contrastive (D-linked) element and the 'focused' element are obligatorily separated by the verb:

(13) a. *Shapka Marija kupi, a chanta Milena kupi.
hat Mary bought, while bag Milena bought

b. *Marija shapka kupi, a Milena chanta kupi.
Mary shapka bought, while Milena bag bought

In each set in (12a, b), there is an F-marked constituent and a Contrastive Topic constituent characterized by a B-accent, similarly to English (see Jackendoff 1972 and Büring 2003).

One possibility not discussed by Büring but taken into account in this study is that the value for the F-marked constituent in CT constructions may be fixed for each ordered pair because it does not to involve alternatives in a set (see also the next section),[9] while the value marking the contrastive topic varies, as in (14) (see also Cohen 2004 for a similar proposal for single ordered pairs):

(14) {Mary bought hat, Ani bought hat, Milena bought bag, John bought bag}.

This yields the correct meaning for universal statements with non-specific indefinites involving unique ordered pairs between two members, as in (15):

[9] Büring (2003) adopts a view where in the pairs the focus value also alternates. See Cohen 2004 for more discussion.

(15) **Shokolad** obichat naj-mnogo dezata.
chokolate(Top) like the most children-the
'Children like chocolate the most.' {(chocolate, children)}

In my view, the ordered pair in Bulgarian can also include non-argument members, as shown in (16) and (17) below. In this case, an argument which clearly does not raise for Case or for any other reason, as shown by the ungrammatical (16b) and (17b), raises to value the Contrastive feature (in the highest projection in the T domain, which I will assume here to be Spec,TP) and enters in a 'pair relation' with a place or time adjunct. This is a case of 'topicalization' of arguments on the condition that they participate in a pair where the higher element is contrastive, e.g. evokes other alternatives.

(16) a. Vali dâzdh (phi-features of '*dazhd*' checked in situ)
rains/pours rain.
'It is raining.'

b. *Dâzhd vali. *CONTRASTIVE TOPIC
rain rains/pours
'It is raining.'

c. Dâdzh vali vav Winnipeg CT——F
rain rains/pours in Winnipeg
'It is raining in Winnipeg.'

(17) a. *pro* prochetoxme knigata. (phi-features of '*kniga*'checked in situ)
(we) read book-the
'We read the book.'

b. *Knigata prochetoxme. *CONTRASTIVE TOPIC
book-the (we) read

c. Knigata prochetoxme vchera CT——F
book (we) read yesterday.
'We read the book yesterday.'

4.2 Clitic Left Dislocation

Left-dislocated topics, on the other hand, are 'inherent' topics in the sense of Reinhart (1981), and pick out salient entities in discourse which are not necessarily contrastive and do not need to appear in a set — although nothing prevents them from being pragmatically contrasted with other entities. Most importantly, they do not involve ordered pairs involving the subject and the object, as shown below. Multiple CLLD elements do not answer *wh*-questions related to any of the dislocated elements in particular and their order can be reversed without any obvious consequences for the interpretation of the sentence.

(18) 'LEFT-DISLOCATED' TOPICS T - T

a. **Ivan** **knigite** vchera *(gi) vârna.
Ivan (Top) *books-the (Top)* *yesterday* *them-cl* *bring-Past*

b. **Knigite** **Ivan** vchera *(gi) vârna.
books-the (Top) *Ivan (Top)* *yesterday* *them-cl* *bring-Past*
'Ivan returned the books yesterday.'

(19) Context for (18 a, b):

*Who returned what yesterday? *What did Ivan return? *Who returned the books?
Possible context: What happened? (but with salient 'Ivan' and 'books' in mind)

It is true that Topic-Focus pairs are also possible with CLLD constructions[10] when one of the elements is not dislocated, as also noted for Spanish by Arregi (2003). This is achieved when a focused element is found in the lower clausal domain, as in (20). In my view, however, these cases only superficially resemble their counterparts in the constructions with contrastive topics and involve 'accidental' pairings (knigite, Ivan)/(Ivan, knigite) of the salient topic and the focused element, since the 'real' pairing in this case is between the salient element and the whole predicate (*gi varna Ivan*) which is relevant to the interpretation of the topic (see section 7.1). Note also that the intonational properties of these constructions are quite distinct from those of the CT-F counterparts of these sentences without clitics.

(20) LEFT DISLOCATED T (F is clause-internal)

a. **Knigite**-T pro gi vârna Ivan-F.
books-the (Top *pro* *them-cl* *bringPast* *Ivan (Foc)*
(a risunkite –T gi vârna Emil-F.)
while *pictures-the* *Cl-Acc returned* *Emil.*
'Ivan returned the books (and Emil returned the pictures).'

b. **Ivan-T** pro vârna knigite-F.
Ivan (Top) *pro* *bringPast* *books-the (Foc)*
a Emil-T pro vârna risunkite-F.
while *Emil* *pro* *returned* *pictures-the*
'Ivan returned the books (and Emil returned the pictures).'

[10] Recently it has been claimed that this construction is also attested in *wh*-questions, where an animate *wh*-word is resumed by a clitic (see Jaeger 2004 and Krapova and Cinque 2003 for examples and discussion):

(i) Kogo koj go narisuva?
whom *who* *Cl-Acc painted?*
'Who painted whom?' (Jaeger 2004)

In this section, I have shown that in Bulgarian, contrastive topics are semantically related to (sets of) ordered pairs and value a contrastive feature, while CLLD-ed topics are inherently topical in nature and are not ordered. They do not depend for their interpretation on a focused item found in the clause and are never focused themselves.

5 Contrastive Focus and Contrastive Topic: A Unified View

In what follows, I will propose that while the 'pairing' T-F in CLLD constructions is accidental, in CT-F (and Constrastive Focus-Topic) constructions, it is related to argument saturation and T-F relations in a 'split focus' fashion (see also Rooth 1985 and Jacobs 1984 for a discussion of discontinuous focus).

5.1 Contrastive Focus

My claim is that all contrastive constructions involve ordered pairs where the higher element is valuing a contrastive feature (cf. OCC in Chomsky 2001), while the element in the VP is a non-contrastive topic or focus.

Consider first the contrastive focus/non-contrastive (information focus) distinction, which is also discussed in Kiss's (1998) study of Hungarian focus. In the first case, shown in (21), a set of alternative people (restricted or unrestricted) whom Ivan met is evoked, and one member, Marija, is exhaustively selected from all the alternatives. The answer is true if Mary was the only person Ivan met and nobody else. If there are other people whom Ivan met yesterday, the sentence is false.

(21) CONTRASTIVE (EXHAUSTIVE) FOCUS:

Marija-CF	(*ja)	posreshtna	vchera	Ivan-T.
Mary- CF	**CL-ACC*	*met*	*yesterday*	*Ivan-T.*

'It was Mary Ivan met yesterday.'

The second case, shown in (22), exemplifies information focus, which is unnatural with a context question such as *Is it Ani that Ivan met?* The answer is also true if there are other people Ivan met in addition to Mary, clearly showing that Mary does not belong to a set of alternatives from which one is exhaustively chosen.

(22) INFORMATION (NON-EXHAUSTIVE) FOCUS:

Vchera	(*ja)	posreshtna	Ivan-T	Marija-F.
yesterday	**CL-ACC*	*met*	*Ivan-T*	*Mary-F*

'Yesterday, Ivan met Mary.'

5.2 CF is the Reverse of CT

If we now consider CT, discussed in the previous section, then we can see that contrastive topics also involve alternatives found in a set on the higher element of the pair, with the difference that the *wh*-question is asking about the other member of the pair. A low-clause 'Ivan', on the other hand, as in (22) above, is not contrasted with other people and could be defined as the non-contrastive equivalent of information focus — non-contrastive topic. The alternative focus semantics of Rooth 1985 does not take into account non-contrastive focus (and topic), but Cohen (2004) defines a B-semantic value related to CTs and this is clearly a case where the topic value varies with respect to a fixed focus value, as shown in (23):

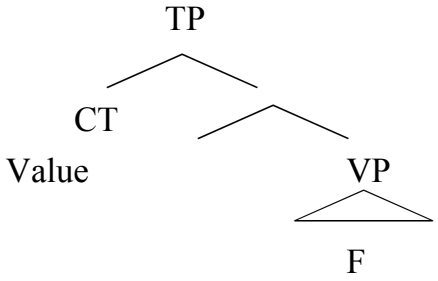
(23) U [[[x] B loves [y] F]]^{B} =
{John loves Mary, Fred loves Mary,….} (Cohen 2004)
(B = CT value)
CT: John; F: Mary

The proposal is, then, that this is the reverse of CF, where one alternative is linked to a non-contrastive topic value:

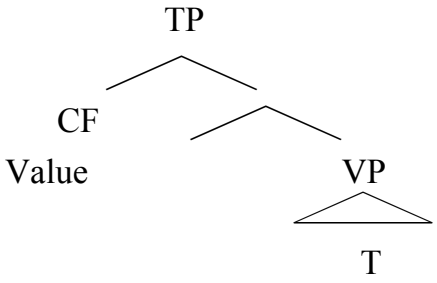
(24) U [[[x] CF loves [y] T]]^{CF} = { John loves Mary, Fred loves Mary,…}
CF: John, T: Mary

On this view, foci and topics can be united under a 'split' chain hypothesis having a non-contrastive member in the vP-domain as the other member of the pair. This is shown in (25):

(25) a. CONTRASTIVE TOPIC CT—— F (NON-CONTRASTIVE)



b. CONTRASTIVE FOCUS CF—— T (NON-CONTRASTIVE)

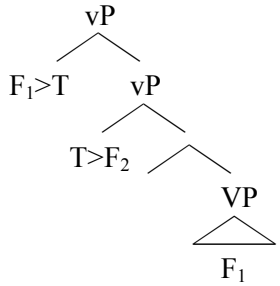


In all these cases feature valuing to T occurs (cf. OCC in Chomsky 2001).[11] For example, in (26), the EPP/OCC feature of the object *edna kniga* is valued in Spec, T/Agr. This is shown in more detail in (27): the subject *Marija* remains in the vP and is the non-contrastive member of the pair.

(26) Edna kniga prochete Marija. CONTRASTIVE TOPIC/FOCUS
a book read `` Mary
'Mary read a book.'

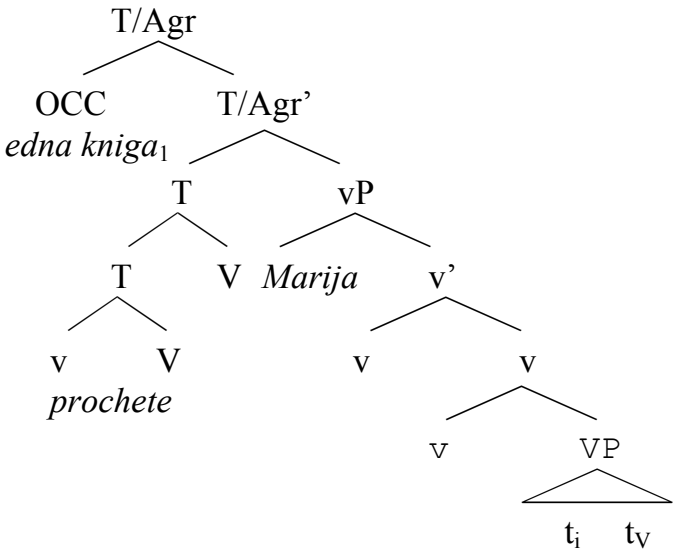
[11] Alternatively, both elements can remain in the vP/VP (and consequently keep their non-contrastive values). Their order can be also reversed by p-movement, as in (i), if the assignment of stress to the lowest element in the clause by the Nuclear Stress Rule (NSR) is not consistent with the value of the F-marked constituent, F_2 (see Zubizarreta 1998 for more discussion and Arnaudova 2001 for prosodic movement in Bulgarian).

(i) T_____F (Merge)
F_2_____T>T_____F_2 (P-movement)



A similar system is proposed for Korean in Choi 1996, where all [-prominent] elements correlate with lower positions in the sentence. Non-contrastive focus ('completive' in Choi's study) also has the [+new] value, while [+prominent] elements, which appear in a higher position in the clause, can include either topical or contrastive focal elements, depending on the value of [new]. The proposed feature-based system is [–new/+prominent] for topics, [+new/+prominent] for contrastive foci, [–prominent/–new] for in-situ topics (tails) and [–prominent/+new] for in-situ foci (completive foci). See also Diesing's (1992) 'Tree-splitting hypothesis', which partitions the sentence into a 'nuclear scope' and a 'restrictor'.

(27)



Additional evidence for the existence of contrast/focus in a projection below C is found in *wh*-questions. I discuss these in the next section.

5.3 Contrastive (Focus) Feature in *Wh*-questions

In Bulgarian, all *wh*-words undergo obligatory movement to a functional projection (Spec,CP, as initially claimed by Rudin (1988)), while it would be sufficient, as in English, for just one of the *wh*-phrases to satisfy the requirements of the head C if the feature residing on the head has been already checked/valued. Examples of multiple *wh*-movement in main and subordinate clauses are shown in (28a) and (28b), respectively:

(28) a. Koj kakvo pravi?
who what does?
'Who does what?'

b. Chudja se koj kakvo pravi.
wonder Refl who what does
'I wonder who does what.'

According to Bošković (1998), multiple *wh*-fronting in Bulgarian is an epiphenomenon consisting of focus movement for all *w*h-phrases and actual *wh*-movement for just one *wh*-phrase. In this analysis, Bulgarian resembles English in having *wh*-movement of a single phrase, all the other *wh*-phrases being fronted for independent reasons. Bošković proposes that the highest *wh*-phrase (the subject *wh*-phrase *koj*) moves to check the strong *wh*-feature of C, while the movement of other *wh*-phrases such as objects is actually *Focus movement.* He claims that the strong focus feature resides in the *wh*-word

instead of being on the target (which is FocP, in his view), while the *wh*-feature checked by the first *wh*-word resides in the functional projection C. Every *wh*-phrase with a strong focus feature must undergo focus movement, since the strong feature resides in the *wh*-phrases, not in the target of the movement. Support for this account is found in the observation that there is a partial superiority requiring only the *wh*-phrase that checks the strong +wh-feature of C (the subject *wh*-phrase) to appear first, while the other *wh*-phrases undergoing 'pure focus movement' can appear in any order, being insensitive to superiority, as shown in (29):

(29) a. Koj kogo kak e zelunal?
who whom how Aux kiss-Past Part.
'How did who kissed whom?'

b. Koj kak kogo e zelunal?
who how whom Aux kiss-Past Part.
'How did who kissed whom?

Given this, we can propose that the contrastive focus feature in *wh*-questions and in declaratives has a common source and that contrastive elements target the same position. The most plausible candidate is the highest IP projection in the clause (T/AgrP or MoodP), which can be claimed to allow multiple specifiers with *wh*-phrases.

6 Semantic Type of the 'Double' and Syntactic Properties of CLLD

In this section I provide evidence that CLLD topics are not permissible with non-specific indefinites, while CTs are. CLLDed elements are shown to be situated in a domain above the TP-level containing contrastive topic/focus.

CLLDed elements can be of various semantic types, as shown below: referential indefinites (30a), partitive indefinites (30b), and generic DPs, both indefinite (30c) and definite (30d).[12]

[12] Clitic reduplication is not attested with any type of noun when both the clitic and noun 'compete' for the same focus/predication domain (in other words, there is no clitic doubling):

(i) ??Vidjaxa go choveka/nego/uchebnika/edin uchebnik/uchebnik
(they) saw Cl-ACC man-the/him/textbook-the/a textbook/textbook.

If the verb or, more precisely the VP, is stressed and there is an intonational break after the verb, the sentence in (i) becomes acceptable. However, clitic right dislocations (CLRD) are not instances of clitic doubling, because the 'double' is actually not a thematic argument of the V (see also Warburton et al. 2004 for discussion). CLLD and CLRD are quite similar from the point of view of information packaging (but see Vallduví's (1990) analysis of 'link'

(30) a. REFERENTIAL INDEFINITE:

Edin moj prijatel go vidjaxa da izliza ot xotela.
one Poss friend Cl-ACC (they)saw DA (he) walks outof hotel-the
'They saw of friend of mine leaving the hotel.'

b. PARTITIVE INDEFINITE:

Dve ot rozite gi podarixa na Marija.
two of roses-the Cl-ACC give-3P,Past,Pl to Marija.
'(They) gave two of the roses to Mary as a gift.'

c. INDEFINITE GENERIC:

Edna interesna kniga mozhe da ja chetesh zjal den.
one interesting book can DA Cl-ACC (you)read whole day.
'You can read an interesting book all day long.'

d. DEFINITE GENERIC:

Interesnata kniga ne mozhe lesno da ja ostavish nastrana
interesting-the book NEGcan easilyDA Cl-ACC leave aside
'You cannot leave aside so easily an interesting book.'

There is, however, a restriction on CLLD elements: while indefinites are possible when specific, generic, or referential, as shown in (30), non-specific indefinites and bare plurals are never allowed in this position, as shown in (31). Non-specific indefinites are found only with contrastive topics or contrastive foci, as shown in (32).

(31) CLLD

a. *Paket go izgubixa uchenizite.
package Cl-ACC lost students-the
Intended:'The students lost a package.'

b. *Paketi gi izgubixa uchenizite.
package Cl-ACC lost students-the
Intended: 'The students lost packages.'

and 'tail' for their differences). Often, CLRD is viewed as adjunction to the right of the same node (the so-called 'mirror hyphothesis'), but recently this view has been challenged for Catalan and Spanish (Villalba 2000, Cecchetto 1999) in line with Kayne's system, where right adjunction is prohibited. Both Villalba (2000) and Cecchetto (1999) arrive at the claim that the 'right' dislocated element actually originates as a low specifier in the VP-periphery of the sentence. Warburton. et al. (2004) propose that in Greek right adjunction also occurs at the vP-level. I will leave this question open for further research.

(32) CT/CF

a. Paketi izgubixa uchenizite.
packages lost students-the
'The students lost packages.'

b. Paket izgubixa uchenizite.
package lost students-the
'The students lost a package.'

In addition, I show that CLLDed structures have a number of other characteristics that distinguish them from CT/CF: lack of weak crossover (WCO) effects, no possibility of extraction, restricted island sensitivity, no scope ambiguity, and no reconstruction to thematic positions.

First, according to some native speaker judgements, CLLD in Bulgarian displays selective island sensitivity: it freely violates the *wh*-type of islands (33); while strong islands, such as complex NP islands (34) and adjunct constraints (35), can be violated only for some speakers.

(33) Knigata ne znae kakvo da ja pravi.
book-the Neg (he/she)knows what DA CL-ACC do
'He(she) does not know what to do with the book.

(34) ?Marija sreshtnax mâzha kojto ja obicha.
Mary (I) met man-the who Cl-AC loves
'I met the man who loves Mary.'

(35) ?Vestnika zaspa dokato go cheteshe.
newspaper-the slept while Cl-ACC (he) read-Imp.Past
'He/she fell asleep while he/she was reading the newspaper.'

In (36a), the variable expression *vsjako dete* 'each child' can be coindexed with the pronoun *mu* 'his' without creating WCO effects, indicating that the former is not related to a lower copy/trace to the right of the subject *majka mu* 'his mother'. In contrast, CT/CF constructions do give rise to WCO effects.

(36) a. [Vsjako dete]$_i$ majka mu$_i$ go obicha.
each child mother his Cl-ACC likes
'Each child is loved by its mother.'

b. *[Vsjako dete]$_i$ obicha majka mu$_i$.
each child likes mother his

Scopal ambiguity is not found with CLLD elements, a fact which can be explained in terms of an absence of reconstruction to thematic positions:

(37) Edna kniga, ja prochete vsjako dete NON-AMBIGUOUS
a book CL-ACC read-Past each child
'Each child read (a certain) book.'

a book > each child
* each child > a book

With CTs, a distributive marker *po* is used to disambiguate the sentence (otherwise the sentence is ambiguous between the two readings shown below):

(38) a. Edna kniga prochete vsjako dete. AMBIGUOUS
a book read-Past each child
'Each child read a book'

one book > each child
each child > a book

b. Po edna kniga prochete vsjako dete
DIST a book read each child
'Each child read a (different) book'

*one book > each child
each child > a book

CLLD cannot involve the quantificational expression *prekaleno mnogo* 'too many', while CTs and CFs can, as illustrated in (39) and (40), respectively:

(39) *Prekaleno mnogo knigi gi prochete Ivan.
too many books CL-ACC read-Past Ivan.
'Ivan read too many books.'

(40) Prekaleno mnogo knigi prochete Ivan.
too many books read-Past Ivan.
'Ivan read too many books.'

No extraction out of dislocated doubles is possible, while such extraction with CT/CF is quite common, as shown in (41) and (42), respectively:

(41) *Na Felini, go vidjax filma.
of Felini Cl-ACC see-Past movie-the

(42) Na Felini vidjax filma.
of Felini see-Past movie-the
'I saw Felini's movie.'

Now consider minimality effects with focused phrases. In the presence of a contrastively focused constituent in the left periphery of the clause, dislocated subjects need to be in a position above the focused constituent, as (43) shows:

(43) a. *TOZI PRINZIP Chomsky opisa.
this principle Chomsky described

b. Chomsky, TOZI PRINZIP opisa.
Chomsky this principle described
'It is this principle Chomsky has described.'

Similarly, dislocated objects cannot appear lower than contrastively focused subjects, as we see in (44):

(44) a. *IVAN Marija ja obvini
Ivan Mary Cl-ACC accuse-Past

b. Marija IVAN ja obvini.
Mary Ivan Cl-ACC accuse-Past
'It was Ivan who accused Mary.'

The minimality constraints and the syntactic evidence presented above suggest that the distribution of CLLD in the clause is as in (45):

(45) CLLD-Topic CT/CF *CLLD-Topic clitic/*pro* + verb VP

In this section I have provided evidence that dislocated elements are not base-generated in positions related to V and do not raise to Spec,T/Agr, which results in a number of syntactic differences with CT/CF structures. In addition, non-specific indefinites are banned from CLLD-ed structures while they are admitted in constructions involving contrastive topicalization/focalization. In the next section I explore the possibility that there are two types of predication in Mohawk and Bulgarian, overt DPs being either VP-internal (by incorporation) or base-generated in adjoined positions.

7 Two Types of Predication in Mohawk and Bulgarian

7.1 Mohawk (Baker 1996)

Any inflected verb in Mohawk is considered to be a *complete and proper sentence* as long as it occurs in an appropriate context. Verbs have rich inflection, displaying person, number, and gender features for both subject and object, as shown in (46). Intuitively, these inflections 'count as pronouns, and provide the true subject and object of the verb' (Baker 1996: 11). Such 'pronouns' may refer all by themselves — that is, even without the occurrence of any independent noun phrase within the sentence, as indicated in (46a). In this context, compare the Mohawk sentence in (46a) with the Bulgarian sentence in (46b), where the object argument is realized through a clitic.

(46) a. Ra- NÚHWE'- s.
Masc Sing.Subject—like— habitual marker
'He likes it.' (Baker 1996)

b. Xaresva ja.
like-3P,Pres,Sg Cl-Acc.Fem.
'He likes her/it.'

Interestingly, overt NPs in Mohawk can precede or follow an initial 'sentence' like *Ra-NÚHWE's* in a fashion strikingly similar to CLLD in Bulgarian. In each language, the sentence represents a nucleus, given in bold in (47)-(50), and overt nouns can surround it in any order to the left or to the right, resulting in the proposition 'Sak likes her dress.'

(47) a. Sak **ra-NÚHWE'- s** ako-[a]tyá' tawi.
Sak MascSingSubject-like-habitual marker Fem.Sing.Poss. dress.

b. Ivan, **ja** **xaresva**, rokljata j.
Ivan, Cl-ACC like-1P,Pres,Sg dress-the Poss.

(48) a. **Ra-NÚHWE'-s** Sak ako-[a]tyá' tawi.
MascSingSubject-like-habitual marker Sak Fem.Sing.Poss. dress

b. **Xaresva** **ja**, Ivan rokljata j.
like-1P,Pres,Sg Ivan, Cl-ACC Ivan dress-the Poss.

(49) a. Sak ako-[a]tyá' tawi **ra-NÚHWE'-s**.
Sak Fem.Sing.Poss. dress MascSingSubject-like-habitual marker

b. Ivan rokljata j, **ja** **xaresva**.
Ivan dress-the Poss Cl-Acc.Fem. like-1P,Pres,Sg

(50) a. ako-[a]tyá' tawi Sak **ra-NÚHWE'-s**.
Fem.Sing.Poss. dress Sak MascSingSubject-like-habitual marker

b. Rokljata j Ivan, **ja** **xaresva**.
dress-the Poss Ivan Cl-ACC like-1P,Pres,Sg

Baker (1996) argues that Mohawk and other Amerindian languages have two ways of realizing predication: (i) through the inflectional (agreement) morphemes expressing person, number and gender features which count as the subject and the object of the verb, as shown above; and (ii) through incorporation, where a root attaches to the verb but can still be viewed as the syntactic complement of the verb in examples such as 'fish-prepare'. According to Baker, agreement morphemes and incorporated noun roots are part of the same system, since they express theta-roles and are head elements. This is stated in the Polysynthesis parameter, understood as a condition on theta-role assignment:

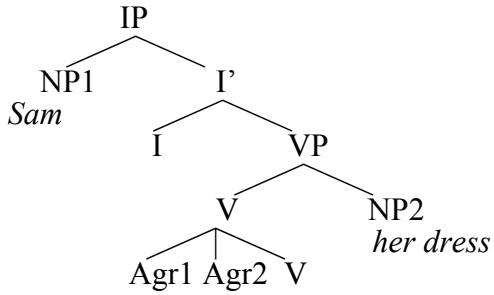
(51) POLYSYNTHESIS PARAMETER (Baker 1996)[13]

A phrase X is visible for theta-role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:

- an agreement relationship (e.g. between a morpheme and an NP);
- a movement relationship (incorporation).

The first case, explored by Baker, is represented by so-called agreement morphemes. They are argued to be syntactic heads, as shown in (52), and express theta-roles. Full NPs, when they appear, have an adjunct or modifier status.

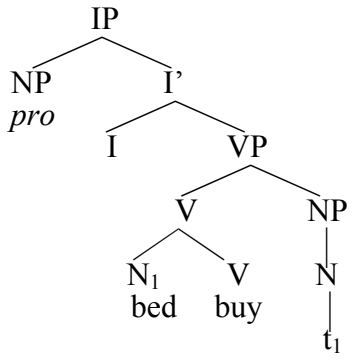
(52) AGREEMENT MORPHEMES IN MOHAWK (Baker 1996)



The second possibility, incorporation, is exemplified in (53) for a sentence such as *I am buying a bed* (lit. *bed-buy*). Baker proposes an English-like complementation structure with the head of the noun undergoing syntactic movement, and shows that the roots, which incorporate, are arguments in their own right. That is, the theta-criterion is met syntactically by an incorporating noun and the dislocated NP may be phonetically empty.

[13] This parameter combines the pronominal argument hypothesis initially proposed by Jelinek (1984), which basically states that the Theta-criterion is met morphologically and inflectional (agreement) morphemes expressing person, number and gender features count as the subject and the object of the verb and Baker's own incorporation hypothesis, according to which an incorporated root attached to the verb is actually the syntactic complement of the verb.

(53) Incorporation



In (53), the object, which is incorporated, corresponds to a null, trace-headed NP in object position. There is no subject incorporation, however, and in this case, the subject morpheme corresponds to a null NP in subject position.

7.2 Proposal for Bulgarian

From the discussion in the previous section, we can conclude that there are two ways of achieving saturation across languages: arguments are realized either as full-fledged nouns (although in incorporating languages, only the object can appear as a full noun in the lower predication) or as inflectional markers/argument variables. In what follows, I propose that in Bulgarian arguments can be base-generated at two different levels: a lower level within the vP/VP and a higher level above IP (TP), which also participates in the saturation of the predicate. The higher level contains full NPs or pronouns, which saturate the predication containing clitic variables. Topic-focus chains containing contrastive elements are found only in the lower domain and saturate the predication 'directly'.

In previous analyses of CLLDs in different languages (see Cinque 1990; Iatridou 1991, among others), the left-hand noun is understood as the *subject of predication*, and takes a predicate containing a variable, the clitic, an open position that permits a constituent to behave as a predicate:

(54) $[_{XP}$ DP $[_{IP}$ cl…..]]

Consider now (55), where the NP *Ivan* can be either a dislocated object, as in (a), or a subject, as in (b):

(55) a. Ivan go vidjaxa.
Ivan CL-ACC (they) saw
'As of Ivan, they SAW him.'

For some x (x = Ivan) they saw x.

b. Ivan dojde.
Ivan come-3P,Past,Sg.
'Ivan came.'

In (55), the referent is picked up again by the description, similar to what we find with a so-called E-type pronoun and its antecedent (see Evans 1980):

(56) there is an x (x=Ivan)

the x (such that x = Ivan) came/was seen etc.

While CTs and CFs are linked to internal restrictor domains, external restrictor domains define a separate background existential presupposition related to discourse and identifying an entity (inherent 'topic' or event). This external domain has been equated semantically with 'subject of predication' (Reinhart 1981), 'higher predication domain', and 'argument externalization' (Zubizarreta 2000; Arnaudova 2001, 2003), and has described in syntactic terms as realized by adjuncts (see, e.g., Warburton et al. 2004) or by elements occurring in the specifier positions of topic operators (Zubizarreta 2000).

I propose that CLLD and contrastive structures in Bulgarian, as discussed in this paper, exemplify two different types of argument saturation. In the case of CLLD, saturation is achieved through clitic variables but is incomplete (compare restricted saturation types discussed in Chung and Ladusaw, in press); consequently, a 'double' can properly saturate the predicate.

(57) [$_{CLLD}$ Petâr na Marija edna kniga [$_{TP}$ *pro* [$_{TP'}$ j ja dade]]].
Peter to Marija a book pro Cl-DAT Cl-ACC gave.
Lit. 'Peter to Mary a book, he gave it to her.'

(58) λx λy λz (x gives y to z) <e, t>
∃x, x = Petâr …. <e>
∃y, y = book…. <e>
∃z, z = to Mary…. <e>

This explains why non-specific indefinites of semantic type <e, t> cannot saturate the predicate:

(59) *Non-specific indefinites <e, t>

As a result, the dislocated element is an argument but is felt to be 'removed' from the domain of the predication, providing an independent description of the referent. The presence or absence of the dislocated element

does not alter the focus-topic structure of the lower predication domain, which is on the event or on an internal argument inside it.

8 Summary

In this paper I have shown that the left periphery in Bulgarian contains CLLDed elements and contrastive topic/focus elements found in a lower domain. Clitic left dislocation constructions have a number of syntactic and interpretative properties which make them closely related to a similar construction found in polysynthetic languages (Baker 1996) and represent a case where a 'double' properly saturates a function. In addition, I have offered a unified approach to the relation between contrastive focus and topic in the clause. The general claim is that a contrastive feature semantically interpreted as a set (restricted or unrestricted) containing alternatives is projected in the TP domain. Contrastive Topic-Focus and Contrastive Focus-Topic orderings are analysed as (sets of) ordered pairs (in the sense of Büring 2003 and Cohen 2004). The realization of focus in this case is related to direct argument saturation in the vP and TP-cycle in a 'split focus' fashion.

References

Alexiadou Artemis and Elena Anagnostopoulou. 1998. Parametrizing AGR: Word Order, V-movement and EPP-checking. *Natural Language and Linguistic Theory* 16: 491-539.

Andrejcin, Ljubomir, Konstantin Popov, Stojan Stojanov. 1977. *Gramatika na bâlgarskija ezik*, Nauka i izkustvo, Sofia.

Arnaudova, Olga. 1999. On the Interaction between Focus and Intonation in the Bulgarian Sentence. Paper presented at Formal Description to Slavic Languages 3, Leipzig, 1999. (Published 2002 in Gerhild Zybatow, Uwe Junghanns, Grit Mehlhorn & Luka Szucsich, eds., *Current Issues in Formal Slavic Linguistics*. Peter Lang, Frankfurt/Main, pp. 365-376.)

Arnaudova, Olga. 2001. Prosodic Movement and Information Focus in Bulgarian. In Steven Franks, Tracy H. King and Michail Yadroff, eds., *Proceedings of FASL-9*. Michigan Slavic Publications, pp. 19-38.

Arnaudova, Olga. 2002. Clitic Left Dislocation and Argument Structure in Bulgarian. In Jindrich Toman, ed., *Proceedings of FASL-10*. Michigan Slavic Publications. pp. 23-46.

Arnaudova, Olga. 2003. *Focus and Bulgarian Clause Structure*. Ph.D. diss., University of Ottawa.

Arregi, Karlos. 2003. Clitic Left Dislocation is Contrastive Topicalization. *U. Penn Working Papers in Linguistics: Proceedings of the 26th Annual Penn Linguistics Colloquium,* Vol. 9 (1).

Baker, Mark C. 1996. *The Polysynthesis Parameter*. Oxford University Press, Oxford/New York.

Bošković, Zeljko. 1998. Wh-movement and Wh-phrases in Slavic. Position paper presented at the Comparative Slavic Morphosyntax Workshop, Bloomington, Indiana.
Bošković, Zeljko. 2001. Clitic Placement in South Slavic. Paper presented at the Workshop on Slavic Pronominal Clitics, 8-9 February 2001, ZAS, Berlin.
Büring, Daniel. 2003. On D-Trees, Beans, and B-Accents. *Linguistics & Philosophy* 26: 511-545.
Cecchetto, Carlo. 1999. A Comparative Analysis of Left and Right Dislocation in Romance. *Studia Linguistica* 53.
Cinque, Guglielmo. 1990. *Types of A' dependencies*. MIT Press, Cambridge, MA.
Choi, Hye-Won. 1996. *Optimizing Structure in Context: Scrambling and Information Structure*. Ph.D. diss., Stanford University.
Chomsky, Noam. 2001. Beyond Explanatory Adequacy. *MIT Occasional Papers in Linguistics* 20.
Chung Sandra and William. A. Ladusaw. In press. *Restriction and Saturation*. MIT Press, Cambridge, MA.
Cohen, Ariel. 2004. Fronted Quantificational Adverbs. This volume.
Diesing, Molly. 1992. *Indefinites*. MIT Press, Cambridge, MA.
Dimitrova-Vulchanova, Mila and Lars Hellan. 1996. Clitics and Bulgarian Clause Structure. In Mila Dimitrova-Vulchanova and Lars Hellan, eds., *Formal Approaches to South Slavic Languages* (*University of Trondheim Working Papers in Linguistics* 28), pp. 363-409.
É. Kiss, Katalin 1998. Identificational Focus versus Information Focus. *Language* 74: 245-268.
Evans, Gareth. 1980. Pronouns. *Linguistic Inquiry* 11: 337-362.
Franks, Steven. and Tracy. H. King. 2000. *A Handbook of Slavic Clitics*. Oxford University Press, Oxford.
Franks, Steven and Catherine Rudin. 2004. Bulgarian Clitics as K^0 heads. Paper presented at Formal Approaches to Slavic Linguistics 13, University of South Carolina.
Guentcheva, Zlatka. 1994. *Thematisation de l'object en bulgare*. Peter Lang, Bern.
Hirschbühler, Paul. 1975. The Source of Lefthand NPs in French. In E. Anagnostopoulou, H. van Riemsdijk and F. Zwart, eds., *Materials on Left Dislocation*. John Benjamins, Amsterdam.
Iatridou, Sabine. 1991. Clitics and Island Effects. Ms., MIT, Cambridge, MA.
Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. MIT Press, Cambridge, MA.
Jacobs, Joachim. 1984. Funktionale Satzperspektive und Illokutionssemantik. *Linguistische Berichte* 91: 25-58.
Jaeger, Florian. 2004. Topicality and Superiority in Bulgarian Wh-questions. In O. Arnaudova, W. Browne, M.-L. Rivero and D. Stojanovic eds., *Proceedings of FASL-12*.
Jelinek, Eloise. 1984. Empty Categories, Case and Configurationality. *Natural Language and Linguistic Theory* 2: 39-76.
Joseph, Brian. 2001. On defining 'Word' in Greek and Other Balkan Languages, Paper presented at Acme Balcanica, Montreal, Concordia University, 28 April 2001.
Kallulli, Dalina. 2001. Direct Object Clitic Doubling in Albanian and Greek. In Maria Luisa Rivero and Angela Ralli, eds., *Comparative Syntax of the Balkan Languages*. Oxford University Presss, Oxford.
Kayne Richard. S. 1975. *French Syntax*, MIT Press, Cambridge, MA.
Kayne, Richard. S. 1995. *The Antisymmetry of Syntax*. MIT Press, Cambridge, MA.
Krapova, Iliyana. 2002. On the Left Periphery of the Bulgarian sentence. Ms., University of Plovdiv/University of Venice.

Krapova Iliyana. and Guglielmo Cinque. 2003. On the Order of Wh-phrases in Bulgarian Multiple Wh-questions. Paper presented at FDSL-5, Leipzig, 2003.

Philippaki-Warburton, Irene, Spyridoula Varlokosta, Michalis Georgiafentis and George Kotzoglou. 2004. Moving From Theta-Positions: Pronominal Citic Doubling in Greek. *Lingua* 114: 963-989.

Penchev, Jordan. 1993. *Sintaksis na sâvremennija bâlgarski knizhoven ezik*. Plovdiv.

Reinhart, Tanya. 1981. Pragmatics and Linguistics: an Analysis of Sentence Topics. *Philosophica* 27: 53-93.

Rivero, María Luisa. 2001. On Impersonal Reflexives in Romance and Slavic and Semantic Variation. *Romance Syntax, Semantics and Their L2 Acquisition. Selected Papers from the 30th Linguistic Symposium on Romance Languages*. Benjamins, Amsterdam/ Philadelphia.

Rooth, Mats. 1985. *Association with Focus*. Ph.D. diss., University of Massachusetts, Amherst.

Rudin. Catherine. 1988. On Multiple Questions and Multiple WH-Fronting. *Natural Language and Linguistic Theory* 6: 445-502.

Rudin Catherine. 1991. Topic and Focus in Bulgarian. *Acta linguistica Hungarica* 40: 429-47.

Rudin, Catherine. 1997. AgrO and Bulgarian Pronominal Clitics. In M. Lindseth and S. Franks, eds., *Formal Approaches to Slavic Linguistics* 5. Ann Arbor, MI: Michigan Slavic Publications, pp. 224-52.

Vallduví, Enric. 1990. *The Informational Component*. Ph.D. diss., University of Pennsylvania, Philadelphia. (Published in 1992, Garland. New York.)

Villalba, Xavier. 2000. Symmetry and Antisymmetry in Syntax. Ms., University of Barcelona.

Zubizarreta, María Luisa. 2000. The Clitic Projection in Questions, *CatWPL* 7: 253-277.

Zubizarreta, María Luisa. 1998. *Prosody, Focus and Word Order*. MIT Press, Cambridge, MA.

Discourse Functions at the Periphery: Noncanonical Word Order in English*

Betty Birner
Northern Illinois University

Abstract

Speakers have a wide range of noncanonical syntactic options that allow them to mark the information status of the various elements within a proposition. The correlation between a construction and constraints on information status, however, is not arbitrary; there are broad, consistent, and predictive generalizations that can be made about the information-packaging functions served by preposing, postposing, and argument-reversing constructions. Specifically, preposed constituents are constrained to represent discourse-old information, postposed constituents are constrained to represent information that is either discourse-new or hearer-new, and argument-reversing constructions require that the information represented by the preposed constituent be at least as familiar as that represented by the postposed constituent (Birner & Ward 1998). The status of inferable information (Clark 1977; Prince 1981), however, is problematic; a study of corpus data shows that such information can be preposed in an inversion or a preposing (hence must be discourse-old), yet can also be postposed in constructions requiring hearer-new information (hence must be hearer-new). This information status – discourse-old yet hearer-new – is assumed by Prince (1992) to be non-occurring on the grounds that what has been evoked in the discourse should be known to the hearer. I resolve this difficulty by arguing for a reinterpretation of the term 'discourse-old' as applying not only to information that has been explicitly evoked in the prior discourse, but rather to any information that provides a salient inferential link to the prior discourse. Extending Prince's notion in this manner allows us to account for the distribution of noncanonically positioned peripheral constituents in a principled and unified way.

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1 Introduction

The English language provides its speakers with a variety of noncanonical syntactic means for expressing a given proposition. Although these noncanonical-word-order utterances may be truth-conditionally equivalent to the corresponding canonical variants, they differ in their relationship to the discourse context. This paper focuses on noncanonical constructions that exploit peripheral sentence position to preserve discourse coherence, and shows how this coherence is attained via inferential links between the current utterance and the prior discourse.

Coherence in discourse has two aspects, one having to do with intersentential relevance and the other with intrasentential ordering. Violating either aspect will result in an incoherent discourse. The first aspect, having to do with intersentential relevance, involves our assumption that the utterances in a discourse bear some relationship to each other. This is the notion of coherence discussed, for example, in Kehler 2002. Kehler considers the way in which hearers infer specific coherence relations among the sentences in a discourse in order to preserve their assumption that the discourse is in fact coherent, and notes that 'the need to establish coherence is basic to our natural language understanding capacity' (2002: 3). That is, we as communicators will go to a fair amount of trouble to infer connections in order to preserve our belief that a discourse is coherent, as Grice (1975) was the first to observe.

My concern in this paper is with the second aspect of coherence, having to do with intrasentential ordering – that is, with the ordering of information within an utterance. While at one level a coherent discourse requires that individual utterances have something to do with one another, at another level a coherent discourse requires that the information *within* each utterance be presented in an order that will help the hearer to link the information expressed in the current utterance with information expressed in the prior discourse. In this sense a coherent discourse is one in which the information expressed in each sentence is presented in a coherent order – an order that facilitates processing. This ordering of information is what Chafe (1976) calls *information packaging*. Information packaging is done syntactically; that is, we choose one syntactic construction over another, in part, in order to package information in a way that will facilitate the hearer's processing of the discourse. A coherent discourse, in short, is easier to process than an incoherent one.

In this paper I review the ways in which speakers use peripheral sentence positions to preserve coherence and facilitate processing, and I review current models of the informational relationships that can hold between elements in a discourse. Finally, I address the problematic issue of 'inferable' information and suggest a model that promises to offer a unified account of the use of noncanonical syntactic constructions to preserve discourse coherence. This

paper, then, addresses two basic questions: First, how do speakers and hearers use peripheral elements to create coherent discourses? And second, what part do inferences play in the construction of a coherent discourse?

2 Background

One of the primary factors contributing to the coherence of a discourse is the existence of informational relationships, or LINKS, among the utterances that make up the discourse (Birner & Ward 1998). These links facilitate discourse processing by helping the hearer to track relationships among discourse entities. Speakers use a wide variety of linguistic forms, in turn, to mark these relationships, and thereby to facilitate the hearer's processing of the discourse. One obvious example is definiteness: If I choose to utter the definite NP *the cat* rather than the indefinite *a cat,* my hearer will assume that I am referring to a cat that I believe they can already identify, and will search their discourse model for such a cat rather than assuming that they need to add a new one. That is, the use of the definite article cues the listener to look for an appropriate referent among their store of already evoked information rather than adding a new entity to the discourse model.[1]

Noncanonical syntactic constructions are another way of marking these relationships. Canonical constructions typically do not have constraints on their use; rather, they are unmarked and constitute the default case. Noncanonical constructions, in contrast, are marked and frequently serve an information-structuring purpose. Consider (1a), in which the noncanonical construction known as *inversion* marks the link between one mention of a tank and a subsequent mention:

(1) a. They have a great big tank in the kitchen, and *in the tank are sitting all of these pots.*
(Jeff Smith, *Frugal Gourmet*, 6/17/89)

b. They have all of these pots in the kitchen, and *#in a great big tank are sitting all of the pots.*

In the italicized inversion in (1a), the preposed *tank* is linked to the earlier mention of *a great big tank.* When the link is instead between the postposed *pots* and the prior discourse, as in (1b), the discourse is incoherent and therefore infelicitous.

[1] This is of course a simplification of the rather complex issue of definiteness; see Abbott 2003 for a review. See also Birner & Ward 1994 for an argument that identifiability is a sufficient but not necessary condition for use of the definite article.

Example (2a) presents the canonical variant of the inversion in (1a), while (2b-r) illustrate some of the many semantically equivalent ways English offers for saying (semantically) the same thing:

(2) a. All of these pots are sitting in the tank.
b. In the tank are sitting all of these pots.
c. There are all of these pots sitting in the tank.
d. In the tank there are sitting all of these pots.
e. There are sitting in the tank all of these pots.
f. In the tank all of these pots are sitting.
g. All of these pots, they're sitting in the tank.
h. These pots, they're all sitting in the tank.
i. In the tank, that's where all of these pots are sitting.
j. It's in the tank that all of these pots are sitting.
k. It's in the tank that are sitting all of these pots.
l. It's all of these pots that are sitting in the tank.
m. Where all of these pots are sitting is in the tank.
n. In the tank is where all of these pots are sitting.
o. What is sitting in the tank are all of these pots.
p. All of these pots are what is sitting in the tank.
q. It's where all of these pots are sitting, in the tank.
r. They are what is sitting in the tank, all of these pots.

Why would the English language devote such extensive syntactic resources for providing speakers with options for saying what amounts to the same thing? The answer, as argued in Birner & Ward 1998, is that these options allow speakers to mark the *information status* of the various elements that make up the proposition – roughly speaking, what's new, what's known, and what's linked to the prior discourse. Because noncanonical constructions are used in consistent and characteristic ways to structure information, the use of a particular construction makes it possible for the hearer to infer the status of the constituents of the utterance, which in turn makes it easier to identify the relationships among the utterances and the information evoked in the utterances, and easier to process the discourse.

I have said that noncanonical constructions are used in consistent and characteristic ways to structure information, and one might ask whether that means that individual constructions are consistent in how they structure

information, or whether there are consistent patterns across constructions with respect to how information is structured. The answer is both: not only do individual construction mark information status in consistent ways, but one can also identify uniform patterns of information packaging among syntactically related classes of constructions in English.

It has long been known that many languages tend to structure discourse on the basis of an 'old/new' principle; that is, in any given sentence, linguistic material that expresses information that is assumed to be 'given' (in some sense) tends to be placed before that which is assumed to be 'new' (in some sense). English is such a language; this principle can be seen to be at work in (1a), in that the previously mentioned *tank* is placed before the new and unpredictable *all of these pots.* If the prior context is altered so that the pots are given and the tank is new, as in (1b), the discourse becomes infelicitous. Since the early Prague School work on syntax and discourse function (e.g., Firbas 1966), researchers have amassed evidence for this correlation between sentence position and givenness in the discourse, as expressed in the 'given-new contract' of Halliday 1967 and Halliday & Hasan 1976, which states that given information tends to appear closer to the beginning of a sentence, while new information tends to appear closer to the end.

How to define the relevant notion of givenness, however, has been a controversial issue. Chafe (1976) defines given, or old, information, as 'that knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance', while new information is defined as 'what the speaker assumes he is introducing into the addressee's consciousness by what he says'. But 'consciousness' is an ill-defined notion. Other notions of 'old' information have relied on notions like predictability and shared knowledge (Prince 1981). Prince rejects these notions in favor of *assumed familiarity***,** reflecting the fact that only an omniscient observer can know what knowledge is in fact shared between interlocutors, while actual language users have to operate on the basis of what they *assume* to be familiar to their interlocutors.

Prince 1992 distinguishes three basic notions of given versus new information, which in turn constitute the three primary factors that determine the structuring of information in English. The first two distinctions are between, on the one hand, discourse-old and discourse-new information and, on the other hand, hearer-old and hearer-new information. Discourse-old information is that which has been explicitly evoked in the prior discourse (or its situational context), whereas discourse-new information is that which has not been previously evoked. Hearer-old information is that which, regardless of whether it has been evoked in the current discourse, is assumed to be known to the hearer, while hearer-new information is assumed to be new to the hearer. These two distinctions can be seen as a matrix of cross-cutting dichotomies:

Table 1: Prince 1992

	Hearer-old:	Hearer-new:
Discourse-old:	Evoked (previously evoked in the discourse)	(non-occurring)
Discourse-new:	Unused (assumed to be known; not yet evoked)	Brand-new (assumed new to discourse and hearer)

The terms 'evoked', 'unused', and 'brand-new' are from Prince 1981 and show how the cells of the matrix formed by the categories of Prince 1992 correspond to the categories defined in that earlier work. Thus, previously evoked information is both hearer-old and discourse-old, brand-new information is both hearer-new and discourse-new, and unused information is hearer-old but discourse-new – i.e., it is assumed to be known to the hearer but has not yet been evoked in the current discourse. Thus, consider (3):

(3) Gov. Rod Blagojevich, while scaling back a massive capital program, said Friday he would endorse a $3.6 billion state construction budget that includes new money to build schools and millions of dollars for legislative pork-barrel projects.
(*Chicago Tribune,* 8/23/03)

Here, the NP *Gov. Rod Blagojevich* represents information that is discourse-new but hearer-old (in that readers of the *Chicago Tribune* are assumed to know the identity of the governor of Illinois), the NP *a $3.6 billion state construction budget* represents information that is both discourse-new and (assumed to be) hearer-new, and the pronoun *he* represents information that is both discourse-old and hearer-old (since its referent has been mentioned earlier in the same sentence). Information that is discourse-old but hearer-new is predicted not to occur, on the grounds that a speaker typically believes that the hearer is paying attention and thus that what has been evoked in the discourse is also known to the hearer (Prince 1992). Notice that Prince uses these terms primarily to talk about the discourse or hearer status of an *entity*, i.e., whether the entity has been mentioned in the discourse model or is assumed to exist in the hearer's knowledge store. I will be using them more broadly to describe the status of not only entities but also attributes, states, and relations – i.e., any information that can be familiar or unfamiliar.

In addition, many constructions require that a particular *open proposition* (in the sense of Prince 1986) be salient in the discourse, and this brings us to Prince's third type of given/new distinction, the distinction between focus and presupposition. An open proposition (OP) is a proposition in which a

constituent is left 'open' or unspecified; thus, a question such as (4a) will render the OP in (4b) salient.

(4) a. Where are your mittens?

b. Your mittens are X:Xε{places}
('Your mittens are someplace')

That is, asking someone for the location of their mittens evokes the proposition that their mittens are in some location. Declarative statements likewise give rise to open propositions; for example, uttering (5a) renders the OPs in (5b-d), among others, salient:

(5) a. I found your mittens.

b. I found X:Xε{objects} ('I found something')

c. X:Xε{people} found your mittens ('Someone found your mittens')

d. I did X:Xε{activities} ('I did something')

Uttering *I found your mittens* renders salient the notions that I found something, that someone found your mittens, and that I did something. The felicitous use of certain constructions requires that a particular OP be salient in the discourse context. The *wh*-cleft is one such construction:

(6) a. Two sets of immigration bills currently before this session of Congress are giving observers both hope and worry. *What is at stake are the immigration rights of gay people,* and though gay legislation generally moves slowly, voting is expected soon.
(*Au Courant*)

b. Triggs is a lexicographer.
Over his desk hangs the 18th-century dictionary maker Samuel Johnson's ironical definition: 'A writer of dictionaries; a harmless drudge that busies himself in tracing the original, and detailing the signification of words.'
What Triggs actually does is find alert readers who recognize new words or new usages for ordinary ones.
(N.Y. Times News Service)

The *wh*-cleft in (6a), *what is at stake are the immigration rights of gay people,* is felicitous only in a context in which it is salient that something is at stake (i.e., the OP *X:Xε{issues} is at stake* must be salient). This OP constitutes the presupposition of the utterance, and the postcopular NP – *the immigration rights of gay people* – constitutes the focus, or the new information. Likewise, the *wh*-cleft in (6b), *what Triggs actually does is find alert readers who recognize new words or new usages for ordinary ones,* is felicitous only in a

context in which it is salient that Triggs does something – i.e., when the OP *Triggs does X:Xε{activities}* is salient.

The contexts given in (6) clearly do render these OPs salient; conversely, if the OP is not salient, the *wh*-cleft is infelicitous. Thus, compare (7a) and (7b), uttered in, say, a grocery store:

(7) a. Hey, look! That's my friend Jeremy Triggs over there. He's a lexicographer. What he does is find alert readers who recognize new words or new usages for ordinary ones.

b. Hey, look! That's my friend Jeremy Triggs over there. #What he does is find alert readers who recognize new words or new usages for ordinary ones.

In (7a), the mention of Triggs's occupation gives rise to the issue of what he does, rendering the OP salient. In (7b), however, merely sighting a friend in a grocery store does not render the OP salient, and so the *wh*-cleft is infelicitous.

3 Correlating Form and Function

So far we have looked at three types of given/new distinctions, all of which appear to be relevant in English, and we have already seen some examples of constructions that are sensitive to these statuses, such as inversion and *wh*-clefts. Interestingly, however, the correlation between construction and constraints on information status is not arbitrary. The type of information status to which a particular English construction is sensitive is partly predictable from its form – most notably in terms of the use of peripheral positions within the sentence. Specifically, as shown in Birner & Ward 1998, 'preposing' constructions (that is, those that place canonically postverbal constituents in preverbal position) mark the preposed information as familiar within the discourse, while 'postposing' constructions (those that place canonically preverbal constituents in postverbal position) mark the postposed information as new, either to the discourse or to the hearer. Finally, constructions that reverse the canonical ordering of two constituents (placing a canonically preverbal constituent in postverbal position while placing a canonically postverbal constituent in preverbal position) mark the preposed information as being at least as familiar within the discourse as is the postposed information. In short, preposing places familiar information early in the sentence, and postposing places unfamiliar information late in the sentence; moreover, when it is a single constituent that is noncanonically positioned, the constraint is absolute, whereas when two arguments are noncanonically positioned (in particular, when their canonical positioning is reversed), it's their *relative* information status that is relevant. This situation holds for all constructions in English that involve the noncanonical placement

of one or more constituents whose canonical position is not filled by a referential element (such as an anaphoric pronoun). The remainder of this section summarizes Birner & Ward's (1998) discussion of preposing, postposing, and argument-reversing constructions.

First, consider the preposing in (8):[2]

(8) "In the early days, our productions were cheap and cheerful," says producer John Weaver of London-based Keefco. "We'd go into a seven-light studio, shoot the band in one afternoon and edit as we went along. The client would walk out with a tape that day."
Today's tapes may still be cheerful, but *cheap they are not.*
(*Newsweek*, 4/18/83)

Here, the preposed *cheap* is discourse-old, having been explicitly evoked earlier in the discourse (Ward 1988' Birner & Ward 1998). In addition, as shown in Ward 1988, preposing requires that an open proposition be salient in the discourse – here, the OP 'the tapes are X', where X is a member of the set {cheap, expensive}. If you replace *cheap* with information that's discourse-new, infelicity results, as shown in (9):

(9) "In the early days, our productions were cheap and cheerful," says producer John Weaver of London-based Keefco. "We'd go into a seven-light studio, shoot the band in one afternoon and edit as we went along. The client would walk out with a tape that day."
Today's tapes may still be cheerful, but *#commonly available they are not.*

This constraint is common to constructions in English that prepose some constituent. In these cases, the discourse-old information serves as a link to the prior discourse (Birner & Ward 1998), and its early positioning in the sentence facilitates discourse processing.

Postposing constructions, in contrast, require the postposed information to be new, either to the hearer (in the case of existential *there* – i.e., with *be* as the verb) or to the discourse (in the case of presentational *there* – i.e., with a non-*be* verb):

(10) a. What can happen is a hangup such as Rocky Smith ran into, as the independent hauler was traversing Chicago with a load of machinery that just had to get to a factory by morning. *"There was this truck in front of me carrying giant steel coils, and potholes all over the place,"* he remembers.
(*Wall Street Journal*, 8/30/89)

[2] All of the naturally occurring examples in this section are taken from Birner & Ward 1998.

b. What can happen is a hangup such as Rocky Smith ran into, as the independent hauler was traversing Chicago with a load of machinery that just had to get to a factory by morning. "I was behind a truck, and *#there was this/the truck carrying giant steel coils, and potholes all over the place,"* he remembers.

In the existential *there*-sentence in (10a), the postposed NP represents hearer-new information, and the utterance is felicitous. In (10b), on the reading in which the two instances of *truck* are coreferential, the truck in the existential represents previously mentioned (and hence hearer-old) information, and the use of existential *there* is infelicitous (Ward & Birner 1997; Birner & Ward 1998; cf. Abbott 1997). In the case of presentational *there*, as in (11), the postposed material is only required to represent discourse-new, rather than hearer-new, information:

(11) The volume of engine sound became louder and louder. Motorcycle police, a whole battalion (or whatever unit they come in) neared – took over the road – there must have been twenty of them. *Behind them there appeared police vans and police buses, one, two, four, six, eight of each.* And then, at last, behind these, the American military vehicles began to appear.
(Wakefield 1991: 94)

Here, the postposed NP *police vans and police buses* represents information that is new to the discourse; notice, however, that replacing this NP with one representing information that is hearer-old (yet still discourse-new) does not result in infelicity:

(12) The volume of engine sound became louder and louder. Motorcycle police, a whole battalion (or whatever unit they come in) neared – took over the road – there must have been twenty of them. *Behind them there appeared the President of the United States.* He rode in a black stretch limousine, surrounded by Secret Service members on mopeds.

Here the requirement that the postposed NP represent discourse-new information is still met and the presentational *there*-sentence is felicitous, despite the fact that this NP is hearer-old (on the assumption that the reader knows of the U.S. President). If, on the other hand, we replace the verb *appeared* with *be*, we have an existential *there*-sentence, and now the hearer-old NP renders the utterance infelicitous:

(13) The volume of engine sound became louder and louder. Motorcycle police, a whole battalion (or whatever unit they come in) neared – took over the road – there must have been twenty of them. *#Behind them there was the President of the United States.* He rode in a black stretch limousine, surrounded by Secret Service members on mopeds.

Thus, both existential and presentational *there* require the postposed information to be new, but the type of newness differs: existential *there* requires this NP to represent hearer-new information, while presentational *there* requires only that it be discourse-new, regardless of its status within the hearer's knowledge store.

Unlike preposing and posting, whose constraints on information status are absolute, argument reversal depends for its felicity on the *relative* status of the two noncanonically positioned constituents. Consider the use of the passive in (14):

(14) The mayor's present term of office expires Jan. 1. *He will be succeeded by Ivan Allen Jr.*...
(Brown Corpus)

In a passive with a *by*-phrase, the subject NP (here *he*, representing the previously evoked mayor) may not represent newer information than the NP in the *by*-phrase (here the previously unmentioned *Ivan Allen Jr.*). We do find examples in which both NPs represent discourse-old information, or both represent discourse-new information:

(15) *An alert 10-year-old safety patrol boy was congratulated by police today for his part in obtaining a reckless driving conviction against a youthful motorist.*
Patrolman George Kimmell, of McClellan Station, said he would recommend a special safety citation for Ralph Sisk, 9230 Vernor East, a third grader at the Scripps School, for his assistance in the case.
(Brown Corpus)

Here, both the patrol boy and the police are discourse-new (in fact, the token is discourse-initial). Notice, however, that if the subject NP represents discourse-new information and the NP in the *by*-phrase represents discourse-old information, infelicity results:

(16) Ivan Allen Jr. will take office Jan. 1. *#The mayor will be succeeded by him.*

The same constraint is seen in inversion, which likewise reverses the canonical position of two arguments (Birner 1994, 1996):

(17) a. They have a great big tank in the kitchen, and *in the tank are sitting all of these pots.*

b. They have all of these pots in the kitchen, and *#in a great big tank are sitting all of the pots.*

(= (1) above)

In (17a), the preposed constituent (*the tank*) represents discourse-old information, while the postposed constituent (*all of these pots*) represents

discourse-new information. Reversing the information status of these two elements, as in (17b), results in infelicity.

Thus, having briefly examined preposing, existential *there,* presentational *there*, passivization, and inversion, we see that the correlation of form and function proposed in Birner & Ward 1998 holds. That is, preposing constructions place familiar information at the front of the sentence, postposing constructions place unfamiliar information at the end of the sentence, and argument-reversing constructions depend on the relative familiarity of the preposed and postposed information. The correlation between constructions and functions, then, is not arbitrary; on the contrary, there are broad, consistent, and predictive generalizations that can be made concerning the information-packaging functions of classes of related constructions.

4 The Problem of 'Inferable' Information

In breaking down information status into the categories of hearer-old/new and discourse-old/new, Prince (1992) leaves as an unresolved question the status of what she terms *inferable* information – i.e., information that has not been evoked in the prior discourse but which can be inferred from information that has been evoked in the prior discourse (Prince 1981; cf. Clark's (1977) 'bridging inferences'). Consider the inversions in (18):

(18) a. Labor savings are achieved because the crew is put to better use than cleaning belts manually; *also eliminated is the expense of buying costly chemicals.*
(*WOODEXTRA*, August 1988)

b. Beds ringed the room, their iron feet sinking into thick *shirdiks* woven in colorful patterns of birds and flowers. *At the foot of each bed rested a stocky wooden chest,* festooned with designs of cranes and sheep, horses and leaves.
(Wilson 1998: 133)

In (18a), the preposed phrase *also eliminated* represents information that would not normally be considered either discourse-old or hearer-old, since the fact that something is eliminated has not been explicitly mentioned in the prior context, nor is it assumed to constitute part of the addressee's prior knowledge. However, this information is not entirely brand-new, either; rather, it can be inferred from information presented in the prior discourse: the mention of labor savings in the first clause renders it inferable that something is being eliminated (specifically, labor). Likewise, in (18b), the previous mention of beds renders the preposed *foot of each bed* inferable. Here, the NP *each bed* in the italicized clause takes its referent from the set of beds already

evoked in the first sentence; *the foot of each bed,* in turn, can be inferred on the basis of the generally known fact that a bed has a head and a foot. And in both cases, the inferable information occupies initial position in an inversion.

A preliminary set of inferential relations (that is, relations between the inferable constituent and information in the prior discourse) might include such relations as part/whole, entity/attribute, type/subtype, possession, set/subset, temporal ordering, and spatial proximity. The part/whole relation, for instance, is illustrated in (18b), given that the foot of a bed is a part of that bed. Similarly, the inversion in (19) illustrates the temporal ordering relation:

(19) The braided trumpeters came into view, followed by the Life Guards on their black chargers. *Then came the Guards' band, with its flourishing drummers, and the glittering string of State coaches, each with white-breeched, scarlet coated postillions and footmen, the horses pacing proudly…*
(Thane 1947: 211)

Here, the preposed *then* is related to the previously evoked events of entities coming into view via a temporal relation; that is, given that the trumpeters were followed by the Life Guards, one may infer that something else will come next. The preposing in (20) illustrates the set/subset relation:

(20) I have a great deal of clothes....*Most of my stuff, my mom gets at Alexander's.*
(*Philadelphia Inquirer*, 11/6/83)

Here, *most of my stuff* represents a subset of the previously mentioned clothes. The preposing in (21) provides another example of the part/whole relation:

(21) A: You know this album?
B: *This song I know.*
(= Ward & Prince 1991, (10a))

In this example, *this song* represents a part of the previously mentioned album. Notice that in each of the examples in (18)-(21), the inferential relation licenses the fronting of the inferable constituent; in (18) and (19), the inferable element appears in initial position in an inversion, and in (20) and (21), it appears in initial position in a preposing. In Birner 1994, 1996, it was argued that, for inversion at least, inferables are treated as discourse-old, in that their distribution is the same as that of explicitly evoked information: they may appear in preposed position when the postposed constituent represents either discourse-old or discourse-new information, but they may appear in postposed position only if the preposed constituent represents discourse-old information. Birner & Ward 1998 found similar results for preposing: again, inferable constituents patterned with discourse-old constituents in that they could felicitously appear in preposed position. In both constructions, where

discourse-new information cannot felicitously appear, inferable information cannot felicitously appear. Based on these results, one may reasonably conclude that inferable information is discourse-old.

Further investigation, however, reveals that the matter is somewhat more complex. Inferables remain a problem for two reasons. First, it is difficult to define precisely which elements are inferable in a given discourse; and second, their distribution in noncanonical syntactic constructions is not consistently that of 'old' information. These two issues will be dealt with in turn.

First, delimiting the class of information that counts as inferable is far from a straightforward matter. Intuition alone is insufficient; what is needed is a rigorous, reliable way of determining what is inferable in a given context. In Birner & Ward 1998, inferables were defined as those informational elements that are related to previously evoked information via a salient partially-ordered set (poset) relationship (Hirschberg 1991). A poset is a set defined by a transitive partial ordering relation such that its members may be related either as higher/lower values within the set or as unordered alternates at the same level. Thus, an utterance of *kitchen* stands in a poset relation of 'containment' with the higher value *house* (since a house typically contains a kitchen) and the lower value *refrigerator* (since a kitchen typically contains a refrigerator), as well as the alternate value *bedroom* (which, like *kitchen*, represents something contained within a house). Notice that this containment relation is transitive: because a house contains a kitchen and a kitchen contains a refrigerator, a house contains a refrigerator. Notice also that the relationships that give rise to inferables needn't hold in every case; that is, the fact that there may exist a kitchen lacking a refrigerator does not nullify the inference from *kitchen* to *refrigerator*. Rather, it is sufficient that the relationship typically and plausibly hold.

In Birner & Ward 1998, it is argued that preposed constituents in both preposing and inversion constitute links to the prior discourse, and that these links are related to the prior discourse via a poset relationship. Thus, poset relationships are taken to license the following preposings:[3]

(22) I want to have a really big kitchen someday.

a. *The house itself I don't care about*, but the kitchen needs to be big.

b. *The refrigerator* I'd like to choose myself, but I'm not very picky about stoves and sinks.

c. *The bedroom I don't care about*, but the kitchen needs to be big.

In (22a), prior utterance of *a really big kitchen* licenses the preposing of the higher poset value *the house itself*. Similarly, in (22b) it licenses the preposing

[3] A salient OP is also required for the felicity of most preposings and inversions. See Birner & Ward 1998 for details and discussion.

of the lower member *the refrigerator*, and in (22c) it licenses the preposing of the alternate member *the bedroom.*

A salient poset relationship is neither necessary nor sufficient for such a link, however, for two reasons. First, it overgenerates; and second, while poset relations are by definition transitive, some inferential relations that license preposing and inversion are not transitive. It overgenerates in that not all entities that stand in a poset relationship license preposing and inversion. For example, the set of entities typically contained within a house includes both a refrigerator and bathtub, yet (23) is infelicitous:

(23) I spent an hour cleaning out the refrigerator last night; *#in the bathtub my husband was relaxing.* (cf. *...my husband was relaxing in the bathtub.*)

Here, despite the fact that *refrigerator* and *bathtub* are alternate members of the set of items contained in a house, the context provided disallows the inference from *refrigerator* to *bathtub.* Hence, a poset relationship is not sufficient to license preposing.[4]

Moreover, not all inferential relationships that license preposing and inversion are transitive. For example, in arguing that the preposed constituent in a Topicalization (one of the two primary subtypes of preposing; see Ward 1988) must be related to the prior discourse via a poset relation, Ward & Prince (1991) note that 'relations that are not transitive… are disallowed in felicitous Topicalization.' As evidence they give (24):

(24) a. John went into a restaurant and he asked for the menu.

b. #John went into a restaurant and *the menu he asked for.*

(= Ward & Prince 1991, (17), emphasis mine)

Here, the infelicity of the preposing in (24b) is said to be due to the fact that the relation of functional dependence linking *the menu* to *a restaurant* is not a poset relation, as evidenced by (25):

(25) a. We ate in a terrible French restaurant last night. #The cork was green.

b. We ate in a terrible French restaurant last night. The wine was awful. The cork was green.

(=Ward & Prince 1991, ex. (18))

The felicity of the definites in (25b) indicates that *wine* is inferable from *French restaurant,* and likewise that *cork* is inferable from *wine;* however, as

[4] One might argue that (23) is infelicitous because it lacks an appropriate OP; however, as demonstrated in Birner & Ward 1998, the OP requirement does not hold for those preposings and inversions whose preposed constituent is semantically locative, as in (23).

seen in (25a), *cork* cannot be inferred from *French restaurant.* Ward & Prince argue, based on these examples, that while a relation of functional dependence links *French restaurant* to *wine* and *wine* to *cork*, the inference is not transitive; thus, the relation of functional dependence is not a poset relation. However, notice that this relation does in fact license preposing:

(26) a. We ate in a terrible French restaurant last night. *The wine we could tolerate,* but the food was inedible.

b. We bought a terrible bottle of wine last night. *The cork we had no problem with*, but the color and bouquet were really bad.

Thus, either these do not exemplify the relation of functional dependence, or else functional dependence is not transitive yet does license preposing. In the latter case, functional dependence is not a poset relation (since poset relations are defined as transitive), and hence the poset relation is not a necessary condition (nor, as we saw above, a sufficient condition) for felicitous preposing. In the former case – i.e., if these are not examples of functional dependence – the fact remains that whatever relation they represent cannot be transitive (as demonstrated in (25)) and hence cannot be a poset relation, despite the fact that it licenses preposing.[5] Thus, poset relations are neither necessary nor sufficient for felicitous postposing, and to define these linking relations as poset relations is therefore either incorrect or incomplete.[6]

I noted above that inferable information is problematic in two senses, first in that inferability is insufficiently defined, and second in that the distribution of inferable information in noncanonical syntactic constructions is not

[5] Another possibility is that both relations – i.e., the relation linking *restaurant* with *wine* and the relation linking *wine* with *cork* – are poset relations but that they are of distinct types. So, for example, while it is entirely plausible to consider *cork* to stand in a functional dependence relationship with *wine* (on the grounds that the cork's function is defined relative to the wine), it could be argued that this is not the same relation that links *wine* to *restaurant.* In that case, one could argue that perhaps each individual poset relation is transitive but that transitivity is not preserved *across* poset relations. In that case, however, we again find that the mere stipulation of a poset requirement as in Birner & Ward 1998 is insufficiently constrained, as it would at the very least require a corollary regarding constraints on transitivity.

[6] Researchers in psycholinguistics have been working to develop a taxonomy of inferences that are generated during the comprehension of a discourse (Magliano & Graesser 1991; Magliano, Baggett & Graesser 1996). These authors restrict the inferences in question to 'knowledge-based inferences', i.e., inferences whose generation requires access to world knowledge in addition to the information presented in the prior discourse. Magliano & Graesser list eleven categories of inference, including anaphoric reference, inference to a consequence, and inference to a superordinate goal. They do not, however, correlate these categories of inference with information packaging – i.e., the positioning of informational elements within noncanonical syntactic constructions. Thus, further research is necessary in order to determine the empirical status of these categories with respect to information structure and noncanonical word order.

consistently that of old information. Having discussed the first difficulty, I will now address the second.

In delineating the distinction between discourse- and hearer-status, Prince (1992) notes that she has left the status of inferable elements as an open question. As noted above, in Birner 1994 and 1996 inferables are shown to pattern distributionally with discourse-old information in inversion, and in Birner & Ward 1998 the same is found to be true for their distribution in preposings. Thus, the conclusion may be drawn that for noncanonical English constructions whose felicity is dependent on discourse-old status, inferable information satisfies the condition of being discourse-old. This, however, does not address the question of those constructions which are sensitive to hearer-status rather than discourse-status. Recall from Table 1 that in Prince's framework, all information which is discourse-old is also taken to be hearer-old; thus, one would expect that inferable information would behave consistently as hearer-old and never as hearer-new. However, suggestive evidence from existential *there*-sentences indicates that this is not the case.

As shown above, existentials require their postposed constituent to represent hearer-new information, leading to the infelicity of (13), repeated below as (27):

(27) The volume of engine sound became louder and louder. Motorcycle police, a whole battalion (or whatever unit they come in) neared – took over the road – there must have been twenty of them. #*Behind them there was the President of the United States.* He rode in a black stretch limousine, surrounded by Secret Service members on mopeds.

However, an examination of naturally occurring language data shows that inferable information can felicitously appear in postposed position in an existential *there*-sentence, as illustrated in (28):

(28) a. There weren't the funds necessary for the project.
(= Abbott 1992, (31a))

b. The audience did not think much of the new pastor, and what the new pastor thought of the audience he did not dare at the time to say. During the next weeks he looked over the situation. *First of all there was the parsonage,* an utterly impossible place for civilized people to live in, originally poorly conceived, apparently not repaired for years, with no plumbing or sewage, with rat-holes and rot.
(Brown Corpus)

c. If the farm is rented, the rent must be paid. If it is owned, taxes must be paid, and if the place is not free of mortgage, *there will be interest and payments on the principal to take care of.*
(Brown Corpus)

In (28a), the funds evoked in the postposed constituent represent inferable information on the grounds that, given a project, one can infer that funds might be required for it. This analysis is supported by the felicity of the definite NP. In (28b), in the context of a new pastor, *the parsonage* likewise represents inferable information. And finally, in (28c), it is inferable that a farm carrying a mortgage will require interest and payments on the principal. Thus, in each case the postposed constituent represents inferable information. These examples suggest that, at least for the purposes of postposing in an existential *there*-sentence, inferable information seems to be treated as hearer-new. In fact, in a pilot study of 149 existentials taken from the Brown A Reportage Subcorpus, a trained coder judged that in 38, or 25.5%, of the tokens, the postverbal NP represented inferable information.

In the same context, however, these same NPs may be felicitously preposed, as in (29), suggesting that they are being treated as discourse-old information:

(29) a. The deadline was looming, and they had found significant support, but *the funds necessary for the project they hadn't yet found.*

b. The audience did not think much of the new pastor, and what the new pastor thought of the audience he did not dare at the time to say. During the next weeks he looked over the situation. *The parsonage he could tolerate, but the church itself was in terrible disrepair.*

c. If the farm is rented, the rent must be paid. If it is owned or mortgaged, the owner pays the taxes. *Interest and payments on the principal the owner may find harder to pay.*

Thus, for purposes of existentials the inferable entities in (28)-(29) are treated as hearer-new information, but for purposes of preposing, they are treated as discourse-old information. Notice also that information that has been explicitly evoked in the prior discourse – and which is therefore clearly both hearer-old and discourse-old – is clearly *not* felicitous in existentials. Compare (30a) and (30b), in which the only difference is in whether the refrigerator constitutes previously evoked or inferable information:

(30) a. Fred entered the kitchen and looked around. *In one corner there was the refrigerator,* and next to it was the sink.

b. Fred entered the kitchen and looked around at the sink and the refrigerator. #*In one corner there was the refrigerator,* and next to it was the sink. [cf. *The refrigerator was in one corner…*]

In (30a), where the refrigerator is merely inferable, the existential is felicitous, whereas in (30b), where it has been explicitly evoked, the existential is

infelicitous. Compare (30) with (31), in which the inferable *refrigerator* is treated as discourse-old information in an inversion and a preposing:

(31) a. Fred entered the kitchen and looked around. *On top of the refrigerator was a potted plant.*

b. Fred entered the kitchen and looked around. *The refrigerator he spotted immediately, but it wasn't until he turned the corner that he spied the microwave.*

The felicity of *the refrigerator* in preposed position in both the inversion in (31a) and the preposing in (31b) confirms its status as discourse-old information. Thus again, for purposes of the existential, the inferable NP is treated as hearer-new, while for purposes of preposing and inversion, it is treated as discourse-old.

What this suggests is that inferable information occupies the fourth quadrant of Prince's matrix:

Table 2: Hypothesis

	Hearer-old:	Hearer-new:
Discourse-old:	Evoked	Inferable
Discourse-new:	Unused	Brand-new

(cf. Prince 1981, 1992)

But how can this be? Recall, in particular, that this is the one combination that Prince (1992) suggests is non-occurring, on the grounds that anything that has been evoked in the prior discourse can be assumed to be known to the hearer. How is it possible for some constituent to represent information that has been evoked in the previous discourse yet is new to the hearer?

I believe the problem lies in the definitions of the terms *discourse-old/new* and *hearer-old/new*, whose parallelism is appealing but misleading. As discussed above, hearer-old information is that information which the speaker assumes is already present in the hearer's knowledge store, either by virtue of having been explicitly evoked in the discourse or by virtue of having been there before the start of the discourse, as with general world knowledge or information evoked in prior discourses. Discourse-old information, in turn, is that information which has been explicitly evoked in the prior discourse. We have seen, however, that the information treated as discourse-old encompasses a wider range of information than just that which has been explicitly evoked.

As noted above, Birner (1996) shows that for purposes of inversion, inferable information is treated as discourse-old (as in (31a) above), and Birner & Ward (1998) find the same to be true of preposing (as in (31b) above), and also for passivization, as in (32):

(32) After being closed for seven months, the Garden of the Gods Club will have its gala summer opening Saturday, June 3. *Music for dancing will be furnished by Allen Uhles and his orchestra, who will play each Saturday during June.*
(Brown Corpus)

Here, the mention of a gala opening licenses the inference to typical components of such an event, including food, drink, dancing, and music for dancing. The NP *music for dancing* is therefore inferable, and it appears here in initial position in the passive clause. Thus, it is consistently the case that constructions in English that prepose discourse-old information also prepose inferable information.

Recall that in Birner & Ward 1998, it is argued that both evoked information and inferable information provide a link to the prior discourse. Given the findings described above, I propose that it is this property that defines the class of discourse-old information – i.e., that the unifying factor is not prior evocation within the discourse, but instead the existence of an inferential link to the prior discourse. In the case of explicitly evoked information, this link is one of identity, whereas in the case of inferable information, the link is made via an inference of the sort discussed above. Notice, however, that the two cases are not really distinct: even a relationship of identity requires an inference for its establishment. For example, in (3) above, repeated here as (33), an inference is required in order to interpret the pronoun *he* as being linked via an identity relation to *Gov. Rod Blagojevich*:

(33) Gov. Rod Blagojevich, while scaling back a massive capital program, said Friday he would endorse a $3.6 billion state construction budget that includes new money to build schools and millions of dollars for legislative pork-barrel projects.

That is to say, the reader must infer that the referent of *he* is Blagojevich. Thus, I would argue that all discourse-old information is in fact inferentially related to the prior discourse, whether the entity has been explicitly evoked in the prior context or is linked via some other relation.

If we think of discourse-old information in this way, its definition is not quite parallel to that of hearer-old information. Instead, I offer the following definitions for what I am terming ‘D-old’ and ‘H-old’ information:

- D-old information: Information that is *inferentially linked* to the prior discourse.
- H-old information: Information assumed to be *present* in the hearer's knowledge store/discourse model.

(In the abbreviatory spirit of the Chomskyan D-structure and S-structure and Horn's (1984) Q-inference and R-inference, I am here using 'D-old' and 'H-old' to evoke Prince's 'discourse' and 'hearer' statuses while simultaneously flagging the fact that I have altered their definitions slightly.)

This leaves us with the following entirely satisfactory set of information statuses:

- D-OLD, H-OLD INFORMATION**:** Information that is both inferentially linked to the prior discourse and (assumed to be) known to the hearer, by virtue of having been explicitly evoked. ('Evoked' information.)
- D-NEW, H-NEW INFORMATION**:** Information that is assumed to be new to the hearer and not inferentially linked to the prior discourse. ('Brand-new' information.)
- D-NEW, H-OLD INFORMATION**:** Information that is assumed to be known to the hearer, but is not inferentially linked to the prior discourse. ('Unused' information.)
- D-OLD, H-NEW INFORMATION**:** Information that is assumed to be new to the hearer, yet is inferentially linked to the prior discourse. ('Inferable' information.)

These descriptions correspond to the statuses listed in Table 2.

If this proposal is correct, then inferable information is that which is linked to the prior discourse, yet new to the hearer on the grounds that it does not exist in the hearer's knowledge store prior to utterance. It is clear that much work remains to be done in delimiting the types of inferential links that license the treatment of information as discourse-old. Nonetheless, the identification of inferable information as occupying Prince's fourth quadrant offers insights not only for the analysis of inferable information in noncanonical constructions, but also into the most appropriate categorizations for the study of information statuses in general.

References

Abbott, Barbara. 1992. Definiteness, Existentials, and the 'List' Interpretation. *Proceedings of SALT II*. Columbus, Ohio.

Abbott, Barbara. 1997. Definiteness and Existentials. *Language* 73:103-108.

Abbott, Barbara. 2003. Definiteness and Indefiniteness. In Laurence R. Horn & Gregory Ward, eds., *Handbook of Pragmatics*. Blackwell, Oxford, pp. 122-149.
Birner, Betty J. 1994. Information Status and Word Order: An Analysis of English Inversion. *Language* 70: 233-59.
Birner, Betty J. 1996. *The Discourse Function of Inversion in English*. Garland, New York.
Birner, Betty J. and Gregory Ward. 1994. Uniqueness, Familiarity, and the Definite Article in English. *Proceedings of the Berkeley Linguistics Society* 20: 93-102.
Birner, Betty J., and Gregory Ward. 1998. *Information Status and Noncanonical Word Order in English.* John Benjamins, Amsterdam.
Chafe, Wallace. 1976. Givenness, Contrastiveness, Definiteness, Subjects, Topics, and Point of View. In Charles Li, ed., *Subject and Topic*. Academic Press, New York, pp. 25-55.
Clark, Herbert H. 1977. Bridging. In Philip Nicholas Johnson-Laird and Peter Cathcart Wason, eds., *Thinking: Readings in Cognitive Science.* Cambridge University Press, Cambridge, pp. 411-20.
Firbas, Jan. 1966. Non-thematic Subjects in Contemporary English. *Travaux Linguistiques de Prague* 2: 239-56.
Grice, H. Paul. 1975. Logic and Conversation. In Peter Cole and Jerry Morgan, eds., *Syntax and Semantics 3: Speech Acts.* Academic Press, New York, pp. 41-58.
Halliday, Michael A. K. 1967. Notes on Transitivity and Theme in English, Part 2. *Journal of Linguistics* 3:199-244.
Halliday, Michael A.K. and Ruqaiya Hasan. 1976. *Cohesion in English.* Longman, London.
Hirschberg, Julia. 1991. *A Theory of Scalar Implicature.* Garland, New York.
Horn, Laurence R. 1984. Toward a New Taxonomy for Pragmatic Inference: Q-based and R-based Implicature. In Deborah Schiffrin, ed., *Meaning, Form, and Use in Context: Linguistic Applications.* Georgetown University Press, Washington DC, pp. 11-42.
Kehler, Andrew. 2002. *Coherence, Reference, and the Theory of Grammar.* CSLI, Stanford.
Magliano, Joseph P., W. B. Baggett, & Arthur C. Graesser. 1996. A Taxonomy of Inference Categories That May Be Generated During the Comprehension of Literary Texts. In R. J. Kreuz & M. S. MacNealy, eds., *Empirical Approaches to Literature and Aesthetics.* Ablex, Norwood NJ, pp. 201- 220.
Magliano, Joseph P., & Arthur C. Graesser. 1991. A Three-Pronged Method for Studying Inference Generation in Literary Text. *Poetics* 20: 193-232.
Prince, Ellen F. 1981. Toward a Taxonomy of Given/New Information. In Peter Cole, ed., *Radical Pragmatics.* Academic Press, New York, pp. 223-54.
Prince, Ellen F. 1986. On the Syntactic Marking of Presupposed Open Propositions. In A. Farley, P. Farley, and K.-E. McCullough, eds., *Papers from the Parasession on Pragmatics and Grammatical Theory*, 22nd Meeting of the Chicago Linguistic Society, pp. 208-22.
Prince, Ellen F. 1992. The ZPG Letter: Subjects, Definiteness, and Information-Status. In Sandra Thompson and William Mann, eds., *Discourse Description: Diverse Analyses of a Fundraising Text.* John Benjamins, Amsterdam, pp. 295-325.
Thane, E. 1947. *The Light Heart.* Hawthorne Books, New York.
Ward, Gregory. 1988. *The Semantics and Pragmatics of Preposing.* Garland, New York.
Ward, Gregory and Betty J. Birner. 1997. Response to Abbott's Discussion Note. *Language* 73: 109-112.
Ward, Gregory and Ellen F. Prince. 1991. On the Topicalization of Indefinite NPs. *Journal of Pragmatics* 16: 167-177.
Wakefield, Hannah. 1991. *A Woman's Own Mystery.* St. Martin's Press, New York.
Wilson, D. L. 1998. *I Rode a Horse of Milk White Jade.* HarperTrophy, New York.

Fronted Quantificational Adverbs*

Ariel Cohen
Ben-Gurion University of the Negev, Israel
arikc@bgumail.bgu.ac.il

Abstract

Fronting a noun phrase changes the focus structure of a sentence. Therefore, it may affect truth conditions, since some operators, in particular quantificational adverbs, are sensitive to focus. However, the position of the quantificational adverb itself, hence its informational status, is usually assumed not to have any semantic effect. In this paper I discuss a reading of some quantificational adverbs, the *relative reading*, which disappears if the adverb is fronted. I propose that this reading relies not only on focus, but on B-accent (fall-rise intonation) as well. A fronted Q-adverb is usually pronounced with a B-accent; since only one element can be B-accented, this means that the scope of the adverb contains no B-accented material, hence no relative readings. Thus, the effects of fronting range more widely than is usually assumed, and quantificational adverbs are a useful tool with which to investigate these effects.

1 The Problem

It is well known that left-dislocation and topicalization can affect logical form, hence meaning. For example, Rooth (1985) points out that (1) is ambiguous.

(1) Ballerinas always escort officers.

Under one reading, (1) means that all ballerinas escort an officer, whereas the other reading is that all officers are escorted by ballerinas. The two readings have different truth conditions: in a situation where all ballerinas escort an officer but some opera singers do so too, the first reading would be true, but the second reading would be false.

In contrast, when either *ballerinas* or *officers* is left-dislocated, the ambiguity disappears:

(2) a. Ballerinas, they always escort officers.

b. Officers, ballerinas always escort them.

Sentence (2a) only means that all ballerinas escort officers, whereas (2b) only has the reading where all officers are escorted by ballerinas.

We get a similar effect if we topicalize, rather than left-dislocate, the object:[1]

* I would like to thank Sigrid Beck, Hans Kamp, and Manfred Krifka for helpful discussion.

[1] It is, of course, impossible to unambiguously topicalize the subject.

(3) Officers, ballerinas always escort.

Just like (2b), (3) can only mean that all officers are escorted by ballerinas.

I will follow common usage and refer to both topicalization and left-dislocation as *fronting*. The question I address in this paper is the effect of fronting the Q-adverb (quantificational adverb) itself. How does the interpretation of (4) differ from that of (1), if at all?

(4) Always, officers accompany ballerinas.

The fronted Q-adverb in (4) shares prosodic similarities with the fronted NPs in (2) and (3). In all three cases, the fronted element is pronounced with a B-accent, i.e. fall-rise intonation, and is followed by a slight pause. It is therefore meaningful to talk about fronted Q-adverbs.

Before we discuss the semantics of sentences like (4), we need to say something about their syntax. When we talk of fronting a noun phrase, the intuitive idea is this: NPs have designated positions; when fronted, they appear in different positions. While adverbs in general, and Q-adverbs in particular, do not appear to have designated positions, there is still an intuitive sense in which (1) exhibits the usual, or unmarked, word order, whereas (4) is marked. It is in this sense that I talk about the fronting of Q-adverbs. One need not read more into this term, and, in particular, one should not take it as a claim that the Q-adverb is syntactically moved from some base position.

The question I address in this paper is this: does fronting a Q-adverb change the truth conditions of a sentence? And, if so, how and why?

2 Relative Readings

Consider the following sentence, from de Swart (1991: 21):

(5) Paul often has a headache.

De Swart observes that (5) has a reading under which in many of the contextually relevant situations, Paul has a headache. But she notes that

> this is not the only way to read [(5)]. The sentence can also be taken to mean that the situations of Paul having a headache occur with a frequency superior to the average.

Consider another example:

(6) A politician is often crooked

In Cohen 2001, I have proposed that o*ften* (and *seldom*, and generics, and *many*, and *few*…) is ambiguous. Under one reading, the *absolute* reading, (6) means that many politicians are crooked. This can also be put in terms of

probability (Cohen 1999a):[2] a politician is likely to be crooked. Under this reading, the sentence is false.

However, one may feel reluctant to declare (6) unequivocally false. This, I have suggested, is because (6) has another reading, the *relative* reading. According to this reading, a politician is more likely to be crooked than an arbitrary person is. In other words, suppose p_1 is the probability that an arbitrary politician is crooked, and p_2 is the probability that an arbitrary person is crooked. The sentence is true, under the relative reading, just in case p_1 is greater than p_2. Read in this way, (6) may, to our misfortune, be true.[3]

The availability of relative readings is facilitated by context and intonation. Specifically, B-accent, namely fall-rise intonation, is helpful, perhaps necessary, to obtain the relative reading. Consider (7), where $[\phi]_B$ indicates that ϕ is uttered with B-accent, and $[\phi]_F$ indicates that ϕ is focused.

(7) Q: The main suspects are a politician, a physician, and a linguist. Who do you think did it?

A: Well, $[\text{a politician}]_B$ is often $[\text{crooked}]_F$.

The relative reading clearly has different truth conditions from the absolute reading. But is it really a distinct reading? Couldn't it be argued that the relative reading is not a new interpretation, but is subsumed by some existing interpretation?

One such possible objection is the following. It is well known that, in general, a Q-adverb may choose its object, rather than subject, to restrict its domain of quantification. Perhaps, then, what I call the relative reading is simply the reading of (6) where many crooked individuals are politicians.

Such a view, however, would be problematic. For one thing, it is not clear that (6) really has such a reading. Normally, in order to get the object-asymmetric reading, the subject must be focused. But if the subject is focused rather than B-accented, the result is quite bad:

(8)??$[\text{A politician}]_F$ is often crooked.

Even if (6) or (8) had an object asymmetric interpretation, this would not be the relative reading. Since the percentage of politicians among crooked individuals is certainly quite small, the object asymmetric reading is false. In contrast, the relative reading is probably true.

Another possible way to explain relative readings away is to assimilate them to cardinal readings. It is commonly believed that *many* is ambiguous

[2] I will make use of probabilities throughout this paper; readers who object to the use of probabilities may wish to think of proportions instead, since everything said about probabilities in this paper could equally well be said about proportions (see Cohen 1999a for reasons why, nonetheless, accounting for Q-adverbs using proportions is inadequate).

[3] Compare Westerståhl (1985), who considers a similar interpretation of *many*.

between cardinal and proportional readings (Partee 1988). Presumably, *often* is similarly ambiguous. Therefore, it could perhaps be maintained that the relative reading is just the cardinal reading. This is, in fact, what de Swart proposes regarding (5).[4] According to her interpretation, (5) simply means that there are many situations of Paul's having a headache. This interpretation, of course, corresponds to the cardinal reading of *many*.

It may very well be the case that *often* has a cardinal reading; I will not comment on this issue in this paper. What I do claim is that the interpretation of (5) where Paul has a headache more often than the average is distinct from its cardinal reading (if it has one). If, as de Swart states, this interpretation really were the cardinal reading, then the burden of inferring the desired interpretation, i.e. that Paul has a headache more often than the average person, would presumably be left to pragmatics, in a way that de Swart does not specify. On the other hand, if, as proposed here, (5) has a relative reading, the desired interpretation will, of course, be readily available.

Another argument against assimilating relative readings to either object asymmetric or cardinal readings involves conservativity. Object asymmetric readings and cardinal readings are conservative. Hence, anyone who proposes reducing relative readings to one of these would have to assume that relative readings are conservative too. This, however, turns out not to be the case. For example, (9a) and (9b) may not receive the relative reading.

(9) a. Paul is often Paul and has a headache.

b. Politicians are seldom politicians who commit crimes.

Sentence (9a) can only get the absolute reading, namely that in many appropriate situations, Paul is Paul and has a headache. It does not get the reading that Paul is more likely to be Paul and have a headache than an arbitrary person is likely to be Paul and have a headache — otherwise it would be trivially true, since an arbitrary person is highly unlikely to be Paul. Similarly, (9b) can only mean that few of the politicians commit crimes, not that they are less likely to commit crimes than arbitrary people are.

Another property that distinguishes relative readings from other interpretations, and which is particularly relevant for the purposes of this paper, involves sentences where the Q-adverb is fronted. It is very difficult, perhaps impossible, to get a relative reading for such sentences. Compare the sentences in (10) with (5) and (6).

(10) a. Often, Paul has a headache.

b. Often, a politician is crooked.

[4] She calls the cardinal reading a 'pure frequency' reading.

Sentence (10a) can only mean that there are many situations where Paul has a headache, not that Paul has headaches more frequently than the average; (10b) can only mean that few politicians commit crimes, not that they are more likely to commit crimes than other people are. These facts would be unexplained if we tried to reduce relative readings to object asymmetric or cardinal readings.

We have seen, then, that the absolute and relative readings are distinct. One may still wonder whether the two readings embody a real ambiguity, or merely different strategies to make a vague quantifier more precise (as suggested to me by Hans Kamp). I find the latter possibility quite appealing, but will not comment on it further here.[5]

Relative readings, then, are a real phenomenon, which deserves an account. In particular, we want to explain why they are not available when the Q-adverb is fronted. The fact that the fronted Q-adverb is pronounced with a fall-rise intonation contour will turn out to be crucial. To see this, let us look more closely at the effects of intonation on semantic interpretation.

3 Types of Semantic Value

3.1 Focus Semantic Value

Rooth (1985) proposes that every expression ϕ has, in addition to its ordinary semantic value, $[[\phi]]^O$, a focus semantic value, $[[\phi]]^F$. I will take focus to be a feature — focused elements are F-marked. The intuition underlying the focus semantic value can then be put roughly as follows: the focus semantic value is generated by replacing the F-marked element (or elements) with its alternatives.[6] In adverbial quantification, the union of the focus semantic value is used to restrict the domain of quantification.

In order to demonstrate how this works, we first need to decide what sort of objects Q-adverbs quantify over. There are good reasons to believe that Q-adverbs quantify over cases in the sense of Lewis (1975), as developed in Discourse Representation Theory (Kamp 1981) and File Change Semantics (Heim 1982). However, specifying the focus semantic value for this type of semantics turns out to be rather complex, though quite possible (see Rooth 1995 and Krifka 2001 for examples of such systems).[7] So as not to be distracted from the main point of the paper by overly complex formulations, I

[5] See Cohen in preparation for a proposal along these lines.

[6] This idea is not so easy to formalize; see Cohen 1999b for problems with Rooth's and von Stechow's (1989) attempts at formalization.

[7] In his paper, Krifka develops a formal account which uses the focus semantic value, but then discards it in favor of an alternative theory.

will assume, for convenience, that propositions denote sets of situations, and Q-adverbs apply to sets of situations (von Fintel 1994; Heim 1990).

Now consider a classic example:

(11) Mary always takes $[\text{John}]_F$ to the movies.

This sentence means that, whenever Mary takes someone to the movies, she takes John. Let us assume that Q-adverbs have sentential scope; the logical form of (11) is therefore something like (12).

(12) **always**(λs.**take-to-movies**(**m**,**j**,s))

Note that (12) has no restrictor;[8] in order to restrict the domain of quantification, we need the focus semantic value of the nuclear scope.

If the nuclear scope of the Q-adverb denotes a set of situations, its focus semantic value is a set of sets of situations, corresponding to Mary's taking alternative people to the movies.

(13) $[[\textbf{take-to-movies}(\text{m},[\text{j}]_F,\text{s})]]^F = \{\{\text{s}|\textbf{take-to-movies}(\textbf{m},\textbf{j},\text{s})\},$
$\{\text{s}|\textbf{take-to-movies}(\textbf{m},\textbf{f},\text{s})\},$
$\{\text{s}|\textbf{take-to-movies}(\textbf{m},\textbf{b},\text{s})...\}$

The union of the focus semantic value results in the set of situations where Mary takes someone to the movies:

(14) $\cup[[\textbf{take-to-movies}(\textbf{m},[\textbf{j}]\text{F},\text{s})]]^F = \{\text{s}|\exists\text{x } \textbf{take-to-movies}(\textbf{m},\text{x},\text{s})\}$

If we use (14) to restrict the domain of quantification, we get the desired interpretation, namely that, when Mary takes someone to the movies, she always takes John to the movies.

3.2 Contrast Semantic Value

Büring (1997, 1999) discusses elements pronounced with a B-accent. I will assume that, just like F, B is also a feature, and that some elements are B-marked. Büring calls such elements contrastive topics, and he proposes to treat them by adding another semantic value: topic semantic value. This name is somewhat problematic. I take topics to be what the sentence is about (Erteschik-Shir 1997; Portner and Yabushita 1998; Reinhart 1981); hence, topics must be specific. Since B-accented elements need not be specific, I do not believe they are topics. Nonetheless, such elements certainly *are* contrastive. I will therefore refer to Büring's semantic value as *contrast* semantic value.

[8] Alternatively, we could make the restrictor contain nothing but a free variable (von Fintel 1994; Rooth 1985).

This semantic value takes into account alternatives to both the B-marked and the F-marked elements, so the appropriate notation for it is $[[\phi]]^{B+F}$. This is a set of sets of elements of the type of ϕ. In each such set, all elements share a B-marked constituent, but vary with respect to the focus.

Consider (15), for example:

(15) $[\text{Mary}]^{B}$ took $[\text{John}]^{F}$ to the movies.

Its focus semantic value will be a set of sets of propositions. The first set comprises propositions where Mary takes alternative people to the movies: John, Fred, etc. The second set contains propositions where an alternative to Mary, say Kate, takes a person to the movies, and so on. If we assume that propositions are sets of situations, we get the following:

(16) $[[\ [\text{Mary}]^{B}$ took $[\text{John}]^{F}$ to the movies$]^{B+F}$ =
{{{s|**take-to-movies(m,j**,s)},{s|**take-to-movies(m,f**,s)},...}
{{s|**take-to-movies(k,j**,s)}, {s|**take-to-movies(k,f,**s)}, ...} ...}

Following the standard assumption that the meaning of a question is the set of its possible answers, (16) can be interpreted as a set of questions:

(17) {Whom did Mary take to the movies?, Whom did Kate take to the movies?,...}

Büring suggests that a question-answer dialog is felicitous if the question is a member of the contrast semantic value of the answer.

If we take the union of the contrast semantic value, the result is of the same type as the focus semantic value: a set of elements of the type of ϕ. The difference is that now we replace both F-marked and B-marked constituents with alternatives:

(18) $\cup[[\ [\text{Mary}]^{B}$ took $[\text{John}]^{F}$ to the movies$]]^{B+F}$ =
{{s|**take-to-movies(m,j**,s)},{s|**take-to-movies(m,f**,s)},
{s|**take-to-movies(k,j**,s)}, {s|**take-to-movies(k,f**,s)},...}

3.3 B Semantic Value

Let us take stock. We have three types of semantic value: the ordinary semantic value, which takes no alternatives into consideration; the focus semantic value, which considers alternatives to the focus; and the contrast semantic value, which considers alternatives to both the topic and the B-marked element. To complete the picture, we need an additional semantic value that considers alternatives to the B-marked element only.

The types of semantic value can be described in a table:

Semantic value	Considers alternatives to F?	Considers alternatives to B?
$[[\phi]]^{O}$	No	No
$[[\phi]]^{F}$	Yes	No
$[[\phi]]^{B+F}$	Yes	Yes
?	No	Yes

I will therefore suggest yet a fourth type semantic value: B semantic value, $[[\phi]]^{B}$. This is obtained by replacing B-marked elements with alternatives.

For example, the B semantic value of (15) will be a set of propositions (i.e. a set of sets of situations); in one of them Mary takes John to the movies, in another Kate does this, in yet another Linda, and so on.

(19) $[[\text{ [Mary]}_{B} \text{ took [John]}_{F} \text{ to the movies}]]^{B} =$
{{s|**take-to-movies**(**m**,**j**,s)},{s|**take-to-movies**(**k**,**j**,s)},
{s|**take-to-movies**(**l**,**j**,s)...}

4 Explanation of the Facts

4.1 Explaining Relative Readings

Using the four semantic values, we can now account for both absolute and relative readings of Q-adverbs. Recall that I will be assuming that Q-adverbs have probabilistic truth conditions, but, as far as this paper is concerned, it would be possible to work with proportions instead.

Note that both absolute and relative readings are interpretations of the proportional reading of *often*: it is this reading that can be interpreted either absolutely or relatively. If *often* also has a cardinal reading, this would constitute an additional interpretation.

The proposed account of absolute readings follows Rooth (1985) in that the union of the focus semantic value restricts the domain of quantification. In a probabilistic semantics, this means that the union of the focus semantic value forms the reference class of the conditional probability. Hence, the absolute reading is defined as follows:

(20) **often**(ϕ) is true iff $P([[\phi]]^{O}|\cup[[\phi]]^{F})>\rho$, where ρ is 'large'.

In other words, we take some expression, ϕ, and consider the probability of $[[\phi]]^{O}$ given the union of the alternatives to the focused elements of ϕ.

The account of relative readings is the same, except that the value of ρ is given a definite value. As with the absolute reading, we take some expression ϕ′, and consider its probability given the union of the alternatives to the focused elements of ϕ′. In the case of the absolute reading, ϕ′ was simply ϕ itself; but this time it is the B semantic value of ϕ. This means that we consider the probability of $[[\phi]]^{B}$ given $[[\phi]]^{B+F}$.

Formally, the definition of relative readings is as follows:

(21) **often**(ϕ) is true iff $P([[\phi]]^{O}|\cup[[\phi]]^{F})>\rho$, where $\rho=P(\cup[[\phi]]^{B}|\cup\cup[[\phi]]^{B+F})$

Similar definitions can be provided for *seldom*, *many*, *few*, and generics.

We can now see how these definitions work. Let us consider the answer in (7), repeated below:

(22) $[\text{A politician}]_{B}$ is often $[\text{crooked}]_{F}$.

What is its logical form? Keeping our simplifying assumption that Q-adverbs apply to sets of situations, we assume something like the following:

(23) **often**(λs.∃x(**in**(x,s)∧**politician**(x)∧**crooked**(x)))

Let us indicate the nuclear scope by ϕ. Then the ordinary semantic value is

(24) $[[\phi]]^{O}=\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\}$

With regard to the focus semantic value, it is important to identify where the focus is. The adverb may be stressed, but since Q-adverbs require focus (Cohen 2004), there must be (possibly second occurrence) focus inside the nuclear scope; since *politician* is B-marked, the only possibility is focus on *crooked*. Assuming the only alternative to *crooked* is *honest*, the focus semantic value is

(25) $[[\phi]]^{F}=\{\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{honest}(x))\}\}$

The union of the focus semantic value is then simply

(26) $\cup[[\phi]]^{F}=\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x))\}$

Assuming the alternatives to *politician* are *physician* and *linguist,* the B semantic value is

(27) $[[\phi]]^{B}=\{\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{physician}(x)\wedge\textbf{crooked}(x))\},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{linguist}(x)\wedge\textbf{crooked}(x))\}\}$

Its union is simply

(28) $\cup[[\phi]]^{B}=\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{crooked}(x))\}$

The contrast semantic value is

(29) $[[\phi]]^{B+F}=$
$\{ \{ \{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{honest}(x))\ \}\ \},$
$\{ \{s|\exists x(\textbf{in}(x,s)\wedge\textbf{physician}(x)\wedge\textbf{crooked}(x))\},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{physician}(x)\wedge\textbf{honest}(x))\ \}\ \},$
$\{ \{s|\exists x(\textbf{in}(x,s)\wedge\textbf{linguist}(x)\wedge\textbf{crooked}(x))\ \},$
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{linguist}(x)\wedge\textbf{honest}(x))\ \}\ \}\ \}$

This corresponds to the following set of questions:

(30) { How honest is a politician?,
How honest is a physician?,
How honest is a linguist? }

These questions are implied by the context of (7), hence the felicity of the exchange.

The union of the union of the contrast semantic value is just

(31) $\cup\cup[[\phi]]^{B+F}=\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{person}(x))\}$

4.2 Non-fronted *often*

We can now account for the two readings of (22). Its logical form (annotated for F and B features) is

(32) $\textbf{often}(\lambda s.\exists x(\textbf{in}(x,s)\wedge[\textbf{politician}(x)]_B\wedge[\textbf{crooked}(x)]_F))$

According to the absolute reading, $\textbf{often}(\phi)$ is true iff $P([[\phi]]^O|\cup[[\phi]]^F)$ is 'large'. In this case, this means

(33) P ($\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\}$ |
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x))\}) > \rho$

where ρ is 'large'. In words, the sentence is true just in case a situation involving a politician is likely to be situation involving a crooked politician, as desired.

Under the relative reading, $\textbf{often}(\phi)$ is true iff

(34) $P([[\phi]]^O|\cup[[\phi]]^F)>P(\cup[[\phi]]^B|\cup\cup[[\phi]]^{B+F})$.

In this case this is the following requirement:

(35) P($\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x)\wedge\textbf{crooked}(x))\}$ |
$\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{politician}(x))\}) >$
$P(\{s|\exists x(\textbf{in}(x,s)\wedge\textbf{crooked}(x))\}\ |\ \{s|\exists x(\textbf{in}(x,s)\wedge\textbf{person}(x))\})$

In words, the sentence is true just in case a situation involving a politician is more likely to be a situation involving a crooked politician than a situation involving an arbitrary person is likely to be a situation involving a crook. This is the desired relative reading.

4.3 Fronted *often*

Recall that fronted elements are typically uttered with a fall-rise intonation. Hence, I propose that the fronted adverb is B-marked. Since only one element can be B-marked, a fronted Q-adverb has no B-marked element in its scope. Therefore, the F-marking and B-marking of (10b) are as follows:

(36) $[\text{Often}]_B$, a politician is $[\text{crooked}]_F$.

Its logical form is

(37) **often**(λs.$\exists$x(**in**(x,s)$\wedge$**politician**(x)$\wedge$[**crooked**(x)]F))

Referring to the scope of **often** as ϕ, its ordinary semantic value is, as before,

(38) $[[\phi]]^O$={s|$\exists$x(**in**(x,s)$\wedge$**politician**(x)$\wedge$**crooked**(x))}

The union of the focus semantic value is, again,

(39) $\cup[[\phi]]^F$={s|$\exists$x(**in**(x,s)$\wedge$**politician**(x))}

The difference, however, is in the B and contrast semantic value. Since now *politician* is not B-marked, we do not consider alternatives to it. We get the result that the union of the B semantic value is

(40) $\cup[[\phi]]^B$={s|$\exists$x(**in**(x,s)$\wedge$**politician**(x)$\wedge$**crooked**(x))},

and the union of the union of the contrast semantic value is

(41) $\cup[[\phi]]^{B+F}$={s|$\exists$x(**in**(x,s)$\wedge$**politician**(x))}

The absolute reading is still available: often(ϕ) is true iff P([[ϕ]]O|$\cup$[[ϕ]F) is 'large'. In this case, this is the following requirement:

(42) P({s|$\exists$x(**in**(x,s)$\wedge$**politician**(x)$\wedge$**crooked**(x))}|
{s|$\exists$x(**in**(x,s)$\wedge$**politician**(x))}) > ρ

where ρ is 'large'. In words, the sentence is true iff a situation involving a politician is likely to be a situation involving a crooked politician. This is the desired interpretation, as before.

The relative reading, however, is not available. Recall that, under this reading, often(ϕ) is true iff P([[ϕ]]O|$\cup$[[ϕ]]F)>P($\cup$[[ϕ]]B|$\cup\cup$[[ϕ]]$^{B+F}$). This is the following requirement:

(43) P({s|∃x(in(x,s)∧politician(x)∧crooked(x))} |
{s|∃x(in(x,s)∧politician(x))}) >
P({s|∃x(**in**(x,s)∧**politician**(x)∧**crooked**(x))} |
{s|∃x(**in**(x,s)∧**politician**(x))})

Since a number is never strictly greater than itself, the result is necessary false, and certainly the wrong reading.

5 Consequences and Conclusions

We conclude that fronting *often* B-marks it, so that there are no B-marked elements in its scope, and no possibility of relative readings. What about other Q-adverbs?

There are Q-adverbs that do not seem to be affected by fronting. Take *usually*, for example:

(44) A politician is usually crooked.

Front the Q-adverb, and the truth conditions appear to remain the same:

(45) Usually, a politician is crooked.

Does this mean that fronting *usually* does not B-mark it?

The answer is no. Note that non-fronted *usually* does not have a relative reading: (44) can mean only that a politician is likely to be crooked, not that a politician is more likely to be crooked than an arbitrary person is.[9] Thus, we cannot observe the elimination of the relative reading by fronting the Q-adverb and B-marking it, since this reading was not available in the first place. Thus, the behavior of all Q-adverbs is quite compatible with the hypothesis that fronting *all* Q-adverbs B-marks them, thus eliminating the possibility of any B-marking in their scope. Because absolute readings are not dependent on B-marking, this usually has no effect on truth conditions. But relative readings *are* dependent on B-marking. Since some Q-adverbs are ambiguous between absolute and relative readings, these Q-adverbs provide a test case that allows us to observe the semantic effects of fronting a quantificational adverb.

In fact, the account proposed here is compatible with the hypothesis that fronting *all* elements, noun phrases included, B-marks them. Fronting constructions, namely topicalization and left dislocation, have similar, but not identical functions (Prince 1984). Probably the only unifying statement that can be made about them is that they indicate that the fronted element is not a focus.[10] If, indeed, a fronted expression is B-marked, it would immediately follow that it is not a focus, since an element cannot be both B-accented and

[9] See Cohen in preparation for an explanation.
[10] Fronting is not to be confused with *preposing*, which can, in fact, indicate focus.

focused (A-accented). Whether or not this is a correct generalization, therefore, merits further research.

References

Büring, Daniel. 1997. *The Meaning of Topic and Focus - The 59th Street Bridge Accent*. Routledge, London.

Büring, Daniel. 1999. Topic, In P. Bosch and R. van der Sandt, eds., *Focus: Linguistic, Cognitive, and Computational Perspectives*. Cambridge University Press, Cambridge, pp. 142-165.

Cohen, Ariel. 1999a. Generics, Frequency Adverbs, and Probability. *Linguistics and Philosophy* 22: 221-253.

Cohen, Ariel. 1999b. How Are Alternatives Computed? *Journal of Semantics* 16: 43-65.

Cohen, Ariel. 2001. Relative Readings of *many*, *often*, and Generics. *Natural Language Semantics* 9: 41-67.

Cohen, Ariel. 2004. Existential Generics. *Linguistics and Philosophy* 27: 137-168.

Cohen, Ariel. In preparation. No Alternative to Alternatives. Ms., Ben-Gurion University of the Negev.

Erteschik-Shir, Nomi. 1997. *The Dynamics of Focus Structure*. Cambridge University Press, Cambridge.

von Fintel, Kai. 1994. *Restrictions on Quantifier Domains*. Ph.D. diss., University of Massachusetts, Amherst.

Heim, Irene. 1982. *The Semantics of Definite and Indefinite Noun Phrases*, Ph.D. diss., University of Massachusetts, Amherst.

Heim, Irene. 1990. E-type Pronouns and Donkey Anaphora. *Linguistics and Philosophy* 13: 137-177.

Kamp, Hans. 1981. A Theory of Truth and Semantic Representation. In J. Groenendijk, T Janssen, and M. Stokhof, eds., *Formal Methods in the Study of Language*. Mathematical Centre, Amsterdam, pp. 277-322.

Krifka, Manfred. 2001. Non-novel Indefinites in Adverbial Quantification In C. Condoravdi and G. Renardel de Lavalette, eds., *Logical Perspectives on Language and Information*. CSLI Publications, Stanford, pp. 1-40.

Lewis, David. 1975. Adverbs of Quantification In E. L. Keenan, ed., *Formal Semantics of Natural Language*. Cambridge University Press, Cambridge, pp. 3-15.

Partee, Barbara Hall. 1988. Many Quantifiers In J. Powers and K. de Jong, eds., *Proceedings of the Fifth Eastern States Conference on Linguistics*, pp. 383-402.

Portner, Paul and Katsuhiko Yabushita. 1998. The Semantics and Pragmatics of Topic Phrases. *Linguistics and Philosophy* 21: 117-157.

Prince, Ellen. 1984. Topicalization and Left-dislocation: A Functional Analysis *Annals of the New York Academy of Sciences* 433: 213-225.

Reinhart, Tanya. 1981. Pragmatics and Linguistics: An Analysis of Sentence Topics. *Philosophica* 27: 53-93.

Rooth, Mats E. 1985. *Association with Focus*, Ph.D. diss., University of Massachusetts, Amherst.

Rooth, Mats E. 1995. Indefinites, Adverbs of Quantification, and Focus Semantics. In Gregory Carlson and Francis Pelletier, eds., *The Generic Book*. Chicago University Press Chicago, pp. 265-299.

von Stechow, Arnim. 1989. Focusing and Backgrounding Operators. *Technical Report 6*, Fachgruppe Sprachwissenschaft, University of Konstanz.

de Swart, Henriette. 1991. *Adverbs of Quantification: A Generalized Quantifier Approach*. Ph.D. diss., Groningen University. Also published by Garland, New York, 1993.
Westerståhl, Dag. 1985. Logical Constants in Quantifier Languages. *Linguistics and Philosophy* 8: 387-413.

Dislocation without Movement*

Cécile De Cat
University of Leeds
C.DeCat@leeds.ac.uk

Abstract

This paper argues that French Left-Dislocation is a unified phenomenon whether it is resumed by a clitic or a non-clitic element. The syntactic component is shown to play a minimal role in its derivation: all that is required is that the dislocated element be merged by adjunction to a Discourse Projection (generally a finite TP with root properties). No agreement or checking of a topic feature is necessary, hence no syntactic movement of any sort need be postulated. The so-called resumptive element is argued to be a full-fledged pronoun rather than a true syntactic resumptive.

1 Introduction: On Movement

For decades, the postulation of syntactic movement has been at the heart of the endeavour to explain ungrammaticality in natural languages. In the derivational, incremental approach to grammar proposed by Chomsky (1995; 2000; 2001) among others, a series of constraints has been defined to restrict the output of the computational system to grammatical structures while minimising rule-specific restrictions. This paper focusses on derivational constraints (i.e. those applying to syntactic operations), and more specifically on the movement versus base-generation opposition in current theory. The empirical field of investigation is that of French dislocation, and in particular Clitic Left Dislocation, a construction that has been argued to display characteristics of both base-generated and movement-derived configurations.

It is standardly assumed that syntactic movement plays a part in the relationship between two elements if that relationship cannot hold across (strong)

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syntactic islands (originally defined by Ross 1967). This diagnostic has been granted precedence over other diagnostics for movement (such as weak cross-over effects and the licensing of parasitic gaps) in the abundant literature on Clitic Left Dislocation.

Against the standard view, it has recently been proposed that insensitivity to islands is in fact not a satisfactory diagnostic for absence of syntactic movement. Postal (1998), for instance, argues that NP 'extraction' is much freer than other types of extraction and that its insensitivity to islands is not *per se* a sign of base-generation. Postal advocates a reinstatement of Ross's (1967) theory according to which only chopping rules (i.e. those involving a gap) are bounded, while copying rules (i.e. those involving a resumptive pronoun) are not. Boeckx (2003) makes a somewhat similar point and argues that islands only block Agree, not movement. He proposes that chains are formed either by Match or by Match+Agree. Chains formed by Match alone contain a (stranded) resumptive pronoun and are not sensitive to islands; chains formed by Match+Agree are sensitive to islands. Both proposals advocate that whenever we find a (true) resumptive pronoun (as might be the case in Clitic Left Dislocation), insensitivity to islands does not necessarily indicate absence of movement.

In this paper, I would like to draw attention to a series of facts regarding French Clitic Left Dislocation that suggest that a movement analysis is not appropriate, even if we adopt the proposals of Postal (1998) or Boeckx (2003). As we will see, a better understanding of the information structure phenomena associated with that construction is essential when testing its syntactic limits. On the basis of this initial exploration of the data, I develop a comprehensive analysis of French Left-Dislocation, arguing that syntax only plays a minimal role in its derivation. The proposed analysis is predicted to extend straightforwardly to any 'base-generated' dislocated topic, cross-linguistically, including any case of so-called Hanging Topic Left Dislocation.

The organisation is as follows: Section 2 demonstrates that French dislocation is a unified phenomenon (involving left- and right-dislocation, whether the resumptive element is a clitic or not) and that it is not generated by movement. This leads to a discussion of the status of the resumptive element and of the possibility of an analysis of Left Dislocation in terms of Hanging Topic. Section 3 presents the proposed analysis and outlines its predictions. Section 4 concludes the paper with a discussion of the theoretical consequences of the proposed analysis.

2 French Dislocation is Not Generated by Movement

2.1 French LD: A Unified Phenomenon

The most widely studied type of left dislocation is so-called Clitic Left Dislocation (ClLD). In ClLD, a left-peripheral XP (as bolded in (1)) is coindexed with a resumptive clitic within the clause. This construction has been attested in many languages (e.g. Italian: Cinque 1990, Rizzi 1997; Greek: Anagnostopoulou 1997, Iatridou 1990; Lebanese Arabic: Aoun and Benmamoun 1998).

(1) **Les malotrus**$_i$, on ne les$_i$ invite pas.
the louts one NEG them invites not
'We don't invite louts.'

Traditionally, ClLD has essentially been exemplified with dislocated objects, but this appears to be due to the fact that most of the languages in which ClLD has been discussed are PRO-drop. French not being a PRO-drop language (at least in its most widely spoken varieties, as I have demonstrated in De Cat in press), it offers a prime source of examples of ClLDed subjects:

(2) **Les clitiques**$_i$, ils$_i$ comptent pas pour du beurre.
the clitics they count not for some butter
'Clitics do count.'

It is widely acknowledged that dislocated elements are interpreted as topics (e.g. Iatridou 1990; Rizzi 1997). The topic is generally understood to be what the sentence is about (Reinhart 1981), or more precisely the discourse referent with respect to which the sentence is evaluated (Erteschik-Shir 1997, Strawson 1964, Reinhart 1981).

In French, Left Dislocated elements can be resumed by elements that are not clitics. Such LDs are thus by definition not ClLD. Yet, there is no principled reason to distinguish ClLD from other types of LD in spoken French: the nature of the resumptive element does not affect the syntactic or interpretive properties of LDs in that language, as demonstrated below.[1] Examples of non-clitic LDs are given in (3).

(3) a. **Claas**$_i$, ses$_i$ chaussettes ont disparu.
Claas his socks have disappeared
'Claas's socks have disappeared.'
b. **Kambi**$_i$, je n'ai plus jamais entendu parler de lui$_i$.
Kambi I NEG-have not ever heard to-talk of him
'I never heard anything about Kambi again.'

[1]There are no intrinsic prosodic differences either between LDs that are resumed by a clitic element and those that are not. Demonstrating this would go beyond the scope of this paper.

c. **Le lait**$_i$, j'adore ça$_i$.
the milk I-adore that
'I'm mad about milk.'

Resumption by an epithet is also possible (see Hirschbühler 1975), though rarely used in spontaneous speech.

(4) **Plastic Bertrand**$_i$, j'ai tous les disques de ce farfelu$_i$.
Plastic Bertrand I-have all the records of this weirdo
'I have all of Plastic Bertrand's records.'

In (3) and (4), the dislocated element expresses the topic of the sentence just as it does in ClLD: the sentence is interpreted as being *about* the referent of the dislocated element and is evaluated with respect to that referent.

The examples below show that non-clitic LDs behave similarly to ClLD.[2] First, observe that non-clitic LDs are not sensitive to islands (ClLD's insensitivity to islands will be demonstrated in section 2.2).

(5) a. **Class**$_i$, j'ai pris [une photo [de ses$_i$ chaussettes]].
Claas I-have taken a photo of his socks
'I've taken a picture of Claas's socks.'
b. **Kambi**$_i$, je me souviens [du banc [où je m'asseyais
Kambi I REFL. remember of-the bench where I REFL.-sat
avec lui$_i$]].
with him
'I remember the bench where I sat with Kambi.'
c. **Le lait**$_i$, il vaut mieux avoir [un frigo [pour conserver ça$_i$
the milk it is-worth better to-have a fridge to conserve that
en été]].
in summer
'It's best to have a fridge to keep milk in summer.'

Second, like ClLD, multiple instances of non-clitic LD are allowed:

(6) a. **Claas**$_i$, **du contre-plaqué**$_j$, tu verrais jamais ça$_j$ dans sa$_i$
Claas some plywood you would-see never that in his
maison.
house
'You'd never see plywood in Claas's house.'
b. **Kambi**$_i$, **l'école**$_j$, ça$_j$ ne lui$_i$ allait pas trop.
Kambi the-school it NEG to-him went not too-much
'Kambi couldn't stand school very well.'

[2] I will not illustrate the relevant properties with ClLD examples, as this has been done for many a language in the literature (on French, see e.g. Larsson 1979).

c. **Le lait**$_i$, **Steph**$_j$, ça$_i$ ne va pas avec son$_j$ estomac.
the milk Steph it NEG goes not with his stomach
'Milk doesn't go well with Steph's stomach.'

Third, like ClLD, non-clitic RD has a right-hand counterpart:

(7) a. Ses$_i$ chaussettes ont disparu, **à Claas**$_i$.
his socks have disappeared to Claas
'Claas's socks have disappeared.'
b. Je n'ai plus jamais entendu parler de lui$_i$, **Kambi**$_i$.
I NEG-have not ever heard talk of him Kambi
'I never heard anything about Kambi again.'
c. J'adore ça$_i$, **le lait**$_i$.
I-adore that the milk
'I'm mad about milk.'

Fourth, like ClLD, non-clitic LD can appear in embedded contexts.

(8) a. Je veux pas que **Claas**$_i$, on cache ses$_i$ chaussettes.
I want not that Claas one hides his socks
'I don't want us to hide Claas's socks.'
b. Tu te souviens que **Kambi**$_i$, tout le monde voulait
you REFL. remember that Kambi all the people wanted
toujours danser avec lui$_i$?
always to-dance with him
'Do you remember how everybody always wanted to dance with Kambi?'
c. Je pense pas que **la bière**$_i$, ça$_i$ soit très bon pour le foie.
I think not that the beer it be very good for the liver
'I don't think beer is very good for the liver.'

I conclude that French LD is a unified phenomenon, in that the nature of the resumptive element does not alter its essential properties. In all cases, the LDed element expresses the topic of the sentence; it can be resumed by an element inside an island; it can appear in embedded clauses; and it is recursive.

2.2 French LD is Not Sensitive to Islands

It has frequently been claimed that Clitic Left Dislocation shares with constructions involving XP movement the property of being sensitive to (strong) islands. This has been argued to be the case in e.g. Italian (Rizzi 1997), Greek (Iatridou 1990) and Spanish (Escobar 1997). However, this is not verified in all languages. Lebanese Arabic has been argued to be an exception (Aoun and Benmamoun 1998), and as I will argue below, the same is true of

spoken French.[3]

In order to test the sensitivity of (Cl)LD to strong islands, a judgment elicitation task was designed and presented to 31 native speakers of French from Belgium, Canada, France and Switzerland. For each sentence, a short context was provided to ensure that the dislocated element was a likely topic for the test sentence. Informants were presented with descriptions four levels of acceptability, the English translations of which are given in (9). If an informant failed to choose anything from the pull-down menu a 'no choice' value was printed and the token was discarded.

(9) a. I could say that sentence.
b. I could say that sentence but in another context.
c. I could never say a sentence like that, but I know that other French speakers could.
d. That sentence is too weird. No French speaker talks like that.

The context for each test sentence was given in a written form, prior to the informant clicking on a link to hear the test sentence (which was not transcribed). Example test sentences are given in (10). The level of acceptability of each sentence is given in parentheses: the first rating (in bold) reflects acceptability (i.e. the proportion of informants who rejected the sentence), the second rating reflects markedness.

(10) a. **Les autres**$_i$, je vais attendre [avant de les$_i$ relire].
the other-ones I will wait before to them to-re-read
(**0%** - 6%)

b. Mais **le juge**$_j$, ça$_i$ a surpris tout le monde, [qu'elle l'$_j$ ait invité]$_i$.
but the judge it has surprised all the people that-she him has invited
(**0%**- 19%)

c. **Aux petits**$_i$, je sais pas [ce [qu'elle leur$_i$ lit]].
to-the little-ones I know not that that-she to-them reads
(**0%** - 25%)

[3]To be more precise, Aoun and Benmamoun (1998) argue that Lebanese Arabic displays two types of ClLD: one insensitive to islands (which they analyse as base-generated) and one sensitive to islands (which they say involves syntactic movement). Alexopoulou et al. (in press) argue that the latter only is genuine ClLD and that the former is in fact a Broad Subject construction. French ClLD is not amenable to a Broad Subject analysis given that Broad Subjects are not obligatorily interpreted as topics.

d. **Ta mère**$_i$, je ferai tout pour être parti [quand elle$_i$ viendra].
your mother I will-do all to be gone when she will-come
(**3%** - 28%)

e. **Aux autres**$_i$, on va attendre [avant de leur$_i$ parler].
to-the other-ones one will wait before to to-them to-speak
(**13%** - 31%)

The overall picture reveals that for this randomly selected group of speakers, the relation between the dislocated element and the coreferential clitic holds across (and in spite of) the following types of islands: adjuncts, as in (10a), (10d), (10e); moved XPs, as in (10b), and complex NPs, as in (10c).

Compare the acceptability ratings of the examples above with those for *wh*-extraction across an island:[4]

(11) À qui est-ce que tu ne sais pas [ce [qu'elle lit]]?
to whom is-it that you NEG know not that that-she reads
(**41%** - 19%)

I conclude that French (Clitic) Left Dislocation is insensitive to strong islands. But is this sufficient to justify a base-generation analysis?

2.3 To What Extent are Islands a Diagnostic for Movement?

Ross (1967) originally identified islands as a constraint on *Chop*, not on *Copy*. Both were conceived as rules of syntactic movement. What distinguished them was that Chop left a gap in the moved element's original position, while Copy left a resumptive pronoun behind. Islands were thus originally not a diagnostic for movement *per se* but a diagnostic for *types* of movement.[5]

This idea has recently been revived and reinterpreted by Boeckx (2003), who argues that islands preclude agreement relations but not movement. Building on Cecchetto (2000), Boeckx postulates that resumptive pronouns head a big-DP and that the moved XP is first-Merged as the object of the resumptive

[4]Note that this sentence was given in a context favouring a D-linked interpretation, which is supposed to alleviate island effects. In spite of this, the unacceptability rating is still fairly high, and in any case significantly higher than any of the unacceptability ratings for the dislocated constructions tested.

[5]I will leave aside Cinque's (1990) proposal to view islands as a representational constraint on binding chains rather than a derivational constraint on syntactic movement. On that view, the (in)sensitivity of French ClLD to islands would not be an indication of whether movement is involved and consequently, only the diagnostics to be discussed in section 2.5 would be relevant in that respect. Delais-Roussarie et al. (2003) analyse French left-dislocation along the lines of Cinque (1990), arguing that left-dislocated PPs are the only clear cases of ClLD in that language, all other cases being ambiguous between ClLD and Hanging Topic Left Dislocation. The possibility of distinguishing the two configurations in French will be discussed in section 2.6.

element. Boeckx proposes that chains induced by A′-movement can be the product of two kinds of operations: either Match+Agree or Match alone. In the former case (illustrated in (12)), the φ requirements of the moved XP have to be satisfied by an agreeing complementiser. In the latter case (illustrated in (13)), such requirements are fulfilled by the resumptive pronoun.

(12) An fear aL bhuail tú (Irish)
the man C-agr. struck you
'The man that you struck'

(13) An fear aN bhuail tú é
the man C-non-agr. struck you him
'The man that you struck'

In French subject relatives and clefts (14a), no resumptive pronoun is left in the extraction site. That the complementiser (*qui*) should be marked for agreement (as argued by Rizzi 1990) is exactly what is predicted by Boeckx (2003). In left-dislocated sentences such as (14b), in contrast, the presence of a resumptive element (*il* 'he') bleeds the requirement for an agreeing complementiser. Chains like that in (14a) are (correctly) predicted to be sensitive to islands, while chains like that in (14b) are (correctly) predicted not to be.

(14) a. C'est cet homme-là qui a mangé le raisin vert.
it-is that man-there who has eaten the grapes green
'It's that man who's eaten the green grapes.'
b. **Cet homme-là**, il a mangé le raisin vert.
that man-there he has eaten the grapes green
'That man has eaten the green grapes.'

What is not predicted is that in French, agreeing complementisers are only possible in subject extraction contexts, not in object extraction contexts (which are equally sensitive to islands). A way out might be to postulate that *qui* is not an agreeing complementiser after all (*contra* Rizzi 1990) and that agreement is invisible on French complementisers.

(15) C'est [le raisin vert]$_i$ **que** ton père a mangé t$_i$.
it-is the grape green that your father has eaten
'It's the green grape that your father has eaten.'

Boeckx's theory predicts that ClLD is insensitive to islands if the resumptive clitic is a true resumptive pronoun, which for him requires that it should head a big-DP structure in which its 'antecedent' is the first-merge complement of the resumptive. Evidence for a big-DP lies in the presence of a resumptive pronoun and the only evidence that Match alone has applied is that the resulting configuration is insensitive to islands. This renders Boeckx's proposal untestable on the basis of French (because of circularity). What it suggests nonetheless

is that French ClLD is not derived by Match+Agree (because it is insensitive to islands). Whether it is derived by Match alone or base-generated will depend on other diagnostics for movement-induced configurations, which will be examined in section 2.5.

Postal (1998) gives another reinterpretation of Ross's (1967) original proposal. Like Ross, he argues that resumptive pronouns (henceforth RPs) are associated with peripheral elements as a result of Copy rather than Chop. But unlike Ross (and unlike Boeckx) he argues that sensitivity to islands is not obviated simply by the presence of an RP. He proposes to distinguish two types of RPs, with different syntactic behaviour. Only what he labels *non-controlled* RPs appear in configurations insensitive to islands. *Controlled* RPs, on the other hand, have to extract, usually to become sister to the clause-peripheral element which they resume and by which they must be controlled. Controlled RPs are typically invisible, and they are banned in *wide antipronominal* contexts, i.e. in contexts where (phonologically) weak definite pronouns are impossible. An example of a wide antipronominal context is given in (16).

(16) a. There are **such apples** on the table.
b. *There are **them** on the table.
c. *[Such apples]$_i$, there are **t**$_i$ on the table.

Postal also defines two types of islands: locked versus unlocked (or selective) islands. Locked islands do not permit RP extraction and hence preclude control of such RPs. Such islands include e.g. English non-restrictive relative clauses, as illustrated in (17)

(17) a. *Tim$_i$, I believe you invited Joan, who fancies t$_i$.
b. *Tim$_i$, I believe you invited Joan, who fancies him$_i$.

An example of unlocked/selective island is irrealis *if* clauses, as illustrated in (18) (from Postal 1998:43). Selective islands allow object extraction (18a) but not adjunct extraction (18b).

(18) a. [Which car]$_i$ would you prefer it if I fixed t$_i$?
b. *[How rapidly]$_i$ would you prefer it if I fixed the car t$_i$?

How do these considerations apply to French? The RPs involved in French dislocation are in most cases visible (and obligatory). Invisible RPs are allowed in certain cases (illustrated in (19)). Taking sensitivity to locked islands as a diagnostic for whether those RPs are of the controlled type of not, it seems that French invisible RPs are not of the controlled type when generic (19a) or when they correspond to a gap in the paradigm (19b), i.e. when there is no pronominal element available in the language in question to resume a particular type of peripheral element (such as a locative pronoun that could be modified by a preposition, as would be required in (19b)).

(19) a. [La crème Budwick]$_i$, je connais [quelqu'un [qui aime bien e$_i$]].
the cream Budwick I know somebody who likes well
'I know somebody who likes Budwick cream.'

b. [Ce mur-là]$_i$, on devrait aider [les gens [qui sont embusqués
that wall-there one should help the people that are ambushed
derrière e$_i$]].
behind
'That wall, we should help the people who are ambushed behind it.'

Given their insensitivity to locked islands, French's visible RPs might either be non-controlled RPs or not 'genuine' RPs. In the former case, dislocated structures resumed by such RPs might be derived by Copy (a form of movement). In the latter, they would have to be base-generated.

According to Postal, all RPs are weak definite pronouns (Postal 1998:42). The reverse is not necessarily the case. To evaluate whether French RPs are 'true' RPs in the sense of Postal (1998), I propose to examine cases of RPs that do not readily fit Postal's definition: the clitic *en* 'of it' and the pronoun *ça* 'that' in (20). *En*, being a partitive, is clearly not definite and *ça* is not necessarily weak.[6]

Consider the sentences in (20). Example (20a) shows that *ça* cannot be a controlled RP, given its acceptability inside a locked island. The English counterpart of (20b) is given in (21) (from Postal 1998:26).

(20) a. [La crème Budwick]$_i$, je connais [personne [qui aime ça$_i$]].
the cream Budwick I know nobody that likes that
'I don't know anybody who likes Budwick cream.'

b. [Des produits comme ça]$_i$, il savait qu'il y en$_i$ avait t$_i$
some products like that he knew that-it there of-it were
dans la bouteille.
in the bottle
'He knew that there were chemicals like that in the bottle.'

(21) *[Such chemicals]$_i$, he knew that there were [t$_i$/them$_i$] in the bottle.

The impossibility of a weak definite pronoun in (21) indicates a wide an-

[6] *ça* can be dislocated and it can be selected by a preposition. Both patterns are impossible for weak pronouns.

(i) a. Ça/*Le, c' est bon.
that/it it is nice
'That's nice.'

b. Mange avec ça/*le.
eat with that/it
'Eat with this.'

tipronominal context, i.e. one in which a controlled RP is expected. Postal argues that topic NPs cannot be extracted from such contexts. By contrast, the French counterpart to (21) clearly allows 'extraction' of a topic NP, as illustrated in (20b), in spite of the fact that weak definite pronouns are banned in such contexts (just as they are in English):

(22) *Il l'y a dans la bouteille.
it it-DEF has in the bottle

One possibility is that so-called resumptive elements that do not readily fit Postal's definition (such as *en* and *ça*) are non-controlled RPs (triggered by Copy). The requirement that RPs be weak definite pronouns would therefore have to be lifted, which would leave the ungrammaticality of (21) unexplained. Alternatively, if 'true' RPs are indeed restricted to weak definite pronouns (in accordance with Postal 1998), pronouns that are not weak and definite would not be true RPs. Consequently, they should be free to occur inside locked islands (hence ruling out Chop) without being the product of Copy. In other words: dislocated elements resumed by *en* or *ça* would be base-generated in their peripheral position and the 'resumptive' element would in fact be an argument of the verb. In the next subsection, I argue that this is indeed the most adequate analysis, not only for *en* and *ça*, but for all the 'RPs' involved in French dislocation.

2.4 On the Status of the 'Resumptive' Pronoun

A core property of true resumptive pronouns (RPs), as defined by Sells (1984), is that they are interpreted as bound variables (and that this binding is not simply anaphoric).This is illustrated below with a Swedish relative clause (from Sells 1984:56).

(23) Det finns mycket$_i$ som man önskar att **det**$_i$ skulle vara annorlunda.
there is much that one wishes that it should be different

According to Sells (1984), English does not have true RPs but what he calls *intrusive pronouns*. Such pronouns appear mainly where they can alleviate island violations and they are not interpreted as true variables. This is illustrated by the contrast in (24). A gap in the extraction position inside the relative clause can be interpreted as a variable (24a). In contrast, when a pronoun occupies the extraction position (24b), it is interpreted as referring to one particular individual.

(24) a. [Which of the linguists]$_i$ do you think that if Mary marries **t**$_i$ then everyone will be happy?

b. [Which of the linguists]$_i$ do you think that if Mary marries **him**$_i$ then everyone will be happy?

Aside from the availability of true RPs in a given language, Sells argues that a variable interpretation can only be obtained where there is a binder with operator-like properties (such as a quantifier or a *wh*-element). If the resumptive element of (clitic) left-dislocation is a true RP, we should expect it to receive a variable interpretation whenever the dislocated element has operator-like properties. Topics *per se* do not have quantificational properties (Rizzi 1997). There is nonetheless the possibility that a topic might act as an operator due to the inherent properties of the type of XP that instantiates it. However, as is well known, quantifiers, non-generic indefinites and *wh*-elements (which are standardly regarded as operators) cannot be topics (and hence cannot be dislocated): they do not meet the requirement that topic referents be readily identifiable in the context. This requirement is illustrated in (25).

(25) a. *__Tout homme__, il est mortel.
any/every man he is mortal
b. *__Chaque potager__, il a son robinet.
each allotment it has its tap

The only exception to this rule is what Erteschik-Shir (1997) calls *subordinate update*, which consists in identifying the main topic of the sentence out of a pre-established set available in the discourse context. In (26), for instance, the dislocated element summons the set of exceptionally gifted individuals known to the speaker and identifies one individual in that group. That individual then becomes the topic of the sentence and the indefinite referring to it can be dislocated.

(26) [Un qui est surdoué]$_i$, **c'**$_i$ est le fils Fiorini.
one who is over-gifted it is the son Fiorini
'One who's gifted is Fiorini's son.'

Crucially, even in instances where the dislocated element has quantifier-like properties, the resumptive pronoun is attributed a fixed reference. The relation between the resumptive and its antecedent is merely anaphoric and is no different to what it would be if the antecedent was omitted.

Omission of a left-dislocated element does not indeed alter the interpretation of the sentence significantly, as illustrated in (27) — provided the referent of *les Racts* is salient enough in the context.

(27) a. **Les Racts**, c'étaient les monstres de mon frère.
the Racts it-were the monsters of my brother
'The Racts were my brother's monsters.'

b. C'étaient les monstres de mon frère.
it-were the monsters of my brother
'They were my brother's monsters.'

There is in fact no *syntactic* requirement for a dislocated element to be (overtly) present. The 'resumptive' element does not need to be licensed syntactically by its 'antecedent'. Not only can the dislocated element be omitted, in certain cases it is even banned from appearing at the periphery of the clause containing its 'resumptive' element.

(28) a. **Les tartes**$_i$, elle a oublié d'acheter des oeufs pour les$_i$
the pies she has forgotten to-buy some eggs to them
faire.
make
'She's forgotten to buy eggs to make the pies.'
b. *Elle a oublié d'acheter des oeufs pour **les tartes**$_i$, les$_i$
she has forgotten to-buy some eggs to the pies them
faire.[7]
to-make

(29) a. [**La vieille MG jaune**]$_i$, j'ai pas envie de la$_i$ vendre.
the old MG yellow I-have not desire to it sell
'I don't feel like selling the old yellow MG.'
b. *J'ai pas envie de, [**la vieille MG jaune**]$_i$, la$_i$ vendre.
I-have no desire to the old MG yellow it to-sell

The label 'resumptive' is therefore misleading in the case of (French) LD. I would like to argue that the clitic involved in French LD has the same pronominal status as it would have in a sentence not involving a coreferential dislocated element. In other words, the pronoun *il* 'he' is fundamentally the same in sentences (30a) and (30b).

(30) a. C'est pour Kester$_i$. Il$_i$ aime bien les poissons.
that-is for Kester he loves well the fish
'That's for Kester. He loves the fish.'
b. **Kester**$_i$, il$_i$ aime bien les poissons.
Kester he loves well the fish
'Kester loves the fish.'

I conclude that the 'resumptive' element in French left dislocation is not a true resumptive but a full-fledged pronoun (with deficient characteristics in the case of clitics; see De Cat in press). This construction can therefore not be

[7]The same judgment would obtain if the left-dislocated element preceded the non-finite complementiser in (28b).

derived by movement (whether Chop or Copy). Corroborating evidence against a movement analysis is provided in the next section.

2.5 Corroborating Evidence for a Base-Generation Analysis of French Dislocation

Diagnostics for movement traditionally include weak cross-over effects, the licensing of parasitic gaps, relativised minimality effects and reconstruction effects. All these indicate that movement is *not* involved in the derivation of French dislocation.

2.5.1 French LD Does Not Yield WCO Effects

It is well known that, cross-linguistically, ClLD configurations do not induce weak cross-over effects: as shown in (31), a pronoun can freely intervene between its A′-binder (here *Abélard*) and the element at the foot of the 'chain' (here the resumptive element *l'* 'him').

(31) **Abélard**$_i$, sa$_i$ mère l'$_i$ aimait trop.
Abelard his mother him loved too-much
'Abelard's mother loved him too much.'

The same is true when the resumptive element is not a clitic:

(32) **Abélard**$_i$, on sait que son$_i$ élève passait des heures délicieuses
Abelard one knows that his pupil spent some hours delicious
avec lui$_i$.
with him
'It's well known that Abelard's pupil spent delicious hours with him.'

Absence of WCO effects is exactly what is expected on a base-generation analysis of dislocation.[8]

2.5.2 French LD Does Not License Parasitic Gaps

French is more restrictive than English with respect to the configurations in which parasitic gaps can be licensed (Tellier 2001). Examples of the parasitic gap construction in French are given in (33) (all examples from Tellier 2001). The most deeply embedded verb is obligatorily interpreted as transitive in sentences (33a) and (33c). Following Tellier, I take *t* to be the real gap and *e* to be the parasitic gap.

[8]Rizzi (1997) argues that the absence of WCO effects in ClLD can be accounted for in terms of non-operator A′-movement. I will consider that no movement (even of that type) applies in the case of French ClLD, given the bulk of the evidence discussed in section 2.

(33) a. Voilà les livres que tu as déchirés *t* au lieu de
PRESENTATIVE the books that you have torn in place of
consulter *e*.
consult
'These are the books that you tore up instead of consulting.'
b. Un homme dont l'honnêteté *t* se voit dans les yeux *e*.
a man of-who the-honesty REFL. sees in the eyes
'A man whose honesty shows in his eyes.'
c. C'est le genre de plat que tu dois cuire *t* avant de
it-is the kind of dish that you must cook before of
consommer *e*.
eat
'It's the kind of dish that you have to cook before eating.'

The left-dislocated constructions below are comparable to the examples above. Yet parasitic gaps are not possible:

(34) a. **Les livres**$_i$, tu les$_i$ as déchirés au lieu de *(les$_i$) consulter.
the books you them have torn in place of (them) to-consult
b. [**Un homme comme ça**]$_i$, son honnêteté se voit dans
a man like that his honesty REFL. sees in
[ses$_i$/*les] yeux.
[his/the] eyes
c. [**Ce genre de plat**]$_i$, tu dois le$_i$ cuire avant de *(le$_i$)
this kind of dish you must it cook before to (it)
consommer.
eat

Again, this would be entirely unexpected under a movement analysis of French dislocation.

2.5.3 No Relativised Minimality Effects

If movement is involved in the derivation of left-dislocated elements, relativised minimality effects should arise when a dislocated XP intervenes between another dislocated XP and its resumptive element. The examples in (35) illustrate that dislocated subjects and objects do not disrupt each other's chains.

(35) a. **La pluie**$_i$, **ta salade**$_j$, elle$_i$ lui$_j$ fera du bien.
the rain your lettuce it to-it will-do some good
'The rain will do your lettuce some good.'
b. **Cette toile**$_j$, **Julia**$_i$, elle$_i$ ne l'$_j$ a pas vendue.
that canvas Julia she NEG it has not sold
'Julia didn't sell that picture.'

It is even possible to 'intertwine' two topic chains associated with the same grammatical role. The interpretation of (36) indicated by the indexing is perfectly acceptable in a context where the hearer knows for instance that Rosi's mother has a big garden:

(36) **Rosi**$_i$, **sa mère**$_j$, elle$_i$ m'a dit qu'elle$_j$ adorait jardiner.
Rosi her mother she to-me-has said that-she loved gardening
'Rosi told me her mother loved gardening.'

I conclude that there are no minimality effects on topic chains, which corroborates a base-generation analysis.

2.5.4 No Reconstruction Effects in the Interpretation of French LD

One of the main arguments for a movement analysis of ClLD in various languages (aside from sensitivity to islands) has been reconstruction effects in the interpretation of dislocated elements (see e.g. Cecchetto 1999; Frascarelli 2000). Support for a movement analysis is found when dislocated elements are interpreted as if they occupied the argument position with which they are associated.

A series of facts suggest that in French, the dislocated element is not interpreted in its reconstructed position: (i) a dislocated element cannot be bound by a quantifier in subject position; (ii) no Condition C effects are observed; (iii) dislocated elements obligatorily take wide scope with respect to clausal negation; and (iv) when a dislocated element contains a variable, native speakers will by default search for a binder in the context rather than in the sentence.

A variable in a LDed XP cannot be bound by a clause-mate QP Consider the sentence in (37). The variable contained (in the possessive determiner) in the object can be bound by the universal quantifier in the subject position. A distributive interpretation of this sentence is therefore possible.

(37) [Chaque maître]$_i$ a renvoyé un de ses$_i$ disciples.
each master has dismissed one of his disciples
'Each master dismissed one of his (own) disciples.'

If the object is dislocated, as illustrated in (38), the distributive reading is lost. The only possible interpretation of this sentence is one in which the possessor corresponds to a referent identified in the discourse context (represented below by the index *x*), and not to the subject of the sentence.

(38) [Un de ses$_{x/*i}$ disciples]$_j$, [chaque maître]$_i$ l'$_j$ a renvoyé.
one of his disciples each master him has dismissed
'Each master dismissed one of his (somebody else's) disciples.'

This contrast indicates that the left-dislocated element is not interpreted in its reconstructed position (and presumably that QR targets a position that is lower than the dislocated element).

Absence of Condition C effects If dislocated elements are interpreted in their reconstructed position, one might expect Condition C effects to arise in cases like (39), which would be reconstructed as in (40).

(39) a. **Tes sales petites remarques sur Léon**$_i$, il$_i$ ne les
your dirty little remarks on Leon he NEG *them*
apprécierait surement pas.
would-appreciate surely not
'Leon would surely not appreciate your dirty little remarks about him.'

b. **Le dernier livre que j'ai prêté à Marie-Hélène**$_i$, elle$_i$ l'a
the last book that I-have lent to Marie-Helene she it-has
lu en une nuit.
read in one night
'The last book I lent her, Marie-Helene read in one night.'

(40) a. *Il n' apprécierait surement pas tes sales petites
he NEG *would-appreciate surely not your dirty little*
remarques sur Léon.
remarks on Leon

b. *Elle$_i$ a lu en une nuit le dernier livre que j'ai prêté ?
she has read in one night the last book that I-have lent to
Marie-Hélène$_i$.
Marie-Helene

The contrast between (39) and (40) shows that reconstruction is not obligatory in French. While it is not *per se* sufficient to show that a reconstruction interpretation of dislocated elements is impossible in French, I believe that it contributes significantly to the current discussion when considered together with the other pieces of evidence proposed.

Wide scope with respect to negation. If dislocated elements are (or can be) interpreted in their reconstructed position, it should be possible for them to get a narrow-scope reading with respect to sentential negation. This, however, is not possible with French dislocated elements, as illustrated in (41).

(41) **Toutes ces toiles**$_i$, Julia, elle ne les$_i$ a pas vendues.
all those canvases Julia she NEG *them has not sold*
'Julia didn't sell any of (all) those pictures.'
'Julia didn't sell some of those pictures.'

This sentence is false in a context where Julia sold some but not all of the pictures under discussion. The dislocated quantified phrase can thus not be interpreted in a reconstructed position which would allow it to enter the scope of the sentential negation.

Interpretation of variables. When presented with a sentence containing a potential binder for a variable contained inside a dislocated element, native speakers overwhelmingly tend to choose to associate the variable with a referent in the discourse context rather than with the sentence-internal binder.

91% of my informants (i.e. 28/31 speakers from Belgium, Canada, France and Switzerland) interpret *sa fille* 'his daughter'[9] as the daughter of a person other than the man mentioned in the following sentences (which were presented to them out of context to maximise the chances of sentence-internal binding):

(42) **Sa fille**, je connais l'homme qui l'$_i$a emmenée.
his daughter I know the-man who her-has taken-away
'I know the man who took his daughter away.'

This clear preference is unexpected if *sa fille* is interpreted in the object position — in which case the sentence would be entirely ambiguous as to whether it is that man's daughter or somebody else's (as confirmed by native speaker judgements).

The facts discussed above indicate that French LD cannot be derived by Copy. If it were the case, reconstruction effects would arise (because the dislocated element and its resumptive would in effect be a single constituent with two manifestations in the sentence). Yet, we have seen that they did not. I conclude, together with Hirschbühler (1975), that French LD is not derived by movement, be it (today's version of) Copy or Chop.

2.6 Are These in fact Hanging Topics?

In the wake of Hirschbühler (1975) and other articles arguing for a base-generation analysis of LD, a distinction was introduced (to my knowledge by Vat 1981) to distinguish between movement-generated LD and base-generated LD. Instances of the former are standardly considered to include ClLD and (Germanic) Contrastive Left Dislocation (which I will not consider here). Instances of the latter are mainly considered to be Hanging Topic Left Dislocation (HTLD). The question that arises is: is French (Cl)LD actually HTLD?

The distinction between ClLD and HTLD is not exactly clear-cut. It was originally established to distinguish 'non-connected' Left Dislocation (HTLD)

[9]The possessor in *sa fille* could equally be translated as 'her' but I have ignored this in the text so as to highlight the possibility of interpreting it as the daughter of the man mentioned in the sentences under scrutiny.

from its connected counterpart (ClLD) (see, e.g., Cinque 1983; Vat 1981). A dislocated element was considered to be connected when it bore marks of dependency from a sentence-internal element. This connectedness was argued to manifest itself essentially in terms of case matching between the dislocated element and its resumptive.

Four other properties traditionally distinguish HTLD from ClLD. First, HTLD is not recursive but ClLD is (i.e. more than one dislocated element is allowed). Second, HTLD is a strictly root phenomenon while ClLD can occur in (certain) embedded clauses.[10] Third, HTLD tends not to be resumed by a clitic — though authors diverge as to whether HTLD can be resumed by a clitic at all. Cinque (1983), for instance, argues that the reason why (43) is grammatical is that this example does not involve ClLD but HTLD in spite of featuring a resumptive clitic. Others argue that HTLD involves by definition a non-clitic resumptive (e.g. Grohmann 2000).

(43) **Giorgio**$_i$**,** non conosco [la ragazza [che lui$_i$ vuole sposare]].
Giorgio not I-know the girl that him wants to-marry
'I don't know the girl who wants to marry Giorgio.' (Cinque 1983:97)

Fourth, ClLD has a right-hand counterpart but HTLD does not.

In spite of these differences, no clear interpretive differences have to my knowledge been identified that would distinguish HTLD from ClLD: in both cases, the dislocated element is interpreted as the topic.

The following facts suggest that French left-dislocated DPs resumed by a clitic, as those in (10), are not instances of hanging topics: (i) more than one such dislocated element is allowed (44); (ii) the dislocated XP can appear in an embedded clause (45); (iii) and left-dislocated elements can just as well appear in the right periphery of the clause (46). Yet, in none of the examples (44)-(46) does the dislocated element show overt marks of connectedness.

(44) a. **Les autres**$_i$, **Alice**$_j$, elle$_j$ les$_i$ a déjà lus.
the other-ones Alice she them has already read
'Alice has already read the other ones.'

b. **Camille**$_i$, **le juge**$_j$, elle$_i$ a décidé de l'$_j$ inviter quand même.
Camille the judge she has decided to him invite nonetheless
'Camille decided to invite the judge nonetheless.'

[10] I come back to this point in section 3.3.

(45) a. Je ne savais pas que **les cochons**$_i$, ils$_i$ avaient des salles de
I NEG knew not that the pigs they had some rooms of
bain.
bath
'I didn't know pigs had bathrooms.'

b. J'ai peur que **Jonas**$_i$, il$_i$ les prenne.
I-have read that Jonas he them takes
'I fear Jonas might take them.'

(46) a. Elle les$_i$ a déjà lus, **les autres**$_i$.
the them has already read the other-ones
'She's already read the other ones.'

b. Elle a décidé de l'$_i$ inviter quand même, **le juge**$_i$.
she has decided to him invite nonetheless the judge
'She decided to invite the judge nonetheless.'

Let us take a closer look at the issue of connectedness. French does not exhibit morphological case marking on DPs, and dislocated pronominals obligatorily appear in the strong form (e.g. *moi* 'me' rather than *me* 'I') irrespective of the grammatical function of their resumptive element. The tightness of the connection between the dislocated element and the rest of the sentence can therefore not be measured straightforwardly. However, it has been argued that in languages like French, indirect case is marked on DPs by means of a preposition (e.g. Kayne 1975; Vergnaud 1974). Though prepositions are not all case markers: Zaring (1991) argues that only dative and non-dative *à* + NP (as in (47)) and *de* + NP (as in (48)) are case-marked NPs (and not true PPs) in French.

(47) a. J' ai écrit à Marie-Hélène.
I have written to Marie-Helene
'I've written to Marie-Helene.'

b. Je pensais à Montréal.
I was-thinking to Montreal
'I was thinking about Montreal.'

(48) a. Elle parlait de Solène.
she was-talking of Solene
'She was talking about Solene.'

b. Elle a envie de soleil.
she has desire of sun
'She wants some sun.'

Consequently, the PPs in (47) and (48) are case-marked DPs, but those in (49) are true PPs.

(49) a. J' irai boire un verre avec Shaun.
I will-go to-drink a glass with Shaun
'I'll go for a drink with Shaun.'
b. Ils viendront chez nous.
they will-come at us
'They'll come to our house.'

To the extent that such PPs are genuine case-marked DPs, they would provide the only uncontroversial basis for a distinction between connected and non-connected dislocation in French. If a PP has to be stripped of its P to become acceptable in a dislocated position, this would indicate that the resulting configuration is an instance of HTLD rather than ClLD. Pushing this line further, one could argue that the obligatory stripping of a preposition from PPs whose resumptive element is situated inside a strong island would be a clear indication that French ClLD is in fact impossible in such configurations and that whenever the resumptive element of a dislocated DP is situated inside a strong island, the configuration is that of HTLD and not ClLD.

The facts, however, are far from being that clear (as I explain below). What I believe is crucial for the present purpose is that native speakers do accept dislocated PPs resumed by an element inside a strong island at least some of the time. To the extent that (i) the preposition is an indicator of the connectedness between the dislocated element and the rest of the sentence and that (ii) HTLD does not display such signs of connectedness, I take these cases to indicate clearly that French ClLD (or whatever one decides to call these cases of 'connected' dislocation) is not constrained syntactically by strong islands.

There is however a noticeable degree of variability across speakers and across test sentences, for which an explanation is needed.[11] Importantly, I have not found any sign of inter-individual or dialectal variation as to the sensitivity of dislocated elements to islands. Judgments of markedness or unacceptability were randomly distributed across informants and across dialects: it is not the case that certain speakers categorically disallow an island boundary to intervene between the dislocated element and its resumptive.

What I have found is that left-dislocated PPs (whether they are genuine PPs or case-marked DPs) tend to be viewed as marked by most informants (and are extremely rare in corpora of spontaneous production),[12] but this is true whether the resumptive element is situated within an island or not.

The DP counterpart to left-dislocated PPs is almost always preferred, as indicated by the contrast between (50) and (51).

[11] Thanks to Jenny Doetjes for discussion of this issue.

[12] Out of a sample of 4030 clauses produced by adults, extracted from the York and Cat corpora of spontaneous production, I did not find a single instance of a left-dislocated object PP (see De Cat (2002) for details). A similar observation has been made for other French corpora of spontaneous production by Barnes (1985) and Lambrecht (1981; 1986).

(50) a. ??**De ce projet**$_i$, il en$_i$ a beaucoup parlé.
of this project he of-it has a-lot talked
b. ??**A ce travail-là**, **je** ne saurai jamais m'y$_i$ faire.
to that job-there I NEG will-know never me-to-it do
c. ??**Au confort**$_i$, on s'y$_i$ habitue très vite.
to-the comfort one REFL-to-it gets-used very quickly

(51) a. **Ce projet**$_i$, il en$_i$ a beaucoup parlé.
that project he of-it has a-lot talked
'He talked a lot about that project.'
b. **Ce travail**$_i$**-là**, je ne saurai jamais m'y$_i$ faire.
that job-there I NEG will-know never me-to-it do
'I'll never get used to that job.'
c. **Le confort**$_i$, on s'y$_i$ habitue très vite.
the comfort one REFL-to-it gets-used very quickly
'One gets used to comfort very quickly.'

The 'stripping' of dependency markers from left-dislocated elements is not obligatory (as suggested by the fact that the examples in (51) are marked rather than ungrammatical), but it is preferred. This might indicate that the requirement that left-dislocated topics be bare DPs is not syntactic in nature. If that requirement is not met, the resulting sentence is marked rather than ungrammatical.[13]

I would conclude that French LD is not HTLD to the extent that it displays the following properties: (i) it is recursive; (ii) it is allowed in certain embedded contexts (though, as we will see in section 3.3, these have to be root-like); (iii) it can be resumed by a clitic; and (iv) it can (though marginally) bear marks of connectivity (to the extent that these are visible in spoken French).

This conclusion needs qualifying, though. If, cross-linguistically, the difference between connected and non-connected LD (i.e. between ClLD and HTLD) translates categorically into different syntactic configurations which are arrived at via different syntactic derivations or mechanisms, an analysis of French LD as involving HTLD in all cases might be more desirable so as to fit in with the general picture. If this was the case, a revision of the core characteristics of HTLD would be called for on the basis of the French data: HTLD would after all be recursive, be allowed in certain embedded contexts and display dependency markers in a limited way.

[13] A possibility which I hope to explore in further research is that the marginality of left-dislocated PPs might be due to increased demands on processing/parsing. Indeed, until a resumptive element (or a trace) is identified, the hearer does not know whether to interpret the sentence as involving topicalisation (which involves movement) or left-dislocation (which I argue does not).

2.7 Conclusion

The evidence discussed so far unambiguously points towards a base-generation analysis of French dislocated elements. It has been argued that syntactic boundaries freely intervene between the dislocated element and its resumptive and that there are no notable *syntactic* discrepancies between dislocated elements resumed by a clitic and those resumed by a non-clitic.

3 A First-Merge Adjunction Analysis of French Dislocation

3.1 The Analysis

The analysis I will argue for is summarised in (52). It involves neither movement of the dislocated element nor (covertly) of its resumptive and no requirement for a dedicated functional projection (such as TopicP).[14]

(52) Dislocated elements are adjoined by first-merge to a maximal projection with root properties.

The main points of this proposal are spelled out in (53).

(53) a. Dislocated elements appear at the edge of Discourse Projections (following Emonds 2004). Discourse Projections are finite root(-like) clauses.
b. The numeration is organised into D-subarrays. A D-subarray is a phase (in the sense of Chomsky 2000; 2001) containing a T endowed with a discourse feature.
c. When the remaining items of a D-subarray are not visible to Merge, Adjunction applies as a last-resort operation to exhaust the numeration.
d. Topics are licensed and interpreted by a rule of Predication.

Point (53a): The structural and interpretive reflexes of information structure tend to be absent from embedded clauses, except in what some have characterised as embedded quotations (see e.g. Tomioka 2000) or more generally embedded clauses with root properties (Hooper and Thompson 1973).[15] Emonds

[14]This analysis does not apply to Topicalised structures (in which a (generally contrastive) left-peripheral element appears without a resumptive element and the sentence would be ungrammatical if the peripheral XP is removed), which are best accounted for by syntactic movement (De Cat 2002). However it is not necessary to postulate the existence of a TopicP even in such structures, as argued by Lasnik and Saito (1992).

[15]See Heycock (to appear) for a comprehensive review of the literature on embedded root phenomena.

(2004) argues that clauses with root properties are essentially finite IPs. He proposes that what counts as a Discourse Projection (other than IP) is parameterised and that so-called *embedded root phenomena* involve root-like indirect discourse embedding ('RIDE'). Emonds further argues that Discourse Projections are dominated by categorially unspecified Discourse Shells (equivalent to CP when their head is filled by a complementiser) that enable root transformations.

I propose that dislocated elements, which, being topics, have a clear discourse import, are adjoined to Discourse Projections. This correctly predicts the distribution of dislocated topics, as argued in detail in De Cat 2002.

The concept of Discourse Projection could be implemented in minimalist fashion by endowing T with a discourse feature. At this point, I see three possibilities worth considering: [anchoring], [assertive] or [performative]. (i) The choice of an [anchoring] feature could be motivated by the work of Haegeman (2002; 2003), who argues that to have root properties, a clause needs to be interpreted relative to a context, which requires reference to speaker and hearer. This feature would force the event expressed by the verb in T to be interpreted relative to the topic of the sentence, whose default values correspond to the time and place of utterance (Erteschik-Shir 1997; Gundel 1975) and to the speaker. (ii) Alternatively, the choice of an [assertive] feature could be justified by the need to account for the fact that root-like clauses are typically embedded under attitude verbs, which have been argued to introduce 'quotations' (Hooper and Thompson 1973). However, this would fail to capture the fact that topics are possible with imperatives and questions. (iii) Opting for a [performative] feature might fare better in capturing the inherent properties of root clauses (see e.g. De Cat 2002). I leave the issue of the exact nature of the discourse feature on T for further research.

What is crucial at this point is that the discourse feature on T should not be specifically a [topic] feature. It is also important to note that this discourse feature does not need checking in the overt syntax of French: it does not participate in an Agreement relation and hence cannot trigger movement (of e.g. a topic XP). In spoken French, an XP in [spec,TP] cannot be interpreted as the topic of the sentence (as argued extensively in De Cat in press). This would be unexpected if T bore a [topic] feature which required checking by an XP topic.

The main effect of this discourse feature on T is to force Spell-out of the phase containing it, which becomes inaccessible/opaque to further (discourse) operations. For instance, as shown by Haegeman (2003), a focus operator in the associated clause of a cleft can range over an adverbial clause only if that clause has root properties (which she demonstrates is true of so-called peripheral adverbial clauses, like the one in (54a), but not so-called central adverbial clauses, like the one in (54b).

(54) a. It is after I left that I realised he was my former teacher. (Haegeman's (11-a))
b. *It is while my mother was a housewife that my father used to work in a brickyard. (Haegeman's (11-c))

A similar effect can be observed with negation facts. An adverbial clause may only fall within the scope of main clause negation if it lacks root properties (Haegeman 2003):

(55) a. He doesn't drink while he's driving. (Haegeman's (10a))
b. My husband doesn't smoke cigarettes, while he does occasionally smoke a cigar. (Haegeman's (10c))

The negation can only range over a complex event encompassing a central adverbial clause (drinking and driving) (55a), not a peripheral one (smoking cigarettes and smoking cigars) (55b).

These facts can be accounted for by the fact that peripheral adverbial clauses (but not central adverbial clauses) have root properties (as demonstrated by Haegeman 2003), which I argue renders them opaque.

Point (53b): Peripheral topics (i.e. dislocated elements) can appear either at the edge of the clause containing their resumptive element (which requires this clause to be a Discourse Projection) or they can appear higher, as in (5b), (5c), (10), (19), (30b), (32), and (42), in which case the higher clause (but not the lower one) is a Discourse Projection. This must be determined on the basis of which D-subarray the dislocated element belongs to. The underlying assumption is that the numeration is selected in an information structure-sensitive fashion. This, I believe, is necessary under any analysis to account for the choice of, for example, pronominals instead of R-expressions in a context where the referent in question is salient. It is what gives the appropriate numeration to utter (56a) rather than (56b) as a follow-up to (56), a choice driven by a combination of information structure and economy considerations.

(56) My friend has two children.
a. She feeds them every day.
b. My friend feeds her children every day.

Under current assumptions, the grammar does not include a rule of pronominalisation. Yielding (56a) rather than (56b) as an output therefore depends entirely on what the numeration contains. I believe similar conclusions would have to be drawn under a cartographic approach à la Rizzi (1997).[16] The concept of D-subarray captures the information-structure-sensitive nature of lexical selection in the building of the numeration.

[16]I am not aware of any work within the cartographic approach addressing these issues explicitly.

Point (53c): Adjunction is the only operation that can be performed blindly by the syntactic computational system, as it does not obligatorily involve agreement (see Hoekstra 1991).[17] This blindness is exactly what allows syntax to be freed from the burden of information structure, which is necessary to account for the French dislocation data, as will be shown below.[18] The Extension Condition (Chomsky, 1993; 1995) is met by the fact that adjunction can only exhaust the numeration within a D-subarray, which in effect corresponds to a root projection. The theoretical implications of the base-generated adjunction analysis of French dislocation will be discussed in section 3.4.

Point (53d) finds justification in the work of Chomsky (1977), Iatridou (1990), É.Kiss (1995), Rizzi (1997), Erteschik-Shir (1997), and Barbosa (2000), among others. The rule of Predication is what evaluates the dislocated structure. Following Erteschik-Shir (1997), I assume that this rule operates in the interpretive component. Recast in the terms of the present analysis, this rule interprets the Discourse Projection as the predicate and the adjoined topic as the subject of predication. The latter is understood as what the predication is about — more precisely, as the referent with respect to which the truth value of the sentence is evaluated — following Reinhart (1981). If the dislocated element cannot be interpreted as the topic, the combination of what the rule of Predication interprets as the 'subject' and the 'predicate' is anomalous: it gets rejected on interpretive (discourse) grounds.

As an illustration of the proposed analysis, consider the following sentence:

(57) Elle$_i$ coule de source, **cette analyse**$_i$.
she flows from spring this analysis
'This analysis is straightforward.'

The derivation starts out with the subarray in (58), and proceeds from the bottomup in standard fashion until TP is reached.

(58) v, T$_{[performative]}$, elle, coule, de, source, cette, analyse

After the discourse projection TP has been merged, we are left with two items in the numeration: *cette* and *analyse*, which I will assume are built into a DP. Adjunction applies as a last-resort operation to exhaust the numeration: the remaining DP is adjoined to the top of the structure, yielding a TP (on top of which a CP can project).

[17] A syntactic crash would result if the topic is merged in argument position because the required resumptive clitic would then be adjoined as last-resort but would not have an adequate host on which to cliticise.

[18] Freeing syntax from information structure features should also apply to Focus for consistency. See Szendröi (2001, 2003) for an analysis eschewing syntactic focus features.

3.2 Predictions of the Adjunction Analysis

The adjunction analysis predicts that French dislocated elements can appear at the edge of any Discourse Projection and that there is no *syntactic* constraint on the number of topics allowed nor on whether they appear in root or embedded clauses.[19] Different predictions are made under an analysis *à la* Rizzi (1997), which constrains the distribution of left-peripheral topics by licensing them only at the edge of designated topic phrases (TopPs). Such TopPs can only be projected if they do not give rise to minimality or adjacency effects. Due to space restrictions, I cannot show that such an analysis cannot account for the distribution of French left-dislocation. I refer the reader to De Cat 2002. For arguments against the postulation of FocP and TopP, see Newmeyer (2004).

3.3 French Embedded Discourse Projections

The extent to which dislocated elements are allowed at the edge of embedded clauses has, to my knowledge, never been fully investigated in the literature. While an in-depth investigation would be beyond the scope of this paper, I would like to make a few observations to pave the way for subsequent research.

Under the present analysis, French dislocated elements are only allowed to appear at the edge of Discourse Projections. I follow Emonds (2004) in assuming that only root and root-like clauses contain a Discourse Projection (corresponding to TP). The set of embedded clauses with root properties varies cross-linguistically (a point to which I come back below). He notes that such projections are finite and that they are usually complements rather than adjuncts and governed by V or A (rather than N or P), with some argument of the governing V being animate.

In what follows, I make a first sketch of what counts as embedded root in spoken French, on the basis of the dislocation data.

A number of conditions have been identified in the literature for an embedded clause to qualify as root-like. Hooper and Thompson (1973) argue that so-called *root transformations* (i.e. transformations that can only take place in root clauses, following Emonds 1970) are only possible in embedded clauses to the extent that such clauses can be asserted. Typically, 'embedded root clauses' are indicative clauses selected by a verb of saying or a factive verb (see Heycock to appear, to appear for a review of the literature on the subject).

The group of embedded clauses allowing a left-dislocated topic in spoken French is wider than what is commonly included in the 'embedded root clause' category. Left-dislocated topics appear in (i) certain subjunctive clauses, as in (59a), (45b), (8a); (ii) restrictive relative clauses, as in (59b); (iii) clauses selected by a negated verb, as in (59c); and (iv) clauses that are not assertive, as in

[19]This is not to say that constraints of another type do not play a role in restricting the distribution of topics in embedded clauses. This issue is addressed in section 3.3.

(59d), all of which fall outside off the traditional classification of embedded root clauses. All the examples in (59) come from the York corpus of spontaneous production.

(59) a. Tu veux que **moi**, je le dessine?
you want that me I it draw
'Do you want me to draw it?'
b. Elle enregistre ce que **toi**, tu dis.
she records that that you you say
'It records what you're saying.'
c. Je savais pas que **les cochons**, ils avaient des salles de bain, moi.
I knew not that the pigs they had some bathrooms me
'I didn't know pigs had bathrooms.'
d. Et si **moi**, je viens et que je casse tous tes jouets, tu seras contente?
and if me I come and that I break all your toys you will-be happy
'And if I come and break all your toys, will you be happy?'

However, dislocated topics are banned from embedded, non-finite clauses, as predicted by Emonds' definition of Discourse Projections as inherently finite.[20]

(60) a. *J'ai dit de, les haricots, les équeuter.
I-have said to the beans them tail
b. *J'ai peur de, moi, me couper.
I-have fear to me REFL cut

The matrix clause also has an impact on whether the embedded clause can take a dislocated element. In general, an embedded clause tends to have root properties when it conveys indirect discourse, i.e. when the embedding verb introduces reported speech.[21] Emonds' generalisation is that an embedded clause will have root properties if the governing verb has an animate argument serving as a subject of consciousness.

[20]The dislocated elements in (60) can only appear at the edge of the matrix clause (a Discourse Projection):

(i) a. **Les haricots**$_i$, j'ai dit de les$_i$ équeuter.
the beans I-have said to them tail
b. **Moi**, j'ai peur de me couper.
me I-have fear to REFL cut

[21]It is not sufficient for an embedded clause to be selected by a verb like *say* for it to qualify as embedded root: it also has to be finite, as illustrated by (60a).

(61) a. #Il faut empêcher que les myrtilles, ils les cueillent toutes
it must impede that the bilberries they them pick all
aujourd'hui.
today

b. Ils ont dit que les myrtilles, ils les avaient toutes
they have said that the bilberries they them had all
cueillies aujourd'hui.
picked today
'They said they had picked all the bilberries today.'

Incidentally, note that a Rizzian analysis offers no principled explanation of the unacceptability of (61a), given that the presence of a TopP in the embedded clause does not yield adjacency effects of any sort.

Non-object clauses can also be endowed with root properties. This is true of e.g. conditional clauses (59d) and relative clauses. Ease of identification of the topic's referent facilitates its presence in a relative clause: dislocated elements referring to speaker or hearer are allowed more readily than third person referents in general (see De Cat 2002 for details). It may well be the case that relevance-theoretic considerations have an impact on the acceptability of topics in such clauses.

To offer a preliminary conclusion: French embedded root clauses do not have exactly the characteristics of embedded root clauses as they have been defined in the literature. However, this might be due to the fact that embedded root phenomena have been studied mainly with respect to Germanic languages. Further research is clearly necessary to determine the extent of cross-linguistic variation as to which embedded clauses can be endowed with root properties.

3.4 Theoretical Consequences

Over the past two decades, a variety of phenomena have been taken to motivate the assumption that syntactic movement could take place via intermediate adjoined positions (for a comprehensive review of the relevant literature, see Sabel 2002). Postulating the existence of intermediate traces in VP-adjoined positions was shown to explain a variety of phenomena (such as reconstruction effects, locality effects and the absence of weak cross-over effects) in certain configurations involving *wh*-movement and scrambling. Adjunction to VP could not, however, be left unconstrained. It was established (among others by Chomsky 1986) that adjuncts could not be adjoined to adjuncts or to any XP requiring L-marking and that, more generally, movement was ruled out from [spec,CP] to an adjoined position.

Sabel (2002) argues that these restrictions do not follow from strictly minimalist assumptions and that they give rise to a number of empirical problems. He defends the idea that *movement may not proceed via intermediate adjunc-*

tion and that successive-cyclic movement only targets specifier positions.

I have presented clear evidence to the effect that French dislocated elements are adjoined to Discourse Projections and that this type of adjunction does not involve syntactic movement. This has the following consequences:

(62) a. The ban on adjunction to adjuncts and to object clauses is a *derivational* constraint, not a *representational* one.
b. XP-adjuncts need to be distinguished from specifiers: only the latter involve Agreement.

French dislocation has been shown to be possible at the edge of object and adjunct clauses. This, in the light of Sabel 2002, suggests that the ban on adjunction to such clauses is not representational in nature.

The present analysis also provides further empirical support for Hoekstra's (1991) arguments in favour of maintaining a distinction between XP-adjuncts and specifiers, based on the fact that only the latter involve syntactic agreement.

Finally, the possibility of left- and right-adjunction of dislocated elements does not contravene the Head Parameter (which Saito and Fukui (1998) argue applies to adjuncts too) if the distinction between adjunction by movement and base-generated adjunction is maintained: only the former but not the latter need incorporate the effects of that parameter.

4 Conclusion

French dislocation has been shown to be a syntactically uniform phenomenon, irrespective of the nature of the resumptive element. This phenomenon is uniform in the sense that the following characteristics are maintained in all cases: (i) the dislocated element expresses the topic of the sentence; (ii) the 'resumptive' element can be situated inside an island or inside another clause to that hosting the dislocated element; and (iii) dislocated constructions do not display the key properties of movement configurations: they do not license parasitic gaps, do not give rise to weak cross-over or minimality effects, and are not interpreted via reconstruction.

The term 'resumptive' has been argued to be something of a misnomer in this case, given that the clause-internal element coreferential with the dislocated XP is not interpreted as a genuine resumptive pronoun (in the sense of Sells 1984), does not manifest the properties advocated in Postal (1998), and does not behave as predicted by Boeckx (2003). Indeed, there is no syntactic requirement for the dislocated element to be present: any sentence containing a dislocated element is equally acceptable if that dislocated element is deleted. The so-called resumptive element is best analysed as a full-fledged (though possibly deficient) pronoun interpreted as a discourse-level anaphor.

The analysis proposed is that French dislocated elements are base-generated by adjunction to maximal projections with discourse properties (which requires them to be root or root-like). The distribution of dislocated elements is determined by their own discourse properties and those of the clausal projection with which they combine into a Predication (in the sense of Chomsky 1977). While issues concerning root-like embedded clauses are still some way from being resolved, an analysis of French dislocation as an essentially root phenomenon seems to be on the right track. Such an approach offers a more principled way of accounting for the distribution of peripheral topics than one which assumes that TopicPs can be projected at the edge of any clause unless they violate syntactic requirements (such as adjacency).

One of the advantages of the proposed analysis is that it makes it possible to free syntax from the burden of information structure. This is highly desirable on the face of the influence of factors such as the ease of identification of the corresponding discourse referents on the distribution of dislocated elements. On such an analysis, it is possible to postulate highly specialised components of the language faculty, thus maximising economy and allowing full exploitation of the potential of the interfaces between these components. In particular, a direct interaction between information structure and the lexicon is desirable — and perhaps indispensable, if one is to take the Inclusiveness condition seriously.

References

Alexopoulou, Theodora, Doron, Edit, and Heycock, Caroline. In press. Broad Subjects and Clitic Left Dislocation. In Adger, David, De Cat, Cécile, and Tsoulas, George, eds., *Peripheries. Syntactic Edges and Their Effect*. Kluwer, Dordrecht, pp. 329–358.

Anagnostopoulou, Elena. 1997. Clitic Left Dislocation and Contrastive Left Dislocation. In Anagnostopoulou, Elena, van Riemsdijk, Henk, and Zwarts, Franz, eds., *Materials on Left Dislocation*. John Benjamins Publishing Company, Amsterdam, pp. 151–192.

Aoun, Joseph and Benmamoun, Elabbas. 1998. Minimality, reconstruction, and PF movement. *Linguistic Inquiry*, 29(4):569–597.

Barbosa, Pilar. 2000. Clitics. a window into the null subject property. In Costa, João., ed., *Portuguese Syntax. New Comparative Studies*. OUP, Oxford, pp. 31–92.

Barnes, Betsy. 1985. *The Pragmatics of Left Detachment in Spoken Standard French*, volume VI:3 of *Pragmatics & Beyond*. John Benjamins, Amsterdam / Philadelphia.

Boeckx, Cedric. 2003. *Islands and Chains: Resumption as Derivational Residue*. Linguistik Aktuell/Linguistics Today 63. John Benjamins, Amsterdam.

Cecchetto, Carlo. 1999. A comparative Analysis of Left and Right Dislocation in Romance. *Studia Linguistica*, 53(1):40–67.

Cecchetto, Carlo. 2000. Doubling Structures and Reconstruction. *Probus*, 12(1):93–126.

Chomsky, Noam. 1977. On *WH*-movement. In Culicover, Peter, Wasow, Thomas, and Akmajian, Adrian, eds., *Formal Syntax*. Academic Press, New York, pp. 71–132.

Chomsky, Noam. 1986. *Barriers*. MIT Press, Cambridge, MA.

Chomsky, Noam. 1993. A Minimalist Program for Linguistic Theory. In Hale, Kenneth and Keyser, Samuel Jay, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*. MIT Press, Cambridge, MA, pp. 1–52.

Chomsky, Noam. 1995. *The Minimalist Program*. MIT Press, Cambridge, MA.

Chomsky, Noam. 2000. Minimalist Inquiries: The Framework. In Martin, Roger, Michaels, David, and Uriagereka, Juan, eds., *Step by Step*. MIT Press, Cambridge, MA.

Chomsky, Noam. 2001. Derivation by hase. In Kenstowicz, Michael, ed., *Ken Hale: A Life in Language*. MIT Press, Cambridge, MA.

Cinque, Guglielmo. 1983. 'Topic' Constructions in Some European Languages and 'Connectedness'. In Ehlich, Konrad and van Riemsdijk, Henk, eds., *Connectedness in Sentence Text and Discourse*, volume 4 of *Tilburg Studies in Language and Literature*. KBU, Tilburg, pp. 7–42.

Cinque, Guglielmo. 1990. *Types of A′ Dependencies*, volume 17 of Linguistic Inquiry Monographs. MIT Press, Cambridge, MA.

De Cat, Cécile. 2002. *French Dislocation*. PhD diss., University of York.

De Cat, Cécile. In press. French subject clitics are not agreement morphemes. *Lingua*.

Delais-Roussarie, Elisabeth, Doetjes, Jenny, Marandin, Jean-Marie, and Sleeman, Petra. 2003. Left Dislocation and Topicalisation in French. Talk presented at the ZAS Workshop on Dislocated Elements in Discourse, Berlin. PhD diss.

Emonds, Joseph. 1970. *Root and structure-preserving transformations*. PhD diss., MIT.

Emonds, Joseph. 2004. Unspecified categories as the key to root constructions. In Adger, David, De Cat, Cécile, and Tsoulas, George, eds., *Peripheries. Syntactic edges and their effects*. Kluwer, Dordrecht, pp. 75–120.

Erteschik-Shir, Nomi. 1997. *The Dynamics of Focus Structure*. Cambridge University Press, Cambridge.

Escobar, Linda. 1997. Clitic Left Dislocation and Other Relatives. In Anagnostopoulou, Elena, van Riemsdijk, Henk, and Zwarts, Franz, eds., *Materials on Left Dislocation, Linguistik Aktuell 14*. John Benjamins, Amsterdam / Philadelphia, pp. 233–274.

Frascarelli, Maria. 2000. *The Syntax-Phonology Interface in Focus and Topic Constructions in Italian*. Studies in Natural Language and Linguistic Theory 50. Kluwer, Dordrecht.

Grohmann, Kleanthes. 2000. *Prolific Peripheries. A Radical View from the Left*. PhD diss., University of Maryland.

Gundel, Jeannette. 1975. Left Dislocation and the Role of Topic-Comment Structures in Linguistic Theory. *OSU WPL*, 18:72–131.

Haegeman, Liliane. 2002. Anchoring to Speaker, Adverbial Clauses and the Structure of CP. *Georgetown University Working Papers in Theoretical Linguistics*, 2:117–180.

Haegeman, Liliane. 2003. The Syntax of Adverbial Clauses and Its Consequences for Topicalisation. Ms, Université Charles de Gaulle - Lille III.

Heycock, Caroline. To appear. Embedded Root Phenomena. In van Riemsdijk, Henk and Everaert, Martin, eds., *The Syntax Companion: An Electronic Encyclopaedia of Case Studies*. The LingComp Foundation.

Hirschbühler, Paul. 1975. On the Source of Lefthand NPs in French. *Linguistic Inquiry*, 6:155–165.

Hoekstra, Eric. 1991. *Licensing Conditions on Phrase Structure*. Groningen Dissertations in Linguistics (GroDiL), Groningen.

Hooper, Joan and Thompson, Sandra. 1973. On the Applicability of Root Transformations. *Linguistic Inquiry*, 4(4):465–497.

Iatridou, Sabine. 1990. *Clitics and Islands Effects*. Ms, MIT, Cambridge, MA.
Kayne, Richard. 1975. *French Syntax*. MIT Press, Cambridge, MA.
É. Kiss, Katalin. 1995. Introduction. In É.Kiss, Katalin, ed., *Discourse Configurational Languages*. OUP, Oxford, pp. 3–28.
Lambrecht, Knud. 1981. *Topic, Antitopic and Verb Agreement in Non-Standard French*, volume II:6 of *Pragmatics & Beyond*. John Benjamins, Amsterdam.
Lambrecht, Knud. 1986. *Topic, Focus, and the Grammar of Spoken French*. PhD diss., University of California.
Larsson, Eva. 1979. *La dislocation en français : Étude de syntaxe générative*. CZK Gleerup, Lund.
Lasnik, Howard and Saito, Mamoru. 1992. *Move alpha*. Current Studies in Linguistics. MIT Press, Cambridge, MA.
Newmeyer, Frederick. 2004. On Split-CPs, Uninterpretable Features, and the 'Perfectness' of Language. This volume.
Postal, Paul. 1998. *Three Investigations of Extraction*. Current Studies in Linguistics 29. MIT Press, Cambridge, MA.
Reinhart, Tanya. 1981. Pragmatics and Linguistics: An Analysis of Sentence Topics. *Philosophica*, 27:53–93.
Rizzi, Luigi. 1990. *Relativised Minimality*. MIT Press, Cambridge, MA.
Rizzi, Luigi. 1997. The Fine Structure of the Left periphery. In Liliane Haegeman, ed., *Elements of Grammar. A handbook of Generative Syntax*.. Kluwer, Dordrecht, pp. 281–337.
Ross, John. (1967). *Constraints on Variables in Syntax*. PhD diss., MIT, Cambridge, MA.
Sabel, Joachim. 2002. Intermediate Traces, Reconstruction and Locality Effects. In Artemis Alexiadou, ed., *Theoretical Approaches to Universals*. John Benjamins, Amsterdam, pp. 259–313.
Saito, Mamoru and Fukui, Naoki. 1998. Order in Phrase Structure and Movement. *Linguistic Inquiry*, 29(3):439–474.
Sells, Peter. 1984. *Syntax and Semantics of Resumptive Pronouns*. GSLA, Amherst.
Sportiche, Dominique. 1988. A Theory of Floating Quantifiers and Its Corollaries for Constituent structure. *Linguistic Inquiry*, 19(3):425–449.
Strawson, Peter. 1964. Identifying Reference and Truth Values. *Theoria*, 30.
Szendröi, Kriszta. 2001. *Focus and the Syntax-Phonology Interface*. PhD diss., UCL, London.
Szendröi, Kriszta. 2003. A Stress-Based Approach to the Syntax of Hungarian Focus. *The Linguistic Review*, 20:37–78.
Tellier, Christine. 2001. On Some Distinctive Properties of Parasitic gaps in French. In Culicover, Peter and Postal, Paul, eds., *Parasitic Gaps*. MIT Press, Cambridge, MA.
Tomioka, Satoshi. 2000. Information Structure and Disambiguation in Japanese. In Megerdoomian, K. and Bar-ell, L., eds., *WCCFL*, volume 20, Somerville, MA. Cascadilla Press, pp. 101–114.
Vat, Jan. 1981. Left Dislocation, connectedness and reconstruction. *Groninger Arbeiten zur Germanistischen Linguistik (GAGL)*, 20:80–103.
Vergnaud, Jean-Roger. 1974. *French Relative Clauses*. PhD diss., MIT, Cambridge, MA.
Zaring, Laurie. 1991. On Prepositions and Case-Marking in French. *Canadian Journal of Linguistics / Revue canadienne de Linguistique*, 36(4):363–377.

The Syntax and Semantics of the Resumptive Dependency in Hungarian Focus-raising Constructions*

Judit Gervain
Scuola Internazionale Superiore di Studi Avanzati, Trieste
gervain@sissa.it

Abstract

Previous work (Gervain, forthcoming) has established that focus-raising may be derived by two strategies in Hungarian. One of them is the traditional movement derivation, the other a resumptive dependency created between the focus constituent base-generated in its matrix focus position and a phonologically null resumptive pronoun in the corresponding argument position in the embedded clause. However, the previous account (Gervain, forthcoming) does not give a detailed description of the nature of this resumptive dependency. The present work aims to address this question. More specifically, by providing a series of empirical tests, it attempts to determine whether the dependency is purely syntactic in nature, i.e. obligatory variable binding, or whether a semantic option is also available, i.e. coreference between the focus constituent and the resumptive pronoun. Thus, it provides new insights into the ongoing debate about the nature of resumptive pronouns.

1 Introduction: Two Strategies for Focus-raising

Resumptive pronouns have received relatively little attention in the syntactic and semantic literature on Hungarian. The present work aims tot fill this gap by analysing focus-raising via resumption.

Theories of focus-raising have a long history (Zolnay 1926). Nevertheless, the particular variety investigated here, namely the one derived via resumption, has only been described recently (Gervain, forthcoming). There are, however, still a number of questions left open concerning some semantically related aspects of focus-raising via resumption and of resumptive pronouns in general. The main question that will be addressed in this paper concerns the referential and binding properties of resumptive pronouns in Hungarian.

In order to provide an answer, first, the syntactic properties of focus-raising will be summarized. Secondly, new data will be introduced to shed light on certain characteristics of the resumptive pronoun in focus-raising. Thirdly, a

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theoretical analysis will be offered, bearing on broader issues about resumption.

1.1 Defining Focus-raising: The Data

In focus-raising (FR), the focus constituent of an embedded clause surfaces in the matrix focus position (e.g. Kenesei 1994; É. Kiss 1987; Lipták 1998), as in (1).[1]

(1) a. Azt mondtad, (hogy) GÁBOR síel jól.
expl.acc say.pst.2s that Gábor ski.3s well
'You said that it was Gábor who skied well.'

b. (*Azt) GÁBORT mondtad, hogy e_i jól síel.
expl.acc Gábor.acc say.pst.2s that well ski.3s
'It is Gábor who you said skied well.'

Raising always takes place through bridge verbs, like *mond* 'say' and *akar* 'want'. The complementizer *hogy* 'that', which is optional in non-raising sentences like (1a), need to be present in the raising counterparts like (1b). The expletive is grammatical with the non-raising sentence, but not with the raising one. These well-known generalizations (Horvath 1995, 1998; É. Kiss 1987; Kenesei 1994; Lipták 1998 Marácz 1987) hold across all syntactic varieties of Hungarian, whereas two further properties of FR are subject to considerable, but systematic, speaker variation. The first of these properties is the case of the raised focussed DP. While É. Kiss (1987) describes it as optional between nominative and accusative, Lipták (1998) claims that it is obligatorily accusative. Furthermore, for certain speakers, when the DP is quantified or preceded by a numeral, number agreement on the embedded verb is optionally singular or plural. This is surprising because in Hungarian, nouns preceded by quantifiers or numerals are morphologically singular, and agree in the singular with their verbs, as shown in (2).

(2) a. Két fiú jön.
two boy.sg.nom come.3s
'Two boys are coming.'

b. *Két fiú**k** jön**nek**.
*two boy.**pl**.nom come.3**pl***

Gervain (forthcoming) conducted an experimental survey to explore the two properties that exhibit variation and their potential interdependence. The results show that out of the four logically possible patterns, only two are attested; thus the two properties, i.e. the case of the raised DP and the

[1] Small capitals in the examples indicate the focus constituent, bearing focal stress.

agreement on the embedded verb, are indeed interdependent. The following two patterns were obtained:[2]

(3) a.???AZÖSSZES LÁNY mondtad, hogy jön.
the all girl.sg.nom say.pst.2s that come.3s
'It is all of the girls who you said were coming.'

b. *AZ ÖSSZES LÁNY mondtad, hogy jönnek.
the all girl.sg.nom say.pst.2s that come.3p

c. ?AZ ÖSSZES LÁNYT mondtad, hogy jön.
the all girl.sg.acc say.pst.2s that come.3s

d. AZ ÖSSZES LÁNYT mondtad, hogy jönnek.
the all girl.sg.acc say.pst.2s that come.3p

(4) a. ?Az ÖSSZES LÁNY mondtad, hogy jön.
the all girl.sg.nom say.pst.2s that come.3s

b.???Az összes lány mondtad, hogy jönnek.
the all girl.sg.nom say.pst.2s that come.3p

c. ?AZ ÖSSZES LÁNYT mondtad, hogy jön.
the all girl.sg.acc say.pst.2s that come.3s

d.???Azösszes lányt mondtad, hogy jönnek.
the all girl.sg.acc say.pst.2s that come.3p

In (3), plural agreement is accepted, but nominative case is not, whereas in (4), both nominative and accusative are judged grammatical, but plural agreement is not tolerated.

1.2 The Two Strategies of FR

Previous accounts (e.g. Kenesei 1994; É. Kiss 1987; Lipták 1998) all interpret FR as some kind of movement. This derivation readily explains the pattern shown in (4), in which no plural agreement is allowed. However, as Gervain (forthcoming) argues, the other pattern, i.e. the plural agreement on the embedded verb (3b, d), cannot be accounted for, since as (2) suggests, if the DP starts out as the embedded subject, it inevitably agrees in the singular with its verb. Therefore, a different explanation is required.

Gervain (forthcoming) argues that the pattern in (3) is obtained via a resumptive dependency. The DP is base-generated in the position occupied by the expletive in non-raising structures like (1a). As for the embedded subject position, it is filled by a resumptive pronoun, which is coindexed with the focussed DP as its antecedent. Through this dependency, the resumptive

[2] Grammaticality values are given on a five-graded scale: OK, ?, ??, ??? and * (see also section 3 and Gervain 2003).

pronoun may inherit either singular (from the morphologically singular DP) or plural (the plurality of the Numeral/Quantifier) features and trigger singular or plural agreement on the verb accordingly. In this scenario, the thematic role of the main verb is assigned to the embedded clause, just as in any other analysis (e.g. Kenesei 1992, 1994), while its accusative case is picked up by the focussed DP. Nevertheless, the DP is not left without a thematic role; it receives whatever theta role is assigned to the resumptive pronoun. The resumptive chain has two cases, but this is not unusual, since double case and case conflict are not uncommon in resumptive dependencies (Español-Ecchevarría and Ralli 2000).

Thus, the variation across speakers is explained by the fact that there are two possible strategies to derive FR constructions in Hungarian.[3] These strategies are indistinguishable in most cases — in fact, always, except when the focus constituent is the embedded subject DP containing a quantifier or a numeral.

1.3 Some Open Questions

The above account of FR via resumption allows for two ways of deriving the dependency between the antecedent and the resumptive pronoun. One option is that the resumptive is linked up with the antecedent, i.e. they are coindexed, and the number feature of the resumptive will depend on which DP layer it is actually coindexed with.[4] If the target is the whole DP, instantiated by the singular N head, the pronoun will inherit singular, whereas if the other overt constituent, the inner NumP, is targeted, the pronoun receives a plural feature. This option of deriving the dependency is exemplified in (5).

(5) a. $[_{CP}\,[_{FP}\,[_{DP}[_{NumP}$ KÉT$[_{NP}$ FIÚT$_j$]]]]$_i$ $[_{AgrOP}$ t_i $[_{VP}$ mondtál $[_{DP}\,t_i$]]]],
two *boy.sg.acc* *say.pst.2s*
$[_{CP}$ hogy $[_{AgrSP}$ pro$^{sg}{}_j$ $[_{VP}$ jön.]]]]
that *come.3s*
'You said that it was two boys that were coming.'

a′. $[_{Num/QuantP}$ KÉT $^{\mathbf{pl}}$ $[_{NP}$ FIÚ$_i$ $^{\mathbf{sg}}$]] … pro$_i^{\mathbf{sg}}$

[3] A closer examination of the judgments given by the individual informants in the survey suggests that the distinction between the two patterns is categorical, i.e. every individual speaker uses only one of the two strategies. In other words, there is no informant who freely switches between the two, and accepts three (i.e. Nom+sg, Acc+sg, Acc+pl) out of the four possible combinations.

[4] There is some evidence to suggest that, in line with Longobardi 2001, the DP may be transparent with respect to coindexation in Hungarian (see Gervain 2002).

b. $[_{CP}\,[_{FP}\,[_{DP}[_{NumP}$ KÉT$_j$ $[_{NP}$ FIÚT$]]]_i[_{AgrOP}$ t$_i$ $[_{VP}$ mondtál $[_{DP}$ t$_i$ $]]]]$,
two *boy.sg.acc* *say.pst.2s*
$[_{CP}$ hogy $[_{AgrSP}$ pro$^{pl}{}_j$ $[_{VP}$ jönnek.$]]]]$
that *come.3p*

b′. $[_{Num/QuantP}$ KÉT$_i$ $^{\mathbf{pl}}$ $[_{NP}$ FIÚ $^{\mathbf{sg}}]]$ … pro$_i{}^{\mathbf{pl}}$

The second option is for the resumptive pronoun to establish a two-faceted dependency with its antecedent, as shown in (6a,b). It may either be bound by it or corefer with it. In the first case, it inherits the formal singular feature of the DP through a syntactic dependency; in the second, it is plural, as overt cross-sentential coreference in (6c) suggests.

(6) a. $[_{DP}$ $[_{Num/QuantP}$ KÉT $^{\mathbf{pl}}$ $[_{NP}$ FIÚ $^{\mathbf{sg}}]]]_j{}^{\mathbf{sg}}$ … pro$_j{}^{\mathbf{sg}}$

b. $[_{DP}$ KÉT FIÚ$]_a$ … pro$_a$
where a: discourse referent ‘two boys’, b$_1$ & b$_2$

c. Két fiú bejött a szobába.
two *boy.sg* *enter.pst.3s* *the* *room.into*
‘Two boys entered the room.
Leültettem *őt/ őket.
sit.caus.past.1s *he.acc* *they.acc*
‘I offered them a seat (lit. I made them sit down).’

Ultimately, the choice between the two options hinges on whether the resumptive pronoun is a gap/trace-like or a pronoun-like entity. If it resembles gaps/traces, it always has to be bound by and coindexed with its antecedent, whereas if it is pronoun-like, it can be bound or free (and coreferential with the antecedent DP). This question has long been debated in the literature of resumption (e.g. Demirdache 1991; Engdahl 1985; Falk 2002; Sharvit 1999). Gervain (forthcoming) remains agnostic about the issue given the lack of decisive empirical evidence. More data are needed to distinguish between the gap and pronoun hypotheses. However, before introducing some new empirical evidence, it is useful to briefly recall the theoretical issues at stake.

2 The Nature of Resumptives: Theoretical Considerations

One of the first detailed theoretical treatments of resumptive pronouns was given by Chomsky (1981, 1982). The main assumption, based mostly on English data, was that resumptives appear in positions where gaps/traces would be ruled out because of constraints on movement (e.g. in island contexts). The resumptive pronoun is base-generated in its surface position and is A′-bound at LF by its antecedent, with which it is coindexed. Thus, no movement is involved.

(7) a. I wonder who$_i$ Mary marries (*him$_i$).

b. I wonder [who$_i$ they think [that [if Mary marries *(him$_i$)] then everybody will be happy]].

Under this view, resumptive pronouns are expected to be in complementary distribution with traces, and they come as a kind of last resort device to save otherwise disallowed movement configurations. Consequently, they are thought of as a rare and marked strategy, with no specific UG constraints required to account for them. Rather, their distribution is believed to fall out from independent UG principles.

This approach was later challenged on several grounds. Resumptive strategies turned out to be subject to considerable cross-linguistic variation, which led to the introduction of different typologies (Aoun et al. 2001; Demirdache 1991; Engdahl 1985; Suñer 1998). The last resort nature of resumption has also been questioned (see e.g. Shlonsky 1992 and Aoun et al. 2001 for strong last resort views; but Suñer 1998 and Willis 2000 for challenges). Some of these issues are briefly summarized below.

2.1 Cross-linguistic Typologies of Resumptive Pronouns

Resumption is not a uniform strategy cross-linguistically. Several typologies have been proposed (Aoun et al. 2001; Demirdache 1991; Engdahl 1985; Suñer 1998).

Engdahl (1985) argues that if resumptive pronouns are pronominal in nature at S-structure, as Chomsky (1981, 1982) posits, they should not license parasitic gaps. Even though this prediction holds for English, it is not borne out in Swedish. Therefore, Engdahl supposes that in Scandinavian languages, at least some resumptive pronouns are variables at S-structure. She actually claims that Swedish has both English-type resumptives — which are pronouns at S-structure (and thus cannot license parasitic gaps), but A′-bound variables at LF — and resumptives which are phonetic realizations of *wh*-traces, and thus variables both at S-structure and LF (and consequently able to license parasitic gaps). Thus phonetic realization, as a factor, cross-cuts the traditional trace/resumptive pronoun distinction. Both may be overt or covert, the relevant distinctive property being operator-boundedness. Languages that allow phonetically null pronouns in general, i.e. *pro*-drop languages, are expected to have phonetically null resumptive pronouns as well. Thus, the following typology obtains: (i) resumptive pronouns may be phonologically null and pronoun-like, that is A′-unbound (at S-structure), as in Italian; (ii) they may be phonologically full and pronoun-like, as in English and in some Swedish constructions; and (iii) they may be phonologically full and variable-

like (at S-structure), as in Swedish parasitic-gap constructions.[5] This last type is actually the spell-out of a *wh*-trace. This assumption is also made in Koopman and Sportiche 1986 for Vata, and McDaniel and Cowart 1999 for English.[6]

Demirdache (1991) also takes A′-boundedness to be the distinctive criterion for distinguishing between English-type resumptives, or 'intrusives', which cannot be operator-bound, and Hebrew-type true resumptives, which can. Furthermore, this second type of resumptive pronoun can have a [+wh] or [–wh] feature. If they are [–wh], they can be overt or null. Moreover, they can have a quantificational function, receiving a bound variable interpretation; or they can have a resumptive function, having a referential interpretation. The former function is found in restrictive relative clauses, which semantically act as open propositions assigning a range to the otherwise non-referring head noun. This is achieved by the LF movement of the resumptive pronoun from its (base-generated) surface position to the C head of the relative clause in order to bind its trace. Thus at LF, these resumptives are operator-variable chains. The resumptive function is attested in appositive relatives, where the head noun independently refers, the resumptive pronoun receives a referential interpretation and no LF movement is involved. Cross-linguistically, the difference between languages is whether they have relativization involving movement (e.g. English) or *in situ* relativization making use of the resumptive strategy (e.g. Hebrew, Irish etc.), just as they differ with respect to question formation with *wh*-movement or *wh*-in-situ.

Suñer (1998) offers a typology somewhat similar to that of Demirdache (1991). She distinguishes between two resumptive strategies: a syntactic and a phonological one. In the first case, resumptive pronouns serve to overcome violations of movement constraints and are subject to last resort considerations. In the second, they do not appear in island contexts and are not subject to last resort. Rather, they are inserted at PF as the realization of the φ-features of the *in-situ* relative pronoun. In restrictive relative clauses introduced by a general, [–pronominal] complementizer, the relative pronoun is not attracted by this latter and thus stays *in situ*, but because of its [wh] feature, it cannot be interpreted as a bound variable; therefore this feature gets stripped off and the closest pronominal counterpart is spelt out. When the C head is [+pronominal], it attracts the relative pronoun, which thus moves to [Spec CP], leaving a trace behind. The choice between the two strategies does

[5] No instance of the fourth logical possibility, a phonologically null, variable-like resumptive pronoun, is reported in Engdahl 1985.

[6] The claim made by these authors is in fact subtler. On the basis of quantitative (ratio scale) native speaker judgments elicited in an experiment, they show that resumptive pronouns in English are spell-outs of *wh*-traces realized in order to amend violations of constraints on representation (i.e. ECP), but not on movement *per se* (i.e. subjacency).

not fall under last resort considerations, but depends on the feature composition of the complementizer instead. On this view, the phonological resumptive strategy can be observed in English,[7] Yiddish, Hebrew, Spanish, Welsh and Irish, for instance.

Aoun et al. (2001) offer yet another typology of resumptive strategies. In Lebanese Arabic, strong pronouns (and epithet phrases) can resume quantificational phrases only in the context of islands; in the absence of an island, the result is ungrammatical. When the antecedent is not quantificational, resumption is possible both in the presence and in the absence of island contexts. To account for these facts, the authors distinguish between apparent and true resumption, as in (8). The former involves the movement of the antecedent to an A′-position, leaving behind the resumptive element, which is associated to it as an appositive modifier.

(8) from Aoun et al. (2001: 3-4, simplified)

a. true resumption
QP_i … $[_{island}$ $[_{DP}$ resumptive element$]_i$]

b. apparent resumption
DP_i/QP_i … $[_{DP}$ t_i $[_{DP}$ resumptive element]]

Since the authors take appositive modifiers to be independent clauses, the impossibility of quantificational antecedents follows directly, given the fact that quantifiers cannot bind pronouns across sentence boundaries. However, if there is an island, apparent resumption is bound to fail, and true resumption takes over as a last resort. Not involving movement, this strategy links the antecedent to the pronoun by (a mechanism similar to) binding. This is possible both for quantificational and non-quantificational elements, since no sentence boundary intervenes.

It appears from the above discussion that cross-linguistic variation is considerable; nevertheless some common factors seem to underlie most of the typologies. First, most typologies make a distinction between languages that make regular use of resumptive pronouns, like Hebrew, and other languages, such as English, where resumptives are rare and their main function is to circumvent constraints on movement. Hungarian belongs to the latter category. A second issue concerns the phonological realization of resumptives. In addition to overt resumptives, some languages appear to have phonologically null ones. It has been proposed that this option largely correlates with the *pro*-drop or Avoid Pronoun property of the language. A third question, partly related to the previous ones, centers on the distinctive features of resumptives as opposed to traces, on the one hand, and ordinary

[7] Note that the English data Suñer relies on are much more varied and ample than what is usually assumed about resumption in English.

pronouns, on the other. When overt, resumptives phonologically coincide with pronouns; when null, they are indistinguishable from traces. However, there are considerable overlaps in the distributions of the three categories, especially those of gaps and resumptives. The behavior of resumptives with respect to binding is no more revealing. A′-boundedness has been proposed as a key feature, but even that does not do the job. The next section will therefore be devoted to a more detailed review of previous proposals about this issue.

2.2 Resumptives: Pronouns or Variables?

Discussing relative clauses in Hebrew, Sharvit points out that some of the syntactically free and optional alternations between traces and resumptives actually produce interpretative differences. Pair-list/multiple individual readings are not available for resumptives, while they are possible with traces in non-equative relative clauses; but this asymmetry disappears in equative clauses. On her account, resumptives are licensed under two conditions: (i) they need a contextually salient (e.g. D-linked) antecedent, and (ii) they can only be assigned values that the given pronoun can take when it is A/A′-free. Pair-list readings generally violate the first condition, but this impairment is amended in equative clauses, where a highly salient antecedent is available.

(9) from Sharvit (1999: 3)

ha-iSa Se kol gever hizmin t/ota hayta iSt-o
the-woman that every man invite.past.3s pro.3s.f was wife-poss.3s

a. ‘The woman every man invited was his (he = y) wife.’
b. ‘For every man x, the woman x invited was x’s wife.’

Sharvit further claims that resumptives have a dual nature. Like traces, they are A′-bound and are interpreted as bound variables, while their distribution (e.g. within islands) resembles that of ordinary pronouns.

Falk (2002) offers an LFG account of resumptives. He starts out by introducing the pronoun versus variable debate, and summarizes some of the empirical evidence that has been put forth in favor of one position or the other. As arguments for the trace hypothesis, he enumerates the following observations: (i) resumptives, just like gaps, are linked to some discourse function or operator (Erteschik-Shir 1992; Sharvit 1999); (ii) anaphora between a possessive reflexive in a fronted whP and its antecedent DP in an embedded subject position is allowed when the extraction site of the whP contains a trace or a resumptive (Zaenen et al. 1981); (iii) like traces, resumptives are able to license parasitic gaps (Engdahl 1985; Shlonsky 1992); (iv) both traces and resumptives show crossover effects (Shlonsky 1992); and (v) resumptives can be coordinated with gaps/traces. On the other hand, as Falk argues, resumptives are exempt in most (but not all) languages from the island constraints traces/movement obey (Chomsky 1981, 1982). Also,

resumptives are associated with special morphology on the verb or the complementizer in some languages (McCloskey 2001; Vailette 2002). In Falk's own analysis, resumptives receive the same treatment as gaps, except that they are licensed differently from gaps. Interestingly, on the basis of the same empirical evidence as Sharvit, Falk makes the additional claim that resumptives are referential and *cannot* be bound variables. Rather, they are D-linked; and in addition to syntactic constraints, they also respect the principle of Sufficiency of Expression, which says that syntactic elements providing cues for parsing are exceptions to (syntactic) considerations of economy.

The debate between the pronoun and the trace hypotheses is far from being resolved. In the following, I will examine resumptives in Hungarian FR, by applying some of the empirical tests mentioned above in order to gain more insight into the nature of resumptives.

3 New Empirical Findings

Focus-raising in itself, as shown in section 1.3, is not a good testing ground to distinguish between the trace and pronoun hypotheses. Therefore, some of the diagnostics mentioned above had to be applied to allow a better comparison between the predictions of the two approaches.

If resumptives behave like traces, i.e. bound variables, they are expected not to be able to corefer. They are supposed to license parasitic gaps and show crossover effects. Moreover, their coordination with another trace should be grammatical. If, on the other hand, they resemble ordinary pronouns, they can corefer, they don't license parasitic gaps or show crossover effects and it is impossible to coordinate them with traces.

To test these predictions, a small paper-and-pencil survey was carried out, comprising the following diagnostics: (i) parasitic gap licensing; (ii) coordination with traces/pronouns; and (iii) crossover effects. Test sentences were constructed in such a way that FR or *wh*-raising[8] was combined with these diagnostics.

[8] As pointed out before, the only visible empirical difference between the movement and the resumptive strategies of FR is attested when the focus constituent is the embedded subject, which, in addition, has to be a *két fiú* type DP. Ideally, therefore, *subject* FR should have been combined with the diagnostic constructions. However, in most cases, this was impossible, and object FR or wh-raising (whR) was used instead.

In order to avoid any bias introduced by this change, it had to be established that object FR and whR are derived in the same way as subject FR, i.e. via resumption. As for whR, it is well known (Bródy 1995) that this involves essentially the same mechanism as FR. Moreover, section 3.3 of the present paper will offer further empirical confirmation of this assumption. As far as object FR is concerned, it was compared to subject FR in the survey as a baseline condition. No statistically significant difference between the two constructions was found. Moreover, they share some additional properties as well, e.g. neither of them

Eighteen native Hungarian informants participated in the survey. It was made sure that all of them derive FR via resumption. Subjects were asked to judge the grammaticality of 63 test and control sentences on a 5-grade scale ranging from -2 to +2. The experimental procedure and the principles guiding the generation of the sample sentences were identical to those of Gervain 2003, to which the reader is referred for further details. Subjects' responses were given a statistical treatment. The grammaticality judgments reported below reflect statistical averages across speakers.

3.1 Parasitic Gap Constructions

Given the fact that gaps/traces can license parasitic gaps, but pronouns cannot (Engdahl 1985; Falk 2002), the behavior of resumptives may be revealing in this respect. Parasitic gaps were combined with object FR, as in (10).

(10) HÁROM GYEREKET$_i$ hallottam, hogy megvertek, pro$_i$
three child.sg.acc hear.past.2s that beat.past.3p
anélkül hogy ismertek volna e$_i$.
without that know.past.3p aux.cond
'I heard that it was three children that they had beaten without knowing.'

The average of the grammaticality judgments was .019. This was compared, in a *t*-test, to object FR, the average grammaticality of which was .815 (see n. 8), revealing a significant difference ($t(17)= -3.690$, $p<.05$). Nevertheless, note that the absolute grammaticality of parasitic gap + object FR sentences is still within the positive range of the –2 to +2 scale.

Parasitic gaps do worsen grammaticality, but do not induce radical violation. These results are not, therefore, decisive. Further evidence could be gained from a comparison with simple parasitic gap constructions, i.e. those not containing an additional resumptive dependency. If parasitic gaps are in themselves slightly impaired, the results obtained suggest that resumptives do license parasitic gaps, and the decrease in grammaticality values results from the general markedness of parasitic gaps, not from the failure of resumptives to license them. If, on the other hand, parasitic gaps are fully grammatical structures, the worsening of acceptability in the present study implies that resumptives are unable to license parasitic gaps.

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allows overt resumptive pronouns, and they both differ statistically from the control sentences in which the focussed argument in the main clause corefers with an independent ordinary pronoun in the embedded clause. Therefore, it can safely be concluded that object FR is also derived via resumption in the relevant syntactic 'dialect' or variant of Hungarian. Consequently, for the purposes of testing, they can be used interchangeably.

3.2 Coordination with Gaps

A convincing empirical argument for the gap-like nature of resumptives derives from the fact that they allow across-the-board extraction, i.e. they can be coordinated with gaps.

This, however, can only be tested empirically in languages where resumptives are overt. This turned out not be the case in Hungarian (see n. 8), since subjects rejected even the simple subject FR sentences when they contained an overt resumptive. Therefore, the test sentences that had been designed to measure resumptives' ability to coordinate with gaps are not analyzable, since their ungrammaticality results, at least partly, from the overtness of the pronoun, not from the impossibility of coordination.

3.3 Crossover Effects

The presence of crossover effects has also been invoked as evidence to show that resumptives behave like gaps (Engdahl 1985). In the present survey, both strong and weak crossover phenomena were tested.

Test sentences were construed with *wh*-raising instead of FR to match as closely as possible the general literature on crossover. As a consequence, object FR could no longer serve as the baseline for comparison. Several different constructions were used instead. They will be described as the analysis proceeds.

3.3.1 Strong Crossover

Strong crossover (SCO) effects, as illustrated in (11),[9] were tested with both singular and plural embedded verbs.

(11) *Hány embert$_i$ kérdeztél, hogy pro$_i$ ismer/ismernek t$_i$?
how-many people.acc ask.past.2s that know.3s/3p
'How many people did you ask know themselves?'

The average grammaticality of the singular sentences was –1.500, while that of the plural ones was –1.352. There was no significant difference between the grammaticality of the two types ($t(17)= –1.512$, ns.).

The absolute values are very low, implying that the sentences are quite marginal. However, it had to be shown that it was not the configuration alone that was ungrammatical. Therefore, anaphoric binding within FR, as in (12), and whR, as in (13), was used as the baseline for comparison, because these

[9] Whenever any indications of grammaticality are given for in-text sample sentences in this and the following section, they refer to 'common opinion' about the sentences in the literature, not to the actual grammaticality values found in the survey. However, in most of the cases, the two values coincide, of course.

constructions also contain a dependency between three elements in the relevant positions, but the nature of the items is different.

(12) KATIT$_i$ akarod, hogy pro$_i$ lássa magát$_i$.
Kati.acc want.2s that see.subj.3s herself.acc
'You want Kati to see herself.'

(13) Hány katonát$_i$ hiszel, hogy pro$_i$ megvédte magát$_i$?
how.many soldier.acc believe.2s that protect.past.3s himself.acc
'How many soldiers do you believe protected themselves?

The averages of the two constructions were .278 and .463, respectively. There was no significant difference between the two control conditions (t(17)= –.857, ns.). On the other hand, the difference in grammaticality between these controls and the SCO sentences (singular and plural collapsed) was very significant, both when the two controls were also collapsed (t(17)=4.498, p<.001) and when they were treated separately (t(17)= –3.665, p=.0019 for the FR control, t(17)= –5.318, p<.0001 for the whR control). In sum, then, the test sentences do show very pronounced SCO effects.

3.3.2 Weak Crossover

The presence of SCO is not so much of a surprise, given the cross-linguistically uniform and highly pronounced nature of the phenomenon. On the other hand, weak crossover (WCO) effects, as in (14), appear to be finer diagnostic tools (Bissell 1999; Ruys 2000). It is all the more interesting since, as Richards (1997) notes, Hungarian does not show WCO effects in simple, non-focus sentences, while, as É. Kiss (1994) points out, ones containing focus do.

Like SCO, these constructions were also lexicalized both with singular and plural morphology, but, of course, the relevant site of agreement is not the embedded verb, but the possessive suffix of the subject DP.

(14) ???Hány férfiti gondolsz, hogy a feleségei/ feleségüki
how-many man.acc think.2s that the wife.poss3g wife.poss3p
szeret ti ?
love.3s
'How many men do you think his/their wife loves?'

The averages were .296 and –.333, respectively, for the singular and the plural. Here, there is a slight but statistically significant difference between them (t(17)=2.507, p=.023). This, however, does not question the use of the resumptive strategy, because, if den Dikken's (1999) analysis of possessives in Hungarian is correct, then the singular/plural agreement on the DP is motivated at least partly independently of the number feature of the possessor DP. In fact, he assumes an optional resumptive mechanism within the DP that

explains why plural DPs render the sentences more marginal. In the plural constructions, the antecedent whP has to establish the dependency with the embedded object resumptive pronoun over one more coindexed element, the additional resumptive pronoun within the DP; thus it incurs one more WCO violation.

Controls for the WCO were also whR sentences, as in (15), but ones in which the *wh*-constituent was in the subject rather than object position of the embedded clause, hence no crossover could obtain. Both singular and plural realizations were tested.

(15) a. Hány igazgatót mondtál, hogy ugráltatja a
how-many director.sg.acc say.past.2s that order.3s the
beosztottait?
inferior.pl.poss3s.acc
'How many directors did you say order about his inferiors?'

b. Hány igazgatót mondtál, hogy ugráltatják a
how-many director.sg.acc say.past.2s that order.3p the
beosztottaikat?
inferior.pl.poss3p.acc
'How many directors did you say order about their inferiors?'

The averages were 1.315 and 1.185, respectively, for the singular and the plural. A *t*-test showed no difference between the two ($t(17)=1.236$, ns.). The high degree of absolute grammaticality and the absence of any statistical difference between singular and plural agreement further confirm previous empirical results (Gervain 2003, forthcoming) and the resumptive analysis thereof.

To compare WCO sentences to their controls, a repeated measures ANOVA was performed with factors Crossover (WCO vs. control) and Number (singular vs. plural). The factor Crossover had a highly significant main effect ($F(1,17)=47.361$, $p<.0001$), indicating that WCO sentences are less grammatical than controls. The main effect of Number was also significant ($F(1,17)=8.286$, $p<.05$). There was no two-way interaction between the factors ($F(1,17)=3.180$, ns.).

To summarize the findings, whR constructions exhibit WCO effects. These are slightly stronger when plural agreement is used, but this happens for reasons independent of the raising structure itself. Also, the absolute grammaticality values for WCO sentences are not very low, just on the verge of grammaticality, while SCO effects are marked. This is expected, since WCO violations are, by definition, milder than SCO effects (e.g. Ruys 2000).

3.4 General Discussion of the New Empirical Findings

Focus- (and *wh*-)raising constructions were tested with three diagnostics in order to decide whether the resumptive pronoun they contain is pronominal or variable-like.

Only two out of the three diagnostics yielded results. Coordination with traces could not be evaluated, because the first part of the survey revealed that resumptives cannot be spelt out in Hungarian. This observation is readily explicable by the Avoid Pronoun (Montalbetti 1984) principle.

Parasitic gaps, one of the two tests that could actually be carried out, gave mixed results. When combined with FR, parasitic gaps do decrease grammaticality significantly; however, the overall values are still within the grammatical range.

Findings are more straightforward for crossover effects. Both SCO and WCO phenomena had been found, and the degree of the violations corresponds to the judgments generally reported in the literature, i.e. SCO effects are very pronounced, while WCO induces less marked unacceptability.

Note that the absolute values for FR with parasitic gaps and whR with WCO effects are very close, both on the margin of grammaticality. It is important to point out, however, that these values are not directly comparable. WCO effects, by their very definition, are slight impairments in grammaticality. For these constructions, therefore, the current results correspond very closely to predictions. Parasitic gaps, on the other hand, come with no clear expectations as to their degree of grammaticality (cf. Postal 1998; but Levine 2001). Proposals, if any, have been made to the effect (e.g. Postal 1998 and references therein) that parasitic gap constructions are in fact rather grammatical (but again, see Levine 2001).

All in all, the presence of crossover effects shows a variable-like behavior, while the marginality of the parasitic gap test points in the other direction. The new results are not conclusive in themselves. We might gain more insight by combining them with previous empirical observations (Gervain, forthcoming) to draw a more complete picture of the syntactic behavior of resumptives in FR.

First, results show that the resumptive dependency is grammatical with a quantified antecedent, as in (16a), even through islands, as in (16b).

(16) a. AZ ÖSSZES LÁNYT mondtad, hogy jönnek.
the all girl.sg.acc say.past.2s that come.3p
'You said that it was all of the girls that were coming.'

b. AZ ÖSSZES VENDÉGET mondtad, hogy hallottad.
the all guest.sg.acc say.past.2s that hear.past.2s
a hírt, hogy megérkeztek.
the news that arrive.past.3p
'You said that you heard the news that it was all of the guests that had arrived.'

Absolute values are very high, and even though no statistical analysis was performed on these data in Gervain, forthcoming, the grammaticality of these constructions is comparable to that of FR with non-quantificational antecedents.

These findings show that the resumptive pronoun can be bound, confirming previous theories of the A′-boundedness of resumptives. Boundedness is thus a strong indication that resumptives behave like variables. Note, however, that on a syntactic level, both traces and pronouns can act as bound variables; therefore this test is not decisive. The discussion of FR with quantified DPs will be picked up again later.

Another observation made in Gervain, forthcoming is that reciprocals in the embedded clause improve or even force plural agreement.

(17) A két legjobb barátodat mondtad, hogy
the two best friend.poss2s.sg.acc say.past.2s that
még sosem ?látta/ átták egymást.
yet never see.past.3s/ see.past.3p each-other.acc
'You said that it was your two best friends that had never seen each other.'

Note that this is not the case in simple clauses.

(18) A két legjobb barátod látta/ ??látták
the two best friend.poss2s.sg.nom see.past.3s/ see.past.3p
egymást.
each- other.acc
'Your two best friends saw each other.'

Unlike the previous one, this property of FR goes very much in the direction of the pronoun hypothesis. An antecedent that is made contextually more salient is easier to establish coreference with. Importantly, contextual salience, already evoked in earlier discussions (e.g. Erteschik-Shir 1992; Falk 2002), is not a syntactic notion. We are thus facing a phenomenon here that highlights some of the pragmatic properties of resumptives.

The most general conclusion on the basis of these results is that resumptives have both trace-like properties, for instance crossover effects and (possibly) parasitic gap licensing, while they also exhibit traits characteristic of pronouns, e.g. they appear in islands and are sensitive to contextual

salience. Furthermore, some semantic and pragmatic aspects have also been evoked. Therefore, I conclude, in accordance with Sharvit (1999) and Falk (2002), that resumptives are inherently ambiguous between traces and pronouns.

4 A Syntactic Account of the Double Nature of Resumptives: Vehicle Change

The cross-linguistic theories of resumptives introduced earlier all assume some kind of ambiguity in the behavior of these elements. However, they also posit that resumptives with different properties constitute different subtypes — for example, Demirdache's (1991) introsives and resumptives, and Aoun et al.'s (2001) apparent and true resumptives.

The claim I am making here is stronger than this. Resumptives do not have subtypes of disparate natures, rather all resumptives are inherently ambiguous between traces (syntactic variables) and pronouns.

Sharvit (1999) and to some extent Falk (2002) make similar claims. In their systems, however, the ambiguity lies between syntactic constraints and some other level of description relevant in the behavior of resumptives. Sharvit (1999) formulates two conditions on the licensing of resumptives: the presence of a contextually salient antecedent and the typological match/identity between the entities refered to by the pronoun when it is used as a resumptive and when it is free (for details, see above). However, she offers no syntactic account of the ambiguity. The same is true of Falk (2002), who derives the syntactic resemblance between traces and resumptives in an LFG framework, then attributes the differences to parsing factors (Sufficiency of Expression principle).

Without denying the need for a complex, multilevel account, I argue that the ambiguity of resumptives has to be captured on a syntactic level as well. Such an analysis has not yet been proposed.

4.1 Resumptives as Instances of Vehicle Change

Vehicle change, as defined by Fiengo and May (1994) and Safir (1999), is a mechanism that allows copies/traces of names to be treated as pronouns by interpretive principles. It was originally proposed to explain the lack of Principle C effects in certain elliptic constructions, such as those in (19).

(19) a. ???Lara loves Sol_i and he_i thinks that Sally loves Sol_i too.

b. Lara loves Sol_i and he_i thinks that Sally does too.

Sentence (19a) violates Principle C on the reading that the indices define, because the second occurrence of *Sol* is not free. However, the same does not

hold true of the elliptical counterpart (19b). Fiengo and May (1994) argue that the first instance of *Sol* is not copied identically into its trace in the second VP. Rather, the trace changes into a pronominal element for purposes (and mechanisms) of interpretation, e.g. binding.

I claim that the same mechanism applies to FR in Hungarian. The resumptive pronoun behaves like a variable in many respects, e.g. crossover and parasitic gaps, but it can be treated as a pronoun for interpretive purposes, for instance when there is a contextually salient antecedent that facilitates coreference.

A clear objection that can be made at this point is that vehicle change was proposed for names, i.e. non-quantificational DPs, while Hungarian FR is grammatical with quantified DPs as antecedents. The reason for this, I believe, is that resumptives in FR are linked with quantified DPs that are *in focus*. Focus obviously comes with strong discursive/contextual relevance. Moreover, as É. Kiss (1998) argues, the function of Hungarian focus is exhaustive identification, or, as Kenesei (2003) puts it, 'exclusion by identification'; therefore it creates a set of possible interpretations among which the predicate holds for the one identified by the focus. Thus I claim that focussed quantifiers lose their real quantificational force, and behave like ordinary, non-quantified DPs. This is illustrated in (20).[10]

(20) a. *MINDEN LÁNY jött el.
every girl.sg.nom come.past.3s part
'It was every girl that came.'

b. SOK LÁNY jött el, (nem KEVÉS/ KEVÉSFIÚ)
many girl.sg.nom come.past.3s part not few/ few boy
'It was many girls that came (not a few/a few boys).'

As (20a) shows, when there is nothing to contrast with the focussed quantifier, the result is ungrammatical. As É. Kiss (1998) argues, universal quantification is incompatible with focus, because it performs identification *without* exclusion. On the other hand, when exclusion is possible, i.e. the complementary set is not empty, a sentence like (20b) is ruled in. Without a more elaborate theory of the semantics of focus, strong conclusions might appear far-fetched, but (20) suggests that when in focus, quantifiers suspend their usual function of quantifying over NPs and denote contrastable elements within a set, for instance many girls as opposed to a few girls, no girls or some boys (within the contextually relevant group of boys and girls). In this

[10] This might seen contradictory given the grammaticality of examples (3c, d), (4a, c), and (16). Note, however, that the seemingly universal quantifier in these sentences is not *minden* 'every', but *összes* 'all of', which is known to behave differently from real universal quantification for independent reasons.

situation, quantified DPs are not different from ordinary ones; thus vehicle change is allowed to apply.

Note how this approach parallels Sharvit's (1999) two constraints on resumptives, but offers a syntactic account at the same time. Focus provides a contextually salient antecedent, which can be further reinforced by other coreferent pronouns, e.g. a reciprocal. When in focus, quantified DPs act like ordinary ones, which makes them possible referents for the free counterpart of the pronoun; in other words, the difference between *két fiú* and *az összes fiú* is minimized.

Safir (1999) also raises the possibility that vehicle change is responsible for resumptives, and hypothesizes that restrictions on the type of the antecedent might be relaxed in resumptive contexts, as opposed to ellipsis and reconstructions. However, in the absence of empirical evidence, he elaborates the claim no further. I assume that the Hungarian data presented in this work offer exactly this evidence. Furthermore, restrictions do not need to be relaxed in an *ad hoc*, thus unattractive way. The interaction of quantifiers and focus takes care of this issue.

A prediction of my proposal is that resumptives should not be able to link to their antecedents when those are quantified but not in focus. This prediction seems to be borne out, for instance in Lebanese Arabic, where resumptives cannot be construed with QPs in certain contexts (see Aoun et al. 2001 for the data, although the account given there is different; see also Sharvit 1999 and Falk 2002 for some relevant Hebrew data).

In sum, it has been proposed that the syntactic duality of resumptives can be explained if we assume that they are subject to vehicle change. The otherwise variable-like resumptives are seen as pronouns by interpretive mechanisms.

To answer the original question left open in Gervain, forthcoming, the two options that were put forward to describe the resumptive dependency do not represent an either/or choice. Rather, interpretive mechanisms 'see' the mixed kind of chain (coindexation and coreference), while the 'coindexation only' chain appears in the rest of the syntax.

5 Conclusion

A proposal has been put forth claiming that the syntactic ambiguity of resumptives is best explained as a case of vehicle change. This account makes special reference to interpretive mechanisms. As mentioned earlier, this is not the only analysis of resumptives that links their syntactic properties to semantic (Sharvit 1999), pragmatic (Erteschik-Shir 1992) or even parsing (Falk 2002) considerations.

The questions that need to be addressed on these levels of description are somewhat similar to the one formulated in syntactic terms above. What is the semantic type of resumptives? Are they bound variables or rather pronouns that refer to individuals (e-type entities)? If resumptives play a role in parsing, as some experimental results suggest (Alexopoulou and Keller 2002), what is the interaction between their syntax, semantics and psychology? In more general terms, what level of language is responsible for resumptives: is it possible that they constitute an 'intrusion' into the autonomy of syntax?

References

Alexopoulou, Theodora and Frank Keller. 2002. Resumption and Locality. *Papers from the 38th Meeting of the Chicago Linguistic Society, Vol. 1: The Main Session*. Chicago.

Aoun, Joseph, Lina Chouieri and Norbert Hornstein. 2001. Resumption, Movement, and Derivational Economy. *Linguistic Inquiry* 32: 371-404.

Bissell, Teal. 1999. Further Evidence for Null Pronominal Variables. M.A. thesis, University of California at Santa Cruz. Downloadable at http://www.mit.edu/~bissell/NullPro.pdf

Bródy Mihály. 1995. Focus and Checking Theory. In István Kenesei, ed., *Levels and Structures* (*Approaches to Hungarian* 5), JATEPress, Szeged.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Foris, Dordrecht.

Chomsky, Noam. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. (*Linguistic Inquiry Monographs* 6). MIT Press, Cambridge, MA.

Demirdache, Hamida. 1991. *Resumptive Chains in Restrictive Relatives, Appositives and Dislocation Structures*. Ph.D. diss., MIT, Cambridge, MA.

den Dikken, Marcel. 1999. On the Structural Representation of Possession and Agreement. In István Kenesei, ed., *Crossing Boundaries: Advances in the Theory of Central and Eastern European Languages*. John Benjamins, Amsterdam.

É. Kiss Katalin. 1987. *Configurationality in Hungarian*. Akadémiai Kiadó, Budapest, pp. 121-171.

É. Kiss, Katalin. 1994. Sentence Structure and Word Order. In Ferenc Kiefer, Katalin É. Kiss, *The Syntactic Structure of Hungarian*. Academic Press, New York, pp. 1-90.

É. Kiss, Katalin. 1998. Identificational Focus versus Informational Focus. *Language* 74: 245-273.

Engdahl, Elisabet. 1985. Parasitic Gaps, Resumptive Pronouns, and Subject Extractions. *Linguistics* 23: 3-44.

Erteschik-Shir, Nomi. 1992. Resumptive Pronouns in Islands. In Helen Goodluck, Michael Rochemont, eds., *Island Constraints*. Kluwer, Dordrecht, pp. 89-108.

Español-Echevarría, Manuel and Angela Ralli. 2000. Case Mismatches in Greek: Evidence for the Autonomy of Morphology. *Acta Linguistica Hungarica* 47 (1-4): 179-203.

Falk, Yehuda. 2002. Resumptive Pronouns in LFG. In Miriam Butt, Tracy Holloway King, eds., *Proceedings of the LFG 02 Conference*, pp. 154-173. On-line publication at http://.cslipublications.standord.edu/LFG/7/lfg02.html

Fiengo, Robert and Robert May. 1994. *Indices and Identity*. MIT Press, Cambridge, MA.

Gervain, Judit. 2002. *Linguistic Methodology and Microvariation in Language: the Case of Operator-raising in Hungarian*. Unpublished MA Thesis. University of Szeged, Hungary.

Gervain, Judit. 2003. Syntactic Microvariation and Methodology: Problems and Perspectives. *Acta Linguistica Hungarica* 50 (3-4): 405-434.

Gervain, Judit. Forthcoming. Two Strategies of Focus-Raising: Movement and Resumption. In Chris Piñón et al., eds., *Approaches to Hungarian 9*, Akadémiai Kiadó, Budapest.

Horvath, Julia. 1995. Partial Wh-Movement and Wh 'Scope-Markers.' In István Kenesei, ed., *Levels and Structures (Approaches to Hungarian 5)*, JATEPress, Szeged, pp. 89-124.

Horvath, Julia. 1998. Multiple Wh-Phrases and the Wh-Scope-Marker Strategy in Hungarian Interrogatives. *Acta Linguistica Hungarica* 45 (1-2): 31-60.

Kenesei, István. 1992. Az alárendelt mondatok szerkezete [The Structure of Subordinate Clauses]. In Ferenc Kiefer, ed., *Strukturális magyar nyelvtan II. Mondattan*. Akadémiai Kiadó, Budapest, pp. 529-714.

Kenesei, István. 1994. Subordinate Clauses. In Ferenc Kiefer and Katalin É. Kiss, *The Syntactic Structure of Hungarian*. Academic Press, New York, pp. 275-354

Kenesei, István. 2003. On the Functions and Domains of Focussing. Ms., Institute of Linguistics, HAS.

Koopman, Hilda and Dominique Sportiche. 1986. A Note on Long Extraction in Vata and the ECP. *Natural Language and Linguistic Theory* 4: 357-374.

Levine, Robert. 2001. The Extraction Riddle: Just What Are We Missing? *Journal of Linguistics* 37: 145-174.

Lipták, Anikó. 1998. A magyar fókuszemelések egy minimalista elemzése. In László Büky, Márta Maleczki, eds., *Proceedings of "A mai magyar nyelv leírásának újabb módszerei III."* 23-24 April 1998, Szeged, pp. 93-115.

Longobardi, Giuseppe. 2001. NP Structure. In Chris Collins and Mark Baltin, eds., *The Handbook of Current Syntactic Theory*. MIT Press, Cambridge, MA.

Marácz, László. 1987. Wh-strategies in Hungarian: Data and Theory. In Imre Ruzsa and Anna Szabolcsi, eds., *Logic and Language*. ELTE, Budapest.

McCloskey, James. 2001. The Morphosyntax of Wh-extraction in Irish. *Journal of Linguistics* 37: 67-100.

McDaniel, Dana and Wayne Cowart. 1999. Experimental Evidence for a Minimalist Account of English Resumptive Pronouns. *Cognition* 70: B15-B24.

Montalbetti, Mario. 1984. *After Binding*. Ph.D. diss., MIT, Cambridge, MA.

Postal, Paul. 1998. *Three Investigations of Extraction*. MIT Press, Cambridge, MA.

Richards, Norvin. 1997. *What Moves Where When in Which Language?* Ph.D. diss., MIT, Cambridge, MA.

Ruys, E.G. 2000. Weak Crossover as a Scope Phenomenon. *Linguistic Inquiry* 31: 513-539.

Safir, Ken. 1999. Vehicle Change and Reconstruction in A′-Chains. *Linguistic Inquiry* 30: 587-620.

Sharvit, Yael. 1999. Resumptive Pronouns in Relative Clauses. *Natural Language and Linguistic Theory* 17: 587-612.

Shlonsky, Ur. 1992. Resumptive Pronouns as a Last Resort. *Linguistic Inquiry* 23: 443-468.

Suñer, Margarita. 1998. Resumptive Restrictive Relatives: A Cross-Linguistic Perspective. *Language* 74: 335-364.

Vailette, Nathan. 2002. Irish Gaps and Resumptive Pronouns in HPSG. In Frank van Eynde, et al., eds., *Proceedings of the 8th International HPSG Conference*, pp. 284-299. On-line publication: http://cslipublications.stanford.edu

Willis, David. 2000. On the Distribution of Resumptive Pronouns and *Wh*-traces in Welsh. *Journal of Linguistics* 36: 531-573.

Zaenen, Annie, Elisabet Engdahl and Joan Maling. 1981. Resumptive Pronouns Can Be Syntactically Bound. *Linguistic Inquiry* 12: 679-682.

Zolnay, Gyula. 1926. Mondatátszövődés. *Értekezések a Magyar Tudományos Akadémia Nyelv- és Széptudományi Osztálya Köréből*, 23.

A New Approach to the Scope of Contrastive Topics*

Beáta Gyuris
Research Institute for Linguistics,
Hungarian Academy of Sciences, Budapest
gyuris@nytud.hu

Abstract

This paper proposes a new strategy for accounting for the narrow scope readings of quantificational contrastive topics in Hungarian, which is based on a consideration of the types of questions that declaratives with such contrastive topics can be uttered as partial or complete congruent answers to. The meaning of the declaratives with contrastive topics will be represented with the help of the structured meaning approach to matching questions proposed in Krifka 2002.

1 The Phenomenon

The aim of this paper is to propose a new strategy for accounting for the preference of quantificational expressions playing the role of contrastive topic (CT) in Hungarian for taking narrow scope with respect to a second quantificational expression following them.

In this paper (like in Gyuris 2002), contrastive topics will be defined on the basis of syntactic and prosodic criteria. Following É. Kiss 2002, we will assume that contrastive topics are maximal projections (as opposed to Büring 1997) situated in the Spec, TopP (topic) position of the sentence, and they bear a strong contrastive stress and a rising intonation, marked by '/' in the examples to follow. As it will be discussed in more detail below, contrastive topics are always followed by a constituent which bears a strong contrastive stress (eradicating stress, cf. Kálmán & Nádasdy 1994) and a falling tone, marked by '\' below.

The examples below show that as opposed to other preverbal operator positions of the Hungarian sentence (cf. (8) below), which can only host quantificational expressions with specific semantic properties (e.g.,

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monotonicity or distributive interpretation; see Szabolcsi 1997), the contrastive topic position is open to any quantificational expression. The examples shown in (1)-(3) have only one reading, in which the CT takes narrow scope with respect to the exhaustive focus, as in (1), or the universal DP following it, as in (2)-(3).

(1) [$_{CT}$ /Háromnál kevesebb könyvet] [$_{FP}$ \János olvasott el.][1]
three-than fewer book-acc John read VM
i. #'There are fewer than three books such that all of them was read by John and no one else.' $\exists_{<3}$ > Focus
ii. 'It is John who read fewer than three books.' Focus > $\exists_{<3}$

(2) [$_{CT}$ /Legalább két lányt] [$_{QP}$ \minden fiú meglátogatott.]
at least two girl-acc every boy VM-visited
i. #'There are at least two girls who were visited by every boy.' $\exists_{2\leq}\forall$
ii. 'Every boy has visited at least two girls.' $\forall\exists_{2\leq}$

(3) [$_{CT}$ /Legalább két lány] [$_{QP}$ \minden fiút meglátogatott.]
at least two girl every boy-acc VM-visited
i. #'There are at least two girls who visited every boy.' $\exists_{2\leq}\forall$
ii. 'Every boy has been visited by at least two girls.' $\forall\exists_{2\leq}$

Together, (2) and (3) also show that the availability of the narrow scope reading for the contrastive topic DP does not depend on its case.

Sentence (4) below illustrates the fact that certain sentences with quantificational CTs can also have a reading where the contrastive topic appears to take wide scope with respect to the quantifier/operator following it. I claim that in these cases the CT expression receives an e-type interpretation, and therefore there is no real scope interaction between the contrastive topic and the operator following it. (The CT expressions which give rise to the apparent wide-scope reading are identical to the ones which can appear as ordinary topics in the sentence.) The apparent wide-scope readings of CTs will, however, not concern us in the rest of the paper.

(4) [$_{CT}$ /Két lány] [$_{QP}$ \minden fiút meglátogatott.]
two girl every boy-acc VM-visited
i. 'Two girls are such that they visited every boy.' $\exists_2\forall$
ii. 'Every boy has been visited by (at least) two girls.' $\forall\exists_2$

The next example illustrates scope reversal between a quantificational CT and negation, a type most often discussed in the literature with respect to German, for example. In this paper, however, we will not make any claims regarding such examples.

[1] In the examples, the contrastive topic constituents will be marked with the subscript CT.

(5) [$_{CT}$ /Ötnél több vendéggel] [$_{NegP}$\nem találkozott Mari.][2]
five-than more guest-with not met Mary
i. #'There are more than five guests whom Mary did not meet' $\exists_2\neg$
ii. 'It is not true that Mary met more than five guests.' $\neg\exists_2$

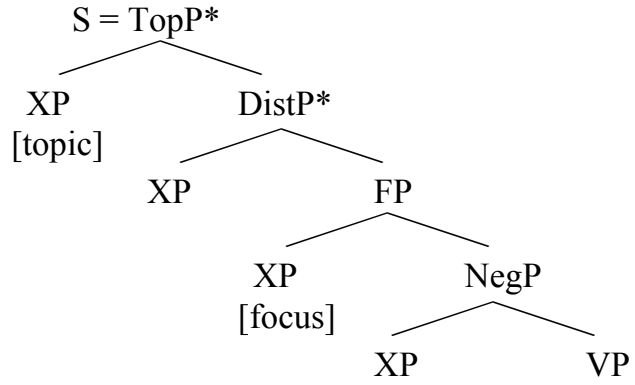
The possibility, or sometimes the obligatoriness, of the narrow scope reading of contrastive topics is not specific to Hungarian. The following examples illustrate corresponding phenomena in German, investigated most recently by Jacobs (1997), Büring (1997), and Krifka (1998):

(6) √ALle Grass-Romane kann man \NICHT empfehlen.
all Grass-novels can one not recommend
'It's not the case that all novels by Grass could be recommended.'
(Jacobs 1997)

(7) Mindestens /EIN Student hat \JEden Roman gelesen.
at least one student-nom has every-acc novel read
'At least one student has read every novel.' $\forall(\exists)$, $\exists(\forall)$
(Krifka 1998)

The reason why the Hungarian data illustrated above appear problematic is that they seem to contradict the so-called *scope principle* of generative grammar, according to which operators scope over the domain they c-command, which is otherwise observed in visible syntax in Hungarian (É. Kiss 2002), at least as far as the preverbal operator positions of the Hungarian sentence are concerned. The surface structure of the Hungarian sentence assumed here, a simplified version of that proposed in É. Kiss 2002, is shown in (8) below:

(8)



Sentence (9) below illustrates the workings of the scope principle with respect to quantificational expressions in the preverbal operator positions (Spec, DistP vs. Spec, FP). As the glosses show, the only available reading for this sentence

[2] Sentences (2)-(3) and (5), however, do have a reading where scope corresponds to linear order if the sentence-initial constituents are pronounced with a falling intonation pattern instead of the rise-fall.

is the one where the quantificational expressions take scope according to their linear order:

(9) [$_{\text{DistP}}$ Mindkét süteményt] [$_{\text{FP}}$ kevés gyerek kóstolta meg.]
all-two cake-acc few child tasted VM
i. 'For both cakes, it was few children that tasted them.' (É. Kiss 2002)
ii.#'There are few children who tasted both cakes. '

Note that, as mentioned above, contrastive topics are assumed, following É. Kiss 2002, to be situated in the specifier position of one of the TopP projections, since they can both precede and follow ordinary topics in the sentence.

The structure of the rest of the paper is as follows. In section 2, some previous proposals to account for the German counterpart of the Hungarian phenomenon under discussion are reviewed, and the possibility of extending them to Hungarian is investigated. In section 3, the discourse functions of CTs are reviewed, with special reference to the questions they can be uttered as answers to. In section 4, a proposal accounting for the narrow scope reading of CTs in the structured meanings framework is presented. The paper closes with the conclusions in section 5.

2 Some Previous Accounts for German

2.1 Büring 1997

According to Büring (1997), sentences containing a CT expression capable of scope-taking and another operator following it are potentially ambiguous as to the scope of these operators in German. The availability of a particular reading is dependent on the availability of 'reasonable implicatures', which are due to the CT.

The above implicature is then formulated by him as follows. First, he associates with each sentence containing a CT a so-called CT-value,[3] which is a set of sets of propositions. Each set consists of all the possible propositions which can be generated by replacing the denotation of the focus in the original proposition corresponding to the denotation of the sentence with the CT by one of its alternatives (including the focus denotation itself). The sets differ from each other in that in each of them, the contrastive topic denotation is

[3] Büring (1997) in fact uses the term Topic value for this concept, and the term Topic to refer to the constituents which are traditionally called contrastive topics in the literature (and this paper as well). In his later work, Büring 2003, he adopts the traditional terminology, however. Although in Büring 2003 he does not discuss the scope reversal effect, we will use his later terminology to discuss the proposals made in his earlier work for the sake of homogeneity.

replaced by a different one of its possible alternatives (the set of which includes the contrastive topic denotation itself). The CT-values corresponding to the two potential readings in (10), for example, are illustrated in (11a, b):

(10) /ALlePolitiker sind \NICHT korrupt.
All politicians are not corrupt
i. 'It is not the case that all politicians are corrupt.'
ii. #'No politician is corrupt.' (= 'All politicians are such that they are not corrupt.')

(11) a. $[[(10i)]]^{ct}=\lambda P.\exists Q_{<et,<ett>>}[Q\in \text{ALT}(\textbf{all})\&P=\lambda p.\exists \pi_{<tt>}[\pi\in \text{ALT}(\textbf{not}) \& p = \pi\, Q(\text{politicians})(\text{corrupt})]]$

b. $[[(10ii)]]^{ct}=\lambda P.\exists Q_{<et,<et,t>>}[Q\in \text{ALT}(\textbf{all})\&P=\lambda p.\exists \pi_{<tt>}[\pi\in \text{ALT}(\textbf{not}) \& p = Q(\text{politicians})(\lambda x.\pi(\text{corrupt}(x)))]]$

In view of the fact that sets of propositions correspond to questions in Hamblin's (1973) theory, the implicature associated with a sentence containing a CT is formulated by Büring as follows: there is an element Q in $[[A]]^{ct}$ (CT-value of A) which is still under consideration (or: disputable) after uttering A. (Disputability of a question means that, given a common ground, there should be at least one element in the set of propositions corresponding to the question which is informative and non-absurd with respect to the common ground, i.e., not included in the common ground and not in contradiction with it.) The sets of questions corresponding to the sets of propositions in (11a, b) are shown in (12a, b), respectively.

(12) a. {Are all politicians corrupt?, Are most politicians corrupt?, Are some politicians corrupt?, Is one politician corrupt?, Are no politicians corrupt?…}

b. {As for all politicians, are they corrupt or not?, As for some politicians, are they corrupt or not?, As for one politician, is (s)he corrupt or not?…}

Since the utterance of (10) on its (i) reading leaves the questions in (12a) except for the first one disputable, this reading will be available for the sentence. However, the utterance of the sentence on the (ii) reading would entail the answers to all of the questions in (12b), i.e., none of them will be left debatable, and therefore this reading will not be available for the sentence.

The problem with applying this theory to Hungarian, however, as pointed out also in Gyuris, to appear, is that there are sentences in Hungarian, like the ones in (2)-(3) and (5), whose 'wide-scope readings' would have to be available according to Büring's theory. For example, the set of questions corresponding to the topic value of (2) on its (i) reading are listed in (13):

(13) {Given a set of at least two girls, how many boys visited them?, Given a set of at least three girls, how many boys visited them?, Given a girl, how many boys visited her?...}

Unfortunately, Büring does not discuss sentences with contrastive topics of the *at least n* NP-type, and therefore does not discuss what alternatives would be introduced by the above NP. In any case, we could safely assume, I believe, that the denotation of *exactly one* NP will be an alternative of the denotation of *at least two* NP. In that case, however, the answer to the question, given a set of at least two girls, how many boys visited them, corresponding to (2i), does not entail an answer to the question, given exactly one girl, how many boys are such that they visited her.

2.2 Jacobs 1997

In Jacobs 1997, the sentence in (6) is considered an example of the construction-type *I-topicalization* (topicalization by intonation), whose defining characteristics include the reversal of the scope of operators with respect to their linear order.

Jacobs argues that the narrow scope of I-topics is due to an assertive or directive operator (Jacobs assumes that I-topicalization is only possible in assertive or directive sentences in German), introduced by the functional head spelling out the properties of this construction, which transforms the whole comment part of the sentence into a predicate, which then takes the topic part (i.e., the constituent bearing the fall-rise intonation contour, referred to by Jacobs as the root contour) as its argument. The semantic value of the sentence would then be derived as follows:

(14) $[[\text{ASSERT}^{\text{IT}}(\text{TOP})(\text{PRED})]]_{\textbf{prop}} = [[\text{PRED}]]([[\text{TOP}]])$

Jacobs (1997) differentiates the above construction from the construction referred to by him as *I-specification*, which involves a stressed indefinite determiner to be understood as specific, as in (15):

(15) √Ein Werk von Grass hat Reich-Ranicki \NICHT verrissen,
one work of Grass have Reich-Ranicki not pulled to pieces
'One work by Grass Reich-Ranicki did not criticize severely.'

a. nämlich die ‚BLECHtrommel'.
namely the tin drum
'namely, The Tin Drum.'

b. ?aber MANche Werke HAT er verrissen.
but several works have he pulled to pieces
'but several works he did severely criticize.'

Jacobs claims that the fact that (15) cannot be continued the way illustrated in (15b) indicates that (6) and (15) belong to different construction types. A potential problem with this way of reasoning is illustrated by a variant of (15) below, which in fact can have two interpretations. Since Jacobs only uses the indefinite determiner *ein* 'one' in his examples, which only gives rise to the type of reading illustrated in (15a), it is not evident from his account how he would handle examples like (16), which seem to be manifestations of both construction types:[4]

(16) √Zwei Werke von Grass hat Reich-Ranicki \NICHT verrissen.
two works of Grass have Reich-Ranicki not pulled to pieces
i. 'There are two works by Grass which Reich-Ranicki did not criticize severely.'
ii. 'It is not true that Reich-Ranicki criticized two works by Grass severely.'

Some further problems with Jacobs' account are pointed out by Molnár & Rosengren (1996), which include, among others, the fact that CTs in Hungarian are not only possible in assertive/directive sentences, but also in questions, as illustrated in (17):

(17) [$_{CT}$ /Minden könyvet] [$_{FP}$ \ki olvasott el?]
every book-acc who read VM
'Who read every book?'

2.3 Krifka 1998

The account offered for the narrow scope reading of sentences like (7) above in Krifka 1998 is based on the following assumptions. On the one hand, it builds on the scope assignment principle proposed by Frey (1993) for German S-structure : 'If α, β are operators occurring in a sentence S, then S has a reading in which α has scope over β iff i) α c-commands β, or ii) α c-commands a trace of β.' On the other hand, it assumes that a clause-initial constituent carrying the rise in a rise fall contour is a 'focus in topic', i.e., a constituent moved from a preverbal position, where focus is assigned to it, into topic position (focus can be assigned prior to movement). (7′) below illustrates how the structure in (7) is derived on the basis of the above assumptions:

(7′) [$_{CP}$ [mindestens ein Student] $_{F,3}$ [$_{C'}$ hat$_1$ [[jeden Roman]$_{F,2}$
[t_3 [t_2 [gelesen]]] t_1]]]
'At least one student has read every novel.' ∀(∃), ∃(∀)

[4] The explanation for the non-existence of reading (15b) in fact follows from Büring's theory.

As pointed out in É. Kiss & Gyuris 2003, however, none of these assumptions hold in Hungarian. First, the operators preposed into A′-positions dominating the VP, as illustrated in (8) above, originate from VP-internal positions, and thus they all c-command the traces of their clause-mates, which means that the relative scopes of the preverbal operators should be free — which, as discussed above, does not hold in Hungarian. Second, the movement of a contrastive topic through Spec, FP and then the filling of Spec, FP by another constituent would violate the strict cycle condition. Third, there are various types of constituents which can function as contrastive topics, but cannot occupy the Spec, FP position — for example, universal quantifiers, or existential quantifiers of the *vala* 'some' type.

Having discussed some of the existing accounts for the narrow scope readings of German contrastive topic quantifiers, and having established that none of them could be adopted to the Hungarian case, in what follows I will propose an account of the narrow scope of Hungarian contrastive topics which is based on the investigation of the discourses where such constituents can appear.

3 Contrastive Topics in the Discourse

3.1 Basic Assumptions

The account I would like to offer for the narrow scope readings of contrastive topics is based on a consideration of the discourse functions of the sentences where these constituents can appear. Kálmán (1985) observes, for example, that contrastive topics can only appear in non-neutral or corrective sentences, where such constituents are followed by a second constituent with a strong contrastive stress, or eradicating stress. The above requirement entails, I believe, that contrastive topics cannot appear in sentences uttered 'out of the blue', or as answers to questions of the 'What happened?' type, which is in fact confirmed by the data.

Several accounts of Hungarian, including Szabolcsi 1981b, Kenesei 1989, Molnár 1998, as well as of other languages, including Lambrecht 1994, Vallduví & Engdahl 1996, Lee 1999, von Fintel 1994, and Büring 1997, emphasize the need for contrastive topics to be followed by semantic focus, which is assumed to carry the second intonational peak of the sentence. As the data in (1)-(5) can illustrate, the constituent with the strong contrastive (eradicating) stress following the contrastive topic does not have to be identical to the constituent which is normally referred to as the focus of the sentence in the current generative literature on Hungarian, i.e., the one sitting in the preverbal focus position (spec, FP). In order to distinguish the constituent with the eradicating stress following the contrastive topic from the

syntactic focus, the former will be referred to here, following the practice of Gyuris 2002, as the associate of the contrastive topic. The associates of the contrastive topic will be assumed to be maximal projections here, just like the contrastive topics themselves.

The phenomenon that contrastive topics do not normally figure as initial sentences of discourses is due to the fact that they provide partial answers to questions under consideration in the discourse (see Roberts 1996). This idea has been around for some time in the literature. Szabolcsi (1981a) claims, for example, that the presence of a contrastive topic in a discourse indicates that there are things other than the one referred to by the contrastive topic about which the same question could be asked, and it is possible that the answer to those questions would be different. Kálmán & Rádai (1998) claim that the presence of the contrastive topic indicates that the declarative does not provide an exhaustive answer to a question, as opposed to answers containing only a focus. Büring (2003) argues that the presence of a contrastive topic in a sentence indicates that a question under discussion in a discourse is not answered in one step, but divided into subquestions, i.e., by applying a strategy to answer the question. The declarative with the contrastive topic would then be answering one subquestion of the original one.

On the basis of these discussions I will argue in what follows that for any Hungarian sentence with a contrastive topic, it is possible to determine two different questions. The first among these is the question which it provides a congruent answer to, where the latter term is used in the sense proposed in von Stechow 1991, according to which an answer is a congruent answer to a question if the alternatives introduced by the question are the same as the alternatives determined by the answer. As an illustration, compare (18b, c) as answers to (18a) (von Stechow 1991:68):

(18) a. Does Ede want *tea* or does he want *coffee*?

b. **Ede* wants tea.

c. Ede wants *coffee*.

Since (18a) determines the alternatives *wants(Ede,x)*, but (18b) determines alternatives of the form *wants(x, tea)*, the latter does not count as a congruent answer to the former, in contrast to (18c). In other words, in congruent question-answer sequences, the denotation of the constituent which would appear in a term answer is from the domain determined by the question word. In accordance with É. Kiss 2002, congruent answers in Hungarian will also be assumed to be exhaustive or complete (see Groenendijk & Stokhof 1990).

The second question to be associated with declaratives containing a contrastive topic will be the one which the latter provides a partial answer to (Groenendijk & Stokhof 1990), or, using the terminology of Büring 2003, takes part in the strategy associated with it. These latter questions are multiple

wh-questions, to be discussed below. In view of the fact that all sentences with a contrastive topic in Hungarian can be associated with sentences of the above two types, I will derive the interpretation of sentences with contrastive topics from that of questions. In what follows, I provide some data and discussion about the questions which declaratives with contrastive topics provide complete versus partial answers to, classified according to the type of the associate of the contrastive topic.

3.2 Declaratives with CTs as Complete Congruent Answers

As the data below indicate, the sentences in which contrastive topics appear in Hungarian fall into two types. On the one hand, as discussed more thoroughly in section 3.2.1, the contrastive topic can be followed by an associate which occupies the syntactic focus position or a quantifier position in the preverbal field. On the other hand, the associate role can be played by a verum focus or a negative particle, as discussed in section 3.2.2. As mentioned earlier, in this paper we will concentrate on the interpretation of sentences of the first type. For the sake of completeness, however, I consider it important to provide at least some data related to the second group as well. The declaratives with the contrastive topics below are shown together with the question which they provide a complete congruent answer to. Note that they do not always appear to form natural discourses with the latter, since in most discourses the declaratives with contrastive topics are preceded by questions which they provide partial answers to. (The questions which they provide complete answers to would be viewed as subquestions to these, as proposed in Büring 2003.)

3.2.1 Type 1: Focus or Quantifier (in Spec, DistP) as Associate

Declaratives where the associate of the contrastive topic is situated in the Spec, FP or the Spec, QP position can occur in complete congruent answers to *wh*-questions. The sentence in (1) above, as well as (19), are examples of this construction:

(19) [$_{CT}$ /Minden könyvet] [$_{FP}$ \két diák olvasott el.]
every book-acc two student read VM
i. #‘For every book it was two students who read it.’
ii. ‘It was two students who read every book.’

The questions to which (19) provides a complete congruent answer are shown in (20), whereas the ones corresponding to (1) are illustrated in (21). Note that whereas in the (a) questions the constituent corresponding to the CT in the answer appears in postverbal position, in the (b) questions it functions as a contrastive topic:

(20) a. [$_{FP}$ Ki olvasott el minden könyvet?]
who read VM every book-acc
'Who read every book?'

b. [$_{CT}$/Minden könyvet] [$_{FP}$ \ki olvasott el?]
every book-acc who read VM
'Who read every book?'

(21) a. [$_{FP}$ Ki olvasott el háromnál KEvesebb könyvet?]
who read VM three-than fewer book-acc
'Who read fewer than three books?'

b. [$_{CT}$ /Háromnál kevesebb könyvet] [$_{FP}$ \ki olvasott el?]
three-than fewer book-acc who read VM
'Who read fewer than three books?'

(2) and (3) above illustrate a case where the associate is situated in Spec, DistP position. Note that this option is only available for universal NPs and *most* NPs (in the *majority of* NP-reading), which are excluded from the focus position on syntactic grounds. The questions associated with (2) are shown in (22):

(22) a. [$_{FP}$ Ki látogatott meg legalább két lányt?]
who visited VM at least two girl-acc
'Who visited at least two girls?'

b. [$_{CT}$ /Legalább két lányt] [$_{FP}$ \ki átogatott meg?]
at least two girl-acc who visited VM
'Who visited at least two girls?'

Note that the questions in (21)-(22) can only have one possible answer (which exhaustively specifies the persons who have the property of having read fewer than three books, for (21), or the persons who have the property of having visited at least two girls, for (22)). In other words, there are no choice readings for (21) and (22) (Szabolcsi & Zwarts 1993).

3.2.2 Type 2: Verum or Falsum Focus as Associate

In the declarative in (23) below, as well as in the negative sentence in (5) above, the associate of the contrastive topic is a verum (VP) focus, and its negation, respectively. These sentences provide complete congruent answers to yes-no questions, the alternatives introduced by which are a proposition and its negation. The declaratives with the contrastive topic then choose one of these alternatives. (24) shows the yes-no questions associated with (5):

(23) [$_{CT}$ /Öt vendéggel] [$_{VP}$ \találkozott Mari.][5]
five guest-with met Mary
i. 'There are five guests whom Mary met.'
ii. 'There WAS an event of Mary meeting five guests.'

(24) a. Találkozott Mari ötnél több vendéggel?
met Mary five-than more guest-with
'Has Mary met more than five guests?'

b. [$_{CT}$ /Ötnél több vendéggel] [$_{VP}$ \találkozott Mari?]
five-than more guest-with met Mary
'Has Mary met more than five guests?'

Note that the verb playing the role of the associate does not necessarily denote a verum focus, but it can also be interpreted as contrastive focus when it is contrasted with other verb denotations, and therefore does not answer a yes/no question but a *wh*-question. For example, (23) can also be assumed to serve as a congruent answer to a *wh*-question of the type *What did Mary do to five guests?* As mentioned earlier, declaratives where the contrastive topic is followed by a verum or a falsum focus will not be discussed further in this paper.

3.3 Declaratives with CTs as Partial Answers to Matching Questions

As mentioned above, declaratives with a contrastive topic and an associate situated in the Spec, FP or Spec, DistP position provide partial answers to multiple *wh*-questions with fronted *wh*-phrases. In this section we consider the issue of how the type of multiple *wh*-question can be predicted from the properties of the declarative with the contrastive topic.

3.3.1 Multiple *Wh*-questions with Fronted *Wh*-phrases in Hungarian

É. Kiss (2002) argues that multiple *wh*-questions with fronted *wh*-words like the ones in (25) expect a list answer which for each member of the domain of the first question word exhaustively specifies the answer corresponding to the second question word:[6]

[5] We follow É. Kiss 2002, according to which the verb does not move to the Spec, FP position when focused.

[6] In multiple questions requiring a singular answer, one *wh*-word moves to Spec, FP, while the other remains in situ:

(i) [$_{FP}$ KI verekedett [$_{FP}$ kivel?]] (É. Kiss 2002)
who fought who-with
'Who fought with whom?'

(25) a. [$_{DistP}$ Ki [$_{FP}$ MELYIK AJÁNDÉKOT választotta?]]
who which present-acc chose
'Who chose which present?' (For each relevant person, provide an exhaustive list of the presents he/she chose.)

b. [$_{DistP}$ Melyik ajándékot[$_{FP}$ KI választotta?]]
which present-acc who chose
'Which present was chosen by whom?' (For each relevant present, provide an exhaustive list of the persons who chose it.)

Thus, the answers to (25a, b) are not interchangeable. With respect to multiple *wh*-questions in English like (26) below, Büring (2003) claims that they can be answered in two ways, by considering the relevant persons one-by-one, and providing for each of them what they ate, or by considering the relevant types of food, and providing for each of them the person(s) who ate them.

(26) Who ate what?

Kuno (1982) shares the view of Büring (2003), by adding that there are marked and unmarked options for answering a multiple *wh*-question in English; whereas Krifka (2002) is of the opinion that there is always only one way of answering such a question (provided the question presupposes a list answer and does not only expect one pair as an answer, i.e., it is not a conjoined question).

Returning to the Hungarian case, it is proposed by É. Kiss (2002) that the last question word in a multiple *wh*-question like (25a, b) is situated in Spec, FP, whereas the ones preceding it are in Spec, DistP. She argues that the question words in Spec, DistP are discourse-linked and appear to function as universal quantifiers, i.e., a complete answer to the question must provide for each element in the domain of these question words a value chosen from the domain of the last question word.

Note that the multiple *wh*-questions discussed above are the only possible means to express a 'family of questions' reading in Hungarian — that is, quantifiers never scope over WH in Hungarian. (É. Kiss 1991; Szabolcsi 1983). The following sentence, for example, where the universal quantifier precedes the question word, must be pronounced with a contrastive topic intonation on the latter, which indicates that it falls into the scope of the question word:

(27) [$_{TopP}$ /Mindenki [$_{FP}$ \MELYIK AJÁNDÉKOT választotta?]]
everybody which present-acc chose
'What is the present(s) chosen by everybody?'

To sum up, the Hungarian multiple constituent questions illustrated above satisfy the following conditions on *matching questions* formulated in Krifka 2002. They presuppose a list answer; one of the question words, usually the

first one, should be linked to a contextually given set (Comorovski 1996), i.e., be D-linked; a matching question in which one *wh*-constituent is D-linked is assumed to be 'about' the antecedent set of this constituent; and they usually presuppose that every element in the set denoted by the D-linked constituent is part of one answer in the answer list.

3.3.2 Contrastive Topics Surfacing in Answers to Matching Questions in Hungarian

In this section we consider the conditions under which contrastive topics can appear as (partial) answers to matching questions in Hungarian. The first case is illustrated in (28), uttered as an answer to (25a), where the domain of the first question word contains individuals.

(28) [$_{CT}$ /Mari] [$_{FP}$ a \könyvet választotta].
Mary the book-acc chose
'As for Mary, she chose the book.'

(28) provides a partial answer to (25a), since it is normally presupposed in the case of matching questions that the domain of the first question word consists of more than one element (Krifka 2002). Since it is not a complete answer to (25a), the constituent corresponding to the first question word must be pronounced with the contrastive intonation. The above sentence thus contrasts with (29), lacking a CT, which, provided that the set of relevant persons has two elements, can be considered a complete answer to (25a):

(29) [$_{TopP}$Mari a könyvet], [$_{TopP}$ Peti a gitárt választotta.]
Mary the book-acc Peti the guitar-acc chose
'Mary chose the book and Pete the guitar.'

The second case is illustrated by (30b), uttered as an answer to (30a):

(30) a. Hány könyvet ki olvasott el?[7]
how many book-acc who read VM
'How many books were read by whom?'

b. [$_{CT}$/Minden könyvet] [$_{FP}$ \Mari és Peti], [$_{CT}$/legalább kétkönyvet]
every book-acc MaryandPete at least twobook-acc
[$_{DistP}$ \minden diák elolvasott.]
every student VM-read
'As for every book, that many was read by Mary and Pete, as for at least two books, that many was read by every student.'

[7] This question can have another reading as well, in which it asks about a given set of books who read them, and the answer is expected to provide for each subset of this set the names of people who read it.

Note that the domain of the first question word in (30a) does not consist of individuals but of quantities. This means that in (30b), the set of books read by Mary and Pete and the books read by everybody do not have to be disjunct. (Thus, the contrastive topics in (30b) belong to the category referred to by Eckardt (2004) as *denotational topics*). Since there can be infinitely many ways of characterizing quantities of books, asking a question like (30a) only makes sense if the relevant quantities are somehow fixed in the context beforehand. In answers to matching questions where the domain of the first question word does not contain individuals, the part of the answer corresponding to the first question word must always be pronounced with a contrastive topic intonation. The reason for this requirement could be, for example, that since quantities can be characterized in multiple ways, each answer would count as a partial one.

(31) illustrates one more property of the answers to matching questions formulated with the help of contrastive topics, also observed in van Hoof 2000 and Eckardt 2004 for German. Since each part of the list answer is assumed to be exhaustive with respect to the last question word, the relation between the denotations of the possible pairs appearing in a pair-list answer must be a function. In other words, (28) cannot be continued with (31):

(31) [$_{CT}$ /Mari] [$_{DistP}$ a \labdát is választotta].
Mary the ball-acc also chose
'As for Mary, she also chose the ball.'

In this section I have argued for the existence of a systematic relation between declaratives with contrastive topics and questions to which they provide a complete congruent answer or a partial answer, respectively; and claimed that for any declarative with a contrastive topic it is possible to determine two questions which stand in the above relations to it. This close relation between declaratives with contrastive topics and questions indicates that we might get closer to providing an interpretation of the former by using semantic theories proposed for the latter. This is the task we turn to in the next section.

4 Towards a Formal Treatment in terms of Structured Meanings

4.1 The Structured Meaning Approach to Matching Questions (Krifka 2002)

According to the structured meaning approach to questions (e.g., von Stechow 1991; von Stechow & Zimmerman 1984; for further references see Krifka 2002), question meanings are functions that, when applied to the meaning of

the answer, yield a proposition (Krifka 2002: 288). (32) below (from Krifka 2002) illustrates how the meanings of questions and their answers can be represented in this framework:

(32) A: Who read *Die Kinder der Finsternis*? <λx[READ(KF)(x)], PERSON>

B: Mary. M

Question applied to answer: λx[READ(KF)(x)](M)
= READ(KF)(M)

In (32), the meaning of the question is represented as a pair, whose first element is the function standing for the question, referred to as the *background* of the question, and the second the domain from where the value of x must come from, referred to as its *restriction.*

As argued by Krifka, the structured meaning framework for questions fits well with the *structured meaning approach to focus* (Cresswell & von Stechow 1982; Jacobs 1983; Krifka 1991; von Stechow 1981, 1991), because the two together provide an appropriate way to characterize congruent question-answer pairs.

According to the structured meaning approach to focus, the meaning of an expression is split into a background part and a focus part, <B, F>. The background part is of a semantic type that can be applied to the focus. After carrying out this functional application we arrive at the ordinary meaning of the expression. (33) illustrates how the meaning assigned to a sentence in this framework varies with the choice of the focus.

(33) a. $[\text{Máry}]_F$ read *Die Kinder der Finsternis*. <λx[READ(KF)(x)], M>

b. Mary read [*Die Kinder der Fínsternis*.]$_F$ <λx[READ(X)(M)], KF>

In the structured meaning framework, the congruence of questions and answers can then be defined in the following way: the backgrounds of the question and the answer must be the same, and the focus of the answer must be an element of the restriction of the question. Note that, according to this theory, the interpretation of the focus is not exhaustive. (Exhaustivity of an answer is indicated by focus-sensitive operators like *only*, as discussed in Krifka 1991.)

Having discussed some of the basic assumptions of the structured meaning approach to representing the meaning of questions and of expressions containing a focus, we turn now to the issue of how matching questions can be represented in this framework. In view of the properties of matching questions discussed above (the domain of the first question word is assumed to contain more than one element, the question expects that for each element in the domain of the first question word a value from the domain of the second question word is given, etc.), Krifka (2002) argues that matching questions in

fact ask for a function, i.e., they should be viewed as functions having functions as arguments. (34) below first shows a standard way of representing the meaning of a matching question in the structured meaning framework in terms of a function having pairs consisting of a person and a thing as argument.

(34) Who read what? $\langle\lambda\langle x, y\rangle[\text{READ}(y)(x)], \text{PERSON} \times \text{THING}\rangle$

Note that with respect to (34) it is presupposed that each person read only one thing (Manfred Krifka, personal communication), which allows the formula on the right to be viewed as a function. The following operator is introduced by Krifka (2002) to transform representations of questions in terms of functions with pair arguments into representations in terms of functions with function arguments:

(35) a. $\text{FUN}(R) = \lambda f \forall x[x \in \text{DOM}(f) \rightarrow R(\langle x, f(x)\rangle)]$,
the set of functions f such that every x in the domain of f stands in R-relation to f(x)

b. $\text{FUN}'(A \times B)$ = the set of functions from A to B

As a result of applying the operator in (35a) to the representation on the right in (34), we get the one in (36) as the meaning of the question in (34):

(36) $\langle\text{FUN}(\lambda\langle x, y\rangle[\text{READ}(y)(x)], \text{FUN}'(\text{PERSON} \times \text{THING})\rangle$,
where $\text{FUN}(\lambda\langle x,y\rangle[\text{READ}(y)(x)]) = \lambda f \forall x[x \in \text{DOM}(f) \rightarrow \text{READ}(f(x))(x)]$,
the set of functions f such that every x in the domain of f read f(x),
and FUN' (PERSON×THING)=the set of functions from PERSON to THING.

The answer to the question in (34) then specifies a function by enumeration:

(37) Mari *Die Kinder der Finsternis*, and John *Das Totenschiff*.
f: $\{M, J\} \rightarrow \{KF, TS\}$,
$M \rightarrow KF$
$J \rightarrow TS$

In this section, I provided an overview of the structured meaning approach to questions in general, and to matching questions in particular. Since multiple *wh*-questions with fronted *wh*-phrases in Hungarian are matching questions and the declaratives with CTs under investigation are partial answers to these questions, the approach to the interpretation of matching questions in Krifka 2002 will be used to derive the denotations of the latter in the sections to follow.

4.2 Applying the Structured Meaning Approach to Declaratives with Contrastive Topics in Hungarian

As discussed above, declaratives with contrastive topics in Hungarian (where the associate role is played by an expression in Spec, FP or Spec, QP) provide partial answers to matching questions and complete answers to singular *wh*-questions, the type of both of which is predictable from the declarative in question. Therefore, the interpretation of such declaratives will be generated in a way which reflects their close connection to the above types of questions.

On the one hand, as partial answers to matching questions, declaratives with CTs will be argued to make reference to functions taking functions as arguments, which figure in the representation of the meaning of matching questions, e.g., (36) above. On the other hand, as complete congruent answers to singular *wh*-questions, they will be claimed to indicate that the property corresponding to the background part of the question holds only of the denotation of the associate.

Note, however, that the desired interpretations for sentences like (1)-(5) do not automatically follow from the structured meaning approach. A crucial aspect of deriving the preferred interpretations involves making reference to the kinds of questions they can provide partial or complete answers to.

4.2.1 Extending the Approach to Questions with Domains other than the Domain of Individuals

Ultimately, we will provide a meaning representation for sentence (1) above, repeated here in (38):

(38) [$_{CT}$ /Háromnál kevesebb könyvet] [$_{FP}$ \János olvasott el.]
three-than fewer book-acc John read VM
i. #‘There are fewer than three books such that all of them was read by John and no one else.’ $\exists_{<3}$ > Focus
ii. ‘It is John who read fewer than three books.’ Focus > $\exists_{<3}$

I claim that a sentence like (38) above serves as a partial answer to a matching question like (30a) above, repeated here as (39), where the domain of the first question word contains properties referring to quantities (the number of atomic parts of a sum individual):[8]

(39) Hány könyvet ki olvasott el?
How many book-acc who read VM
‘How many books were read by whom?’

[8] Remember that such questions cannot be answered in a manner other than using contrastive topics to refer to elements of the domain of the first question word.

Since Krifka (2002) does not discuss matching questions with domains other than that of individuals or things, the first thing to do, if we want to connect the meaning of (38) to that of (39), is to provide a representation of the meaning of (39), and more generally, to provide a strategy for handling questions in this framework with non-individual domains. I propose that a representation for (39) satisfying the above requirements would be as shown below:

(40) $<\lambda f \forall P[P \in DOM(f) \rightarrow \forall y(y = \bigsqcup \{z \mid READ(z)(f(P)) \wedge *BOOK(z)\} \rightarrow P(y))]$,
FUN′(**P** × *PERSON)>,
where **P** = $\{\lambda x[\#(x)] \in N \mid N \subseteq \mathbf{N_0}\}$, and f: **P** → *PERSON

(40) states that the meaning of the question in (38) is a function with an argument having the type of a function. The domain of this function is a set of properties referring to a quantity (number of atomic parts of a sum individual). By representing this quantity as a subset of natural numbers, it becomes possible to handle the meanings of expressions like *fewer than 3, between 5 and 10, an even number of*, etc., in a parallel way. The value of this function at an argument is identical to the person for whom the sum of books he/she read has the property specified by the argument. Summation is necessary, since if a person read six books, then he/she also read five, four, etc. books, but in this case we do not expect that he/she would be the value associated with arguments denoted by *fewer than 3*, *between one and four*, etc. In view of the fact that there are infinitely many ways of characterizing quantities of books, it is important to note that the relevant properties (having a particular number of atomic parts where the number is taken from a subset of the set of natural numbers including zero, i.e., $\mathbf{N_0}$)[9] must be provided by the context. Note that according to the above view, if John did not read any books, he would also be able to surface as a value of the function at arguments which correspond to quantities determined by subsets of $\mathbf{N_0}$ including the zero element, which is a welcome result. In this case, y equals the empty group (see Bonomi & Casalegno 1993). The above representation, however, does not account for one thing: it does not allow answers like (41) to (39) in a case where John and Mary read different books:

(41) [$_{CT}$/Háromnál kevesebb könyvet] [$_{FP}$ \János és Mari olvasott el.]
three-than fewer book-acc John and Maryread VM
'It was John and Mary who read fewer than three books.'

In order to overcome the above difficulty, I propose that the meaning of (39) should instead be represented as in (42):

[9] This method of representing the relevant properties was suggested by Manfred Krifka (personal communication).

(42) $<\lambda f \forall P[P \in DOM(f) \rightarrow f(P) = \bigsqcup \{x \mid \forall y\ (y = \bigsqcup \{z \mid \text{READ}(z)(x) \wedge$
$\wedge\ ^*\text{BOOK}(z)\} \rightarrow P(y))\}],$
$\text{FUN}'(\mathbf{P} \times {}^*\text{PERSON})>,$
where $\mathbf{P} = \{\lambda x[\#(x) \in N] \mid N \subseteq \mathbf{N_0}\}$, and f: $\mathbf{P} \rightarrow {}^*\text{PERSON}$

(42) indicates that the value of the function at an argument equals the sum of individuals for whom it holds that the sum of books they read has the property corresponding to the argument.

Having considered the interpretation of matching questions where the domain of a question word does not include individuals, in the next section we turn to singular *wh*-questions which can be viewed as subquestions of the latter, and to which declaratives with CT of the type under consideration provide complete congruent answers.

4.2.2 Extending the Approach to Subquestions of Matching Questions

The idea we will pursue is this: declaratives with contrastive topics can surface as partial answers to matching questions. If in these matching questions the first *wh*-word is replaced by the contrastive topic in the declarative (also a contrastive topic in the question), we obtain a singular *wh*-question to which the declarative with the CT provides a complete congruent answer – the denotation of the associate of the CT in the declarative is of the same semantic type as the restriction of the question. For example, (43) below is a question which is generated from (39) in the above manner, and for which (38) provides a complete congruent answer:

(43) [$_{CT}$ /Háromnál kevesebb könyvet] [$_{FP}$ \ki olvasott el?]
three-than fewer book-acc who read pfx
'Who read fewer than three books?'

A complete congruent answer for (43) is one which gives the name of the person for whom the property of having read fewer than three books holds. I believe that the representation of the meaning of (43) should make reference to the fact that this sentence is a subquestion of one which asks for a function, and that the denotation of the contrastive topic in this question corresponds to one argument of the function. Similarly, by incorporating such a function into the meaning of declaratives with contrastive topics, we can account for the fact that a sentence with a CT cannot introduce an alternative statement in which the same contrastive topic expression is followed by a different associate. Accordingly, I propose that the meaning of (43) should be represented as in (44):

(44) $<\lambda v \exists f[\lambda x[\#(x) < 3] \in \mathrm{DOM}(f) \wedge v = f(\lambda x[\#(x) < 3]) \wedge$
$\wedge v = \bigsqcup \{x \mid \forall y (y = \bigsqcup \{z \mid \mathrm{READ}(z)(x) \wedge {}^*\mathrm{BOOK}(z)\} \rightarrow \#(y) < 3)\}],$
${}^*\mathrm{PERSON}>,$
where $\mathbf{P} = \{\lambda x[\#(x) \in N] \mid N \subseteq \mathbf{N_0}\}$, and f: $\mathbf{P} \rightarrow {}^*\mathrm{PERSON}$

The above formula assigns a pair to (43) whose first member is a function with a domain consisting of persons, including sums of atomic persons as well, and whose second member is the set of (plural) persons. The value of the function at an argument equals the sum of persons with the property that the sum of books which they read has fewer than three atomic parts. The formula also states that there is a function f whose domain includes the property of consisting of fewer than three atomic parts, and that the answer to the question varies with respect to the arguments of the function. I will assume that a question like (43) presupposes that there is an individual in the range of the function corresponding to the question who read books, and therefore that the protasis of the implication in the first member of the pair of (44) is true. If this presupposition is not satisfied then we are facing the case where no book was read by the person, and therefore, y equals the empty group (see Bonomi & Casalegno 1993), which, naturally, has fewer than three atomic parts.

(45) below then shows the representation assigned to a complete congruent answer for (43), namely, (38):

(45) $<\lambda v \exists f[\lambda x[\#(x) < 3] \in \mathrm{DOM}(f) \wedge v = f(\lambda x[\#(x) < 3]) \wedge$
$\wedge v = \bigsqcup \{x \mid \forall y (y = \bigsqcup \{z \mid \mathrm{READ}(z)(x) \wedge {}^*\mathrm{BOOK}(z)\} \rightarrow \#(y) < 3)\}],$
$J>,$
where $\mathbf{P} = \{\lambda x[\#(x) \in N] \mid N \subseteq \mathbf{N_0}\}$, and f: $\mathbf{P} \rightarrow {}^*\mathrm{PERSON}$

From (45) the exhaustivity of the focus in (38) follows without any additional requirement, since John can only be the sum of the set of individuals with the property of having read one book if the set of such individuals contains only John. Note that the above formalism correctly accounts for the fact that the focused expression appears to take wide scope, i.e., the contrastive topic expression cannot be interpreted as referring to specific books which are fewer than three in number.

The variant of (38) shown below, however, can have two readings:

(46) [$_{\mathrm{CT}}$ /Öt könyvet] [$_{\mathrm{FP}}$ \Mari olvasott el.]
five book-acc Mary read pfx
i. 'It is Mary who read five books.'
ii. 'There are five books such that for each of them it holds that it is Mary who read it.'

I believe that the availability of both a wide and a narrow scope reading for the CT in (46), as well as in (4) above, is due to the fact that the sentences can be uttered as partial answers to *wh*-questions (like the one in (39)) where the

domain of the question word corresponding to the contrastive topic includes properties, as well as to those where the domain of the above question word includes individuals. For example, (46) can be uttered as a partial answer to a question like *Which books were read by whom?*

5 Conclusions

In this paper, I proposed a new way of handling the narrow scope readings of quantificational contrastive topics in Hungarian. I concentrated on sentences where the contrastive topic is followed by a quantificational expression in one of the preverbal operator positions of the Hungarian sentence. I argued that such sentences serve as partial answers to multiple *wh*-questions with fronted *wh*-words, which have the properties of matching questions, and as complete congruent answers to singular *wh*-questions. I claimed that the scope properties of quantificational contrastive topics depend on the types of the elements in the domain of the question word they correspond to when they constitute a partial answer to a matching question. I represented the denotations of declaratives as well as the two questions associated with them in the above manner in terms of the structured meaning framework to matching questions proposed in Krifka 2002.

References

Bonomi, Andrea and Paolo Casalegno. 1993. ONLY - Association with Focus in Event Semantics. *Natural Language Semantics* 2: 1-45.

Büring, Daniel. 1997. *The Meaning of Topic and Focus. The 59th Street Bridge Accent*. Routledge, London/New York.

Büring, Daniel. 2003. On D-Trees, Beans, and B-Accents. *Linguistics and Philosophy* 26: 511-545.

Comorovski, Ileana. 1996. *Interrogative Phrases and the Syntax-Semantics Interface*. Kluwer, Dordrecht.

Cresswell, M. J. and Arnim von Stechow. 1982. De Re Belief Generalized. *Linguistics and Philosophy* 5: 503-535.

Eckardt, Regine. 2004. Referential and Denotational Topics. Talk given at ZAS, Berlin.

É. Kiss, Katalin. 1991. Logical Structure in Linguistic Structure: The Case of Hungarian. In James Huang and Robert May, eds., *Logical Structure and Linguistic Structure.* Kluwer, Dordrecht, pp. 387-426.

É. Kiss, Katalin. 2002. *The Syntax of Hungarian*. Cambridge University Press, Cambridge.

É. Kiss, Katalin and Beáta Gyuris. 2003. Apparent Scope Inversion under the Rise Fall Contour. *Acta Linguistica Hungarica* 50*:* 371-404.

von Fintel, Kai. 1994. *Restrictions on Quantifier Domains*. Ph.D. diss., University of Massachusetts, Amherst.

Frey, Werner. 1993. *Syntaktische Bedingungen für die semantische Repräsentation*. Studia Grammatica XXXV. Akademie Verlag, Berlin.

Groenendijk, Jeroen and Martin Stokhof. 1990. *Partitioning Logical Space*. Annotated handout, Second European Summer School in Logic, Language and Information, Leuven, August 1990.

Gyuris, Beáta. 2002. *The Semantics of Contrastive Topics in Hungarian*. Ph.D. diss., Eötvös Lodánd University, Budapest.

Gyuris, Beáta. To appear. Ingredients of a Semantic Theory of Contrastive Topics. In Cècile Meier, ed., *Proceedings of Sinn und Bedeutung* 8.

van Hoof, Hanneke. 2000. The Rise in the Rise-Fall Contour: Does it Evoke a Contrastive Topic or a Contrastive Focus? Ms, Universität Tübingen.

Jacobs, Joachim. 1983. *Fokus und Skalen. Zur Syntax und Semantik von Gradpartikeln im Deutschen*. Niemeyer, Tübingen.

Jacobs, Joachim. 1997. I-Topikalisierung. *Linguistische Berichte* 168: 91-133.

Kálmán, László. 1985. Word order in non-neutral sentences. In István Kenesei, ed., *Approaches to Hungarian. Volume One: Data and Descriptions*. JATE, Szeged, pp. 25-37.

Kálmán, László and Ádám Nádasdy. 1994. A hangsúly. [Stress]. In Ferenc Kiefer, ed., *Strukturális magyar nyelvtan 2. Fonológia.* [*A Structural Grammar of Hungarian 2*: *Phonology*]. Akadémiai Kiadó, Budapest, pp. 393–467.

Kálmán, László and Gábor Rádai. 1998. Word Order Variation in Hungarian From a Constructionist Perspective. In Casper de Groot and István Kenesei, eds., *Approaches to Hungarian* 6: 151-181.

Kenesei, István 1989. Logikus-e a magyar szórend? [Is Hungarian Word Order Logical?] *Általános nyelvészeti tanulmányok* XVII: 105–152.

Krifka, Manfred. 1991. A Compositional Semantics for Multiple Focus Constructions. In Joachim Jacobs, ed., *Informationsstruktur und Grammatik. Linguistische Berichte, Sonderheft* 4:17-53.

Krifka, Manfred. 1998. Scope Inversion under the Rise Fall Contour in German. *Linguistic Inquiry* 29: 75-112.

Krifka, Manfred. 2002. For a Structured Meaning Account of Questions and Answers. In Caroline Féry and Wolfgang Sternefeld, eds., *Audiatur Vox Sapientiae. A Festschrift for Arnim von Stechow*. Akademie Verlag, Berlin.

Kuno, Susumo. 1982. The Focus of the Question and the Focus of the Answer. *CLS 18, Papers from the Parasession on Nondeclaratives.* CLS, Chicago.

Lambrecht, Knud. 1994. *Information Structure and Sentence Form*. Cambridge University Press, Cambridge/New York/Melbourne.

Lee, Chungmin. 1999. Contrastive Topic: A Locus of Interface Evidence from Korean and English. In Ken Turner, ed., *The Semantics/Pragmatics Interface from Different Points of View*. Elsevier, Oxford.

Molnár, Valéria and Inger Rosengren 1996. Zu Jacobs Explikation der I-Topikalisierung. *Sprache und Pragmatik* 41: 49-88.

Molnár, Valéria, 1998. Topic in Focus: The Syntax, Phonology, Semantics, and Pragmatics of the so-called Contrastive Topic in Hungarian and German. *Acta Linguistic Hungarica* 45: 389-466.

Roberts, Craige. 1996. Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics. In J. Hak Yoon and Andreas Kathol, eds., *Ohio State University Working Papers in Linguistics*, vol. 49.

von Stechow, Arnim. 1981. Structured Propositions. *Arbeitspapiere des SFB 99.* Universität Konstanz.

von Stechow, Arnim. 1991. Focusing and Backgrounding operators. In Werner Abraham, ed., *Discourse Particles*. John Benjamins, Amsterdam/Philadelphia, pp. 37-84.

von Stechow, Arnim and Zimmermann, Thomas Ede. 1984. Term Answers and Contextual Change. *Linguistics* 22: 3-40.
Szabolcsi, Anna 1981a. Compositionality in Focus. *Folia Linguistica* 15: 141-61.
Szabolcsi, Anna. 1981b. The Semantics of Topic-Focus Articulation. In Jeroen Groenendijk, Theo Janssen and Martin Stokhof, eds., *Formal Methods in the Study of Language* Part 1. Mathematical Centre Tracts 135. Amsterdam, pp. 1–28.
Szabolcsi, Anna. 1983. Focussing Properties, or the Trap of First Order. *Theoretical Linguistics* 10: 125–145.
Szabolcsi, Anna and Frans Zwarts. 1993. Weak Islands and Algebraic Semantics. *Natural Language Semantics* 1: 235-284.
Szabolcsi, Anna. 1997. Strategies for Scope Taking. In Anna Szabolcsi, ed., *Ways of Scope Taking*. Kluwer, Dordrect, pp. 109-154.
Vallduví, Enric and Elisabet Engdahl. 1996. The Linguistic Realization of Information Packaging. *Linguistics* 34: 459-519.

Topicalization, CLLD and the Left Periphery*

Liliane Haegeman
UMR 8258 Silex du CNRS

Abstract

Starting from a consideration of the internal make-up of adverbial clauses this paper shows that the widespread assumption that fronted arguments in English and CLLD constituents in Romance occupy the same position leads to a number of problems. I will conclude that the position occupied by English topicalized arguments differs from that of the CLLD topics in Romance. In particular, English topics occupy a higher position in the left periphery. The final part of the paper compares three proposals for the lower topic position in Romance.

1 Topicalization in the Left Periphery

In much recent literature on the left periphery inspired by Rizzi's seminal paper (1997), a point that has often gone relatively unquestioned is that cross-linguistically fronted topics occupy a designated position, the specifier of TopP. While admitting that there are differences in the way the topic is related to the host clause, Rizzi (1997) for instance, assumes that CL(itic)L(eft)D topics in Romance as well as fronted topics in English occupy Spec,TopP (also, for instance, Grewendorf 2002; Grohmann 2003; Platzack (2004), but see among others Benincà 2001; Benincà & Poletto 2001; Frascarelli & Hinterhölzl 2003; Lopez 2003; and Pereltsvaig 2004 for different views). Implicit in some proposals is also an assumption that the interpretation of fronted topics in English is not significantly different form that of fronted CLLD elements in the relevant languages. Delfitto (2002: 61) says: 'topics are interpreted in essentially the same way in English topicalization and Italian CLLD'. The conflation of the two types of fronted arguments arises probably because in many of the relevant papers authors either mainly look at English type topicalization or concentrate on CLLD and the two are not often systematically confronted. In this paper I want to highlight some differences in position between English topicalized arguments and CLLD arguments in Romance. The paper is organised as follows: Section 1 introduces the idea that English topicalization is a root phenomenon, section 2 discusses the syntax of adverbial clauses. Sections 3 and 4 show how embedded clauses may differ with respect to the composition of their left periphery: notably it is proposed that the CP of 'central' adverbial clauses, factive complements, subject clauses and infinitival clauses is structurally reduced and lacks the projections that licence topicalization. Section 5 deals with CLLD in Romance and shows that

it has a wider distribution than topicalization in English, occurring precisely in the domains associated with a reduced CP. Section 6 postulates a lower position in the Romance left periphery which can host CLLD constituents. The section examines a number of proposals for locating this position in the left periphery. Section 7 discusses a complication with respect to conditional clauses containing CLLD constituents in Romance. Section 8 is a summary of the paper.

1.1 Root Phenomena

In a rich literature, going back to the 1970s, it has been acknowledged that there exists a range of syntactic phenomena whose application is restricted to root clauses and embedded clauses with root properties. English topicalization is taken to be one of these phenomena (Andersson 1975; Davison 1979; Emonds 1970, 2004; Green 1976; Haegeman 1984a,b, 1991, 2002a; Heycock 2002; Hooper & Thompson 1973; Maki et al 1999; Rutherford 1970). With respect to defining the domain of application of topicalization and other main clause phenomena, Hooper & Thompson (1973) argue that such phenomena are apparently related to 'asserted clauses'. They also point out that the relevant restriction cannot be syntactically represented, or if it could be, that such syntactic representation would not be explanatory:

> As a positive environment we can say that [root] transformations operate only on Ss that are *asserted*. …some transformations are sensitive to more than just syntactic configurations. *It does not seem possible to define the domain of an RT in terms of syntactic structures in any general way*. However, …, even if it were possible to define in syntactic terms the conditions under which RTs can apply, … the question of why these transformations can apply in certain syntactic environments and not others would still be unanswered. (Hooper & Thompson 1973: 495, italics mine)

1.2 Accounting for the Restriction

It may be true that at the time that Hooper and Thompson were writing, no syntactic account for the restricted distribution of main clause phenomena was available, but note that the authors themselves do give a clear indication as to what the syntactic distinction should rest on when they say:

> Though RTs may apply in some complements that are full sentences introduced by the complementiser *that*, they may never apply in any complements that are reduced clauses. By reduced clauses we mean infinitives, gerunds, and subjunctive clauses, i.e. those complement types which have uninflected verbs. (Hooper & Thompson 1973: 484-5, italics mine).[1]

At an intuitive level, we can reinterpret this to mean that root phenomena are licensed in domains with somewhat 'more functional structure', and that domains lacking that particular layer of structure will not allow root phenomena. A similar intuition is expressed by Larson & Sawada (to appear) and by McCloskey (2004). In the first part of the paper I try to make this hypothesis more precise, using a modified version of Rizzi's split CP. I will start by examining argument fronting in adverbial clauses.

2 Adverbial Clauses and Root Phenomena

2.1 Topicalization in Adverbial Clauses

2.1.1 English

In English, we need to distinguish argument fronting from local adjunct fronting (Haegeman 2003a), a contrast which is not always explicitly addressed. While fronted arguments are typically restricted to root clauses or embedded clauses with root properties, fronted adjuncts are not subject to this restriction.[2]

(1) a. *If these exams you don't pass you won't get the degree.

b. If next week you cannot get hold of me, try again later.

(2) a. *While her book Mary was writing this time last year, her children were staying with her mother.

b. While around this time last year Mary was writing her book, her children were staying with her mother.

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[1] Cf. Emonds 2004: 8.

[2] As signalled by McCloskey (2004), not all temporal clauses allow adjunct fronting.

(3) a. *When her regular column she began to write for the Times, I thought she would be OK.

b. When last month she began to write a regular column for the Times, I thought she would be OK.

The differences between argument fronting and adjunct fronting in adverbial clauses are not immediately compatible with the analysis offered by Rizzi (1997), in which fronted arguments move to the specifier of TopP and fronted adjuncts are TopP adjoined. If both types of fronting involve the same projection TopP, then it is not clear how one can be ruled out while the other is grammatical. Haegeman (2003a, b) proposes that, as suggested by Rizzi himself (1997: see his notes 26, 30 and 32), some fronted adjuncts need not be adjoined to TopP. Specifically, temporal adverbs may also be somewhat lower in the left periphery.

However, argument fronting is (marginally) possible in adverbial clauses with root like properties. (4) provides some examples: (4a) is from the literature, (4b-e) are attested examples, and (4f-h) are constructed examples.

(4) a. His face not many admired, while *his character* still fewer felt they could praise. (Quirk et al 1985: 1378)

b. I think we have more or less solved the problem for donkeys here, because *those we haven't got*, we know about.
(*Guardian*, G2, 18.2.3, p. 3, col 2)

c. We don't look to his paintings for common place truths, though *truths* they contain none the less
(*Guardian*, G2, 18.2.3, p. 8, col 1)

d. Professor Head (Letters July 28) suggests the oath of allegiance implies commitment to monarchy as a system of government. It doesn't, though *whether this will mollify him,* I don't know.
(*Guardian*, 29.7.3, p. 17, col 5, letters to the editor, Rev. Steve Parish. Warrington)

e. Naturally, my carrots, peas, beans, potatoes, lettuces and tomatoes have a taste beyond compare, although *whether it is because they are organic or just mine* I am not sure.
(*Guardian* 6.11.3. page 2, col 1)

f. If *these problems* we cannot solve, there are many others that we can tackle immediately.

g. If *aphids* we did not worry about, snails we did.

h. If *anemonies* you don't like, why not plant roses instead?

I have proposed (Haegeman 2002a, 2003a, 2003b) that adverbial clauses that do not allow for fronted arguments are fully integrated in the host clause and are interpreted as modifying the event expressed in the associated clause. For instance, conditional clauses introduced by *if* refer to events/states of affairs that would be a sufficient cause for the event/state of affairs in the main clause to be realised; temporal clauses expressed by *while* express events/states of affairs that are the temporal frame for the event/state of affairs expressed in the main clause etc. I will label such adverbial clauses 'central adverbial clauses'.

On the other hand, 'peripheral' adverbial clauses do allow (to some extent) for argument fronting; they are less tightly connected to the host clause (see Haegeman (2002a, 2003b) for arguments) and serve to provide the discourse frame against which the proposition expressed in the host clause is evaluated. Adverbial *while* clauses of this type express a proposition which provides the privileged background that will enhance the relevance of the associated matrix clause; conditional *if* clauses express a premise which is entertained by the speaker and which serves as the privileged context for the processing of the main clause. In sum, the relevant adverbial clauses provide discourse backgrounds that serve as restrictors for processing, against such backgrounds the matrix clause yields particular contextual implicatures (see Haegeman 2002a, 2003b).

2.1.2 Comparative Data

The contrast in argument fronting between the two types of adverbial clauses is not confined to English. The contrast is also found in Japanese, in Korean (see Whitman 1989), in Gungbe, which I will illustrate below, and it has been reported for Chinese (Lu Peng 2003: 232-34).[3]

In Japanese[4], *wa* topicalization is not possible in central conditional clauses (Maki *et al* 1999) but it is licit in peripheral conditional clauses expressing a premise for the processing of the host clause.

[3] Lu Peng distinguishes an external topic from an internal one. The latter appears to the right of the subject and is arguably IP internal. It can occur in all types of adverbial clauses. The external topic is restricted to what would be peripheral adverbial clauses.

[4] Thanks to Hideki Maki (personal communication) for the Japanese data. See also Larson & Sawada 2004: section 1.2.

(5) a. *Mosi sono yoona zassi-wa, (anata-ga) yome-*ba*,
if that like magazine-top (you-nom) read (CONDITIONAL)-if
(anata-wa) yasai-ga sukini narimasu.
(you-top) vegetable-nom like become
'If these magazines, you read, you will come to like vegetables'

b. Mosi sono yoona zassi –wa (anata-ga)
if that like magazine-top (you-nom)
sukide-nai (CONCLUSIVE)-*naraba*,
like-not-if
naze (anata-wa) (sorera-o) kai-tuzukerunodesu ka?
why (you-top) (them-acc) buy-continue, Q
'If such magazines, you don't like, why do you keep buying them?'

Observe that *ba* in the central conditional clause is replaced by *nara ba* in the peripheral conditional clause. With respect to *nara* Kuno says:

> Concerning the conditional sentence pattern [S1 *nara*] S2: 'It is usually said that this pattern has a strong degree of assertion about the statement represented by S1'. (Kuno 1973: 168)

Korean shows a similar contrast between central conditionals, which do not allow topicalization, and peripheral ones, which do (see Whitman 1989):

(6) a. *i *chayk-un* (ku-ka) ilk-*umyen*/ilk-ess-*umyen* (Korean)[5]
this book-Top *(he-Nom) read-if / read-Past-if*
ku-nun ama ku yenghwa-lul poko siphe hal kes-i-ta
he-Top probably that movie-Acc see want will-Dec
'If this book, he reads/read, he will probably want to see that movie'
(CENTRAL ADVERBIAL)

b. *ku chayk-un* (ney-ka) cohaha-n-*ta-myen* way kukes-ul ca-ci
that book-Top (you-Nom) like-Pres-Dec-if why that-Acc buy-NMZ
anh-ni?
not do-Q
'If that book, you like, why don't you buy it?'
(PERIPHERAL ADVERBIAL)

The contrast is also found in Gungbe (Enoch Aboh, personal communication): only *ni* conditionals with echoic reading allow *ya* topicalization. (7) 'implies that speaker and hearer are not at the Procure, but in another bookshop where they have found a book that the hearer had seen at Procure *and told the speaker about*' (Enoch Aboh, personal communucation).[6]

[5] I thank Shin Sook Kim for the judgements.
[6] The resumptive pronoun *e* (3sg) is somewhere between a weak pronoun and a clitic (for discussion see Aboh 2004)

(7) (*)Ni wema ehe lo ya, a mon e to Procure, xo e na mi.
if book this Det Top 2sg see 3sg at Procure buy 3sg for me

2.2 The Internal Structure of Adverbial Clauses

In addition to differing with respect to the possibility of argument fronting, central and peripheral adverbial clauses display a series of other differences which can be reduced to one essential contrast: peripheral adverbial clauses allow for the encoding of illocutionary force, central adverbial clauses don't. As a result, peripheral adverbial clauses manifest a range of phenomena that involve anchoring to the speaker, these are absent from central adverbial clauses. I briefly go over some examples here.

2.2.1 Speaker-oriented Epistemic Modals and Adverbial Clauses

Peripheral adverbial clauses can, and central adverbial clauses cannot, contain expressions of epistemic modality:

(8) a. *Mary accepted the invitation without hesitation after John *may* have accepted it. (based on Verstraete 2002: 149)

b.??John works best while his children are *probably/might be* asleep.

c. The ferry will be fairly cheap, while/whereas the plane may/ will *probably* be too expensive.

d. If Le Pen will probably win, Jospin must be disappointed.[7]

[7] The distinction between the two types of adverbial clauses is not always made, leading to a failure to identify the restrictions on the distribution of epistemic adverbials. For instance, in his discussion of the distribution of sentential adverbials, Nilsen (2004) points out that 'speaker oriented adverbs, such as evaluatives (*fortunately*), evidentials (*evidently*), and some modals (*possibly*) are degraded… in antecedents of conditionals' (2004: 811). In a footnote he then adds:

> One can also find occurrences of *probably* in antecedents of conditionals which are not that bad.
>
> [i] If Le Pen will probably win, Jospin must be disappointed.
>
> I take the slipperiness of some these [sic] intuitions to be comparable to that found with relative adverb ordering. Consequently I will try to stick to phenomena for which intuitions are sharper. (2004: 811, n. 5)

Failure to distinguish the two types of adverbial clauses seems to be at the basis of the 'slippery intuitions'. Nilsen's problematic (i) is my (8d). It contains an instance of a peripheral conditional: the natural interpretation is that the conditional echoes a previous statement or proposition that is contextually salient. The fact that epistemic adverbials are licit in (i)/(8d) is then not unexpected. Such epistemic adverbials remain unacceptable in central adverbials.

Epistemic modality is by definition anchored to the speaker: it expresses the speaker's stance concerning the likelihood of the state of affairs/event, which is anchored to speech time. Tenny (2000: 319) underlines the need for anchoring to speaker in relation to the highest adverbs in the Cinque (1999) hierarchy:

> We cannot have a point of view without a sentient being to hold it. A speech act, of course, necesssarily involves the speaker as a participant, An evaluative expression, at the sentence level, reflects the point of view of the speaker. Evidentiality involves the speaker as a sentient perceiver, a proposition that is *apparently* true or false must be so to someone. Finally, epistemic modality, which addresses a state of knowledge of something, must involve a sentient mind that is in the state of knowing; at the sentential level it is the speaker who is represented as holding that knowledge. (Tenny 2000: 319)

Verstraete points out that even if 'epistemic modals can be morphologically associated with a past tense, ... *this morphological marking does not express the speaker's past judgement.* Either it is used for tentativeness,… or it occurs in a context of indirect or free indirect speech' (Verstraete 2002: 152, italics mine).

2.2.2 Illocutionary Force

The availability of epistemic modality in peripheral adverbial clauses and its absence in central adverbial clauses suggest that peripheral clauses can be anchored to the speaker in a way that central adverbial clauses cannot. This distinction is confirmed by the observation that peripheral adverbial clauses may contain indicators of illocutionary force, a point signalled by Declerck & Reed (2001) for conditional clauses. Central adverbial clauses do not have independent illocutionary potential and they are integrated in the speech act conveyed by the associated clause.

> When the Present Perspective System is used in the sub-clause [i.e. central conditional, LH], the speaker makes a single (but complex) prediction: *she presents the contents of the two clauses as forming a unit*. (Declerck & Reed 2001: 131, italics mine)

> When the Future Perspective System [i.e. peripheral conditional, lh] is used in both clauses [conditional and associated clause, lh], the speaker makes two independent predictions: there are, as it were, two illocutionary speech acts. (Declerck & Reed 2001: 131, italics mine)

There are a number of empirical data illustrating this opposition.

2.2.2.1 Echoic Effect in Conditional Clauses

Declerck & Reed (2001) signal that peripheral conditional clauses are echoic:

> closed P-clauses [≈ peripheral conditional clauses, LH] are always *echoic* in one sense or another. They can echo straightforward statements about the actual world, or they can echo Q-propositions about a nonfactual world. However, the claim that closed P-propositions are echoic need not mean that they have to be echoes of actual utterances. They may also be echoes of an internal or mental proposition (thought) such as the interpretation of an experience, perception etc. (Declerck & Reed 2001: 83)

Being 'echoic' implies a relation to the discourse, and one that is mediated by the speaker who 'echoes' a previous utterance/thought.

2.2.2.2 Tags (H&T 1973: 471)

Further evidence for the availability of illocutionary force in peripheral adverbial clauses and its absence in central adverbial clauses comes from the observation that the former may and that the latter may not have their own question tags associated with them. In (9a) the tag *didn't she* is related to the matrix clause; a tag *hadn't they*, which would have to be related to the adverbial clause, is not possible, as seen in (9b). Temporal *while* clauses show the same restrictions (10).

(9) a. Mary went back to college *after/before* her children had finished school, *didn't she*?

b. *Mary went back to college *after/before* her children had finished school, *hadn't they*?

(10) a. Bill took a degree at Oxford while his children were still very young, *didn't he*?

b. *Bill took a degree at Oxford while his children were still very young, *weren't they*?

The situation is different in peripheral adverbial clauses. Sentence-final contrastive *while* clauses will not normally be followed by a tag relating to the host clause. Such a tag would have to precede the contrastive *while* clause (11a,b). On the other hand, a contrastive *while* clause may have its own tag (11c):

(11) a. *Bill took a degree at Oxford, while his daughter is studying at UCL, *didn't he*?

b. Bill took a degree at Oxford, *didn't he*, while his daughter is studying at UCL.

c. Bill took a degree at Oxford, while his daughter is studying at UCL, *isn't she*?

(12) is an attested example with a question tag associated with a peripheral *because* clause:

(12) Henry III, for example, ruled for 56 years but his golden jubilee was a flop. 'Henry III?' they said, 'Erm, now which one's that then? '*Cos* Henry V is Agincourt, *isn't he*… (*Guardian*, 2.2.2., p. 8, col 2)

2.2.2.3 Speech Act Adverbials

Peripheral adverbial clauses may also contain adjuncts relating to the speech act, as illustrated by the following example:

(13) '[A referendum on a united Ireland]…will be a 'good thing, because frankly they need to be taken down a peg and come down to earth and be a little bit more sober in their approach to things.'
(*Guardian*, 22.7.2, p. 4, col 4)

2.2.2.4 (Rhetorical) Questions

Among peripheral clauses, *because* and *although* are found to embed rhetorical questions.

(14) a. No one would have been too upset about her bad behaviour, because *wasn't that what writers were put on earth to do*?
(*Observer*, 20.8.2000 p. 27, col 8)

b. News about the anti-American demonstrations which had begun to appear in Berlin and other parts of Germany in the fortnight since the summit hadn't exactly helped sell what was supposed to be Michelle's greatest success. Although *what did the mid-west care about Berlin*? (BNC, Verstraete 2002: 147)

The status of such examples may be debatable and some might consider them as a matter of usage rather than being grammatical in the strict sense (cf. Newmeyer 2003: 692). Still, the fact that such rhetorical questions are found at all in these adverbial clauses and that they are not found in the central ones, suggests that *although* clauses and *because* clauses can be associated by speakers with the type of illocutionary force typical of unembedded root clauses.

2.2.2.5 Imperatives (Verstraete 2002: 146)

Verstraete (2002: 146) signals that some peripheral adverbial clauses may also have imperative force markers. I refer to his work for discussion.

(15) a. The students should have enough money, although remember we are expecting a drop in the department funding.

b. The fees should bring in more money, because remember we are expecting a drop in the department funding.

c.??The students should have enough money, while remember we are expecting a drop in the department funding.

3 RT/MCP and the Internal Make-up of CP

3.1 'Structural Reduction'

My proposal to account for the difference between central and peripheral adverbial clauses is inspired by Hooper and Thompson's own observation concerning the restricted distribution of root phenomena, which I have reproduced in the preceding section. They point out that root phenomena are generally excluded from structurally 'reduced' clauses. I propose that central adverbial clauses are reduced clauses, they are structurally deficient, while peripheral adverbial clauses can display the full clausal structure available in root clauses. More specifically, I locate this difference in the left periphery of the clause. I propose that the CP-domain of central adverbial clauses lacks the functional projection that guarantees anchoring to the speaker and which is projected in root clauses (and in clauses embedded under speech act verbs or propositional attitude verbs). The speaker-related projection, I contend, is available in peripheral adverbial clauses. The proposed structural distinction is semantically motivated. Central adverbial clauses are part of and modify the proposition with which they are associated, peripheral adverbial clauses express independent propositions, associated with illocutionary force, that serve as the immediate discourse background to the associated clause.

3.2 RT/MCP and the Internal Make-up of CP

3.2.1 'Reduction' and Speaker-related Projections

The structural distinction between the two types of adverbial clauses that is proposed is analogous to that postulated elsewhere to differentiate between types of complement clauses. Citing work by Benincà & Poletto (2001), for instance, Grewendorf (2002: 53) refers to 'the idea that embedded clause vary as to which portions of the CP-layer may be projected, and that this has to do with the selectional properties of the matrix verb… it may be a property of

non-bridge verbs that their complement does not project the whole CP-layer while bridge verbs select a complete CP-layer with all projections of the left periphery available' (for similar ideas, see also McCloskey 2004; Meinunger 2004, among others). My proposal is that the dual selectional behaviour of conjunctions is not restricted to those introducing complement clauses but extends to other subordinating conjunctions. For instance, *while* selects a different type of projection depending on its interpretation: central temporal *while* selects a reduced variant of CP, peripheral, discourse related *while* selects the full CP. In order to make this idea more precise, I will explore Rizzi's (1997) split CP.

3.2.2 The Periphery of the Clause: the Split CP (Rizzi 1997)

3.2.2.1 Force versus Sub

Various authors have proposed that the unitary CP-layer be replaced by a hierarchy of functional projections. (16a) is from Rizzi (1997).

(16) a. Force > Topic > Focus > Fin[8]

Following Bhatt & Yoon (1992), Bennis (2000), Rizzi (1997: n. 6), Roussou (2000) and others, I propose to decompose the head labelled Force. Subordinating conjunctions are inserted in the position 'Sub'; Sub serves to subordinate the clause, to 'make it available for (categorial) selection independently of its force' (Rizzi 1997). A specific head, which I will label Force, guarantees anchoring to the speaker and is implicated in the licensing of, among other things, illocutionary force and epistemic modality. Roussou (2000) implements the idea that Rizzi's original functional head Force be split into two heads on the basis of data from Modern Greek.

> For present purposes let us take the highest C, realised by *pu* in [17a], to have the properties of a subordinator: it connects the clause to some element of the higher clause (so that the former depends on the latter). [note omitted] Given its connecting properties we will simply refer to this head as C. …
>
> According to [17a] there are three basic C positions each specified for different features. The higher C gives us 'subordination', the middle C clause-typing, and the lower C modality….Focus/Topic is situated between the two higher [heads] (Roussou 2000: 79)

[17] a. $[_{C}$ *pu* [Topic/ Focus $[_{COp}$ *oti/na/as* $[_{Neg}$ $[_{CM}$ *θa*/ $t_{na/as}$ $[_{I}$ cl+V…]]]]]][9]

[8] Mainly on the basis of Romance data, Rizzi (1997) introduces a lower topic position to the right of Focus. This position is probably restricted to Romance (see section 5).

[9] *Pu*: factive complements, *oti*: non factives. I have simplified Roussou's structures somewhat.

In terms of my own labelling, Roussou's C-position corresponds to 'Sub', COp corresponds to 'Force' and CM corresponds to 'Fin'.

(17) b. [$_{Sub}$ *pu* [Topic/ Focus [$_{Force}$ *oti/ na/as* [$_{Neg}$ [$_{Fin}$ *θa*/ $t_{na/as}$ [$_{I}$ cl+V…]]]]]]

Both central adverbial clauses and peripheral adverbial clauses contain the position Sub, which hosts the subordinating conjunction. Only peripheral adverbial clauses can contain Force. Root clauses obviously also contain the head Force. Central adverbial clauses refer to events/states of affairs, and lack manifestations of illocutionary force. We end up with the following functional hierarchies in the left periphery of finite clauses

(16) b. Central adverbial clause: Sub Fin

c. Peripheral adverbial clause: Sub Top Focus Force Fin

d. Root clause: Top Focus Force Fin

In anchoring the clause to the speaker, Force also anchors it to speech time. The independent encoding of temporal relations in a syntactic domain depends on anchoring to Speech time.[10] Epistemic modality, which I take to be licensed by anchoring to speaker/speech time, similarly is licensed through the presence of the head Force. For a similar proposal relating epistemic modality and illocutionary Force I also refer to recent work by Bayer (2001: 14-15).[11]

3.2.2.2 Topicalization and Force

In a discussion of Bavarian emphatic topicalization, Bayer (2001) postulates a link between the presence of illocutionary Force and the availability of topicalization:

> *... this form of topicalization is the grammar's reflex of the speech act to be performed* and is as such on a par with German constructions involving modal

[10] Conceivably, the dependency can also be stated the other way, in which case anchoring to speaker depends on Speech time. What is distinctive in peripheral adverbial clauses and what licences MCP would then be the syntactic encoding of Speech Time, with 'Force' perhaps relabelled 'S'. Such a position would entail the reworking of the claims made below but is not incompatible with the main argumentation of this paper. For instance, epistemic modality might be argued to depend on S. I hope to look into different alternative formulations in future work. See also Bianchi (2003), who proposes that the C domain encodes a logophoric center. Following Tenny's (2000) classification of adverbial adjunts one may also see Force as the encoding of Speaker deixis. Regardless of the label to designate the relevant head, the idea is that this head ensures the link-up of the clause to Speech time, Speaker deixis, Speaker point of view.

[11] In work on root phenomena in embedded clauses, Meinunger (2004) proposes that German embedded clauses displaying Verb Second are characterised by the presence of an assertion operator in the CP domain. This proposal is obviously compatible with postulating a Force projection in CP.

> particles like *aber, denn, doch, ja* etc. *Modal particles* supply features which interact with other features such as [WH] yielding a wide range of *illocutionary forces*. Bayer 2001: 14-15)
>
> . *...if emphatic topicalization belongs to the class of grammatical means of force projection in the sense of Rizzi (1997), its root clause property* and strict left peripherality [in Bavarian] are not surprising.' (Bayer 2001: 14-15)

Putting things very roughly, (18a) with a fronted topic, would have the reading (18b): the speaker relates the topic to the clause that is predicated of this topic. In other words, topicalization is a kind of 'speech act' about the topic topic (cf. Reinhart, 1981: 64).

(18) a. This book, I don't like.

b. About this book, the speaker asserts that the speaker does not like it.[12]

I assume that English topicalization depends on the presence of Force and that the language does not have any alternative way of relating a fronted topic to the associated clause. That topicalization is not available in central adverbial clauses in English is a consequence of the absence of the projection of the head Force.[13] As we will see below, other languages do have alternative mechanisms for licensing fronted arguments in the left periphery.

The differentiation between two types of adverbial clauses in English is to be related to the more general distinction between clauses that express mere 'events/states of affairs' and those that are assertions associated directly with a speaker. In the next sections I review other embedded domains that can also be characterised in terms of a reduced CP-structure (see Hooper & Thompson 1973).

3.3 Factive Complements

Melvold (1991) proposes to distinguish factive complements from non-factive complements in that the former are (definite) descriptions of individual events

[12] Though this needs to be worked out, I would like to explore the idea that topicalization structures like that in (18a) are the root/abstract counterparts to embedded patterns illustrated in (18c), in which a DP (*Mr Bush)* is related to the complement clause via a speech act verb (*say*) and the preposition *of.*

[i] Britany Clayton… said of Mr. Bush: 'He makes me nervous'.
(*New York Times*, 9.11.2, A16, col 5)

[13] Whitman (1989) postulates a link between topicalization and the availability of modal markers. If epistemic modality depends on Force (as suggested above), and if topicalization also depends on Force, this is expected. The restrictions could also be restated in terms of the alternative proposal briefly introduced in note 10: if topicalization depends on epistemic modality and if the latter is anchored to speech time, we predict topicalization will be excluded from non-root environments.

while the latter are assertions, associated with truth value. In terms of the analysis proposed here, non-factive complements encode Force while factive complements lack Force (and TopP and FocP, the projections which are, by hypothesis, licensed by Force).

(19) a. Non-factive complements: *that* (Top)(Focus)Force Mod*Fin

b. Factive complements: *that* Mod*Fin

Hence factive complements are expected to resist topicalization, while non-factive complements admit it:

(20) a. The inspector explained that *each part* he had examined very carefully. (Hooper & Thompson, 1973: 474, their (48))

b. (%)*John regrets that *this book* Mary read. [14]
(Maki *et al* 1999: 3, their (2c))

In my analysis, 'assertion' involves an extra layer of functional structure in the CP (see also Meinunger 2004), while presupposed complements lack that layer of the structure. My analysis contrasts rather sharply with Zubizarreta (2001), who says:

> It is likely that factive predicates, which presuppose the truth of their propositional complement, contain an Ass(ertion) operator in its [sic, lh] CP. This operator is lexicalised by the complementizer, which explains why it must be obligatorily present [cf. *John regrets *(that) Mary is bald*]. Complements of propositional attitude verbs lack an Ass operator, therefore, their complementizer may be absent in some languages [cf. *John thinks (that) Mary is bald*]. (Zubizarreta 2001: 201).

Note that my analysis does not exclude that factive complements involve additional structure, but if they do, then it would be in terms of, for instance, being selected by a D-head, rather than there being additional CP-internal structure.

3.4 'Sentential Subjects' (Davies & Dubinsky 1999, 2001; Koster 1978; Miller 2001)

The observation that subject clauses resist topicalization (Hooper & Thompson 1973: 476) can be interpreted as a consequence of their reduced structure:

(21)a. *That this book, Mary read thoroughly is true.
(Authier 1992: 332, his (17b))

[14] On factive verbs and semifactives see Hooper & Thompson 1973: 480ff. For discussion of variable judgements on topicalization in factive complements I refer to Maki et al 1999.

b. It is true that this book, he read thoroughly.
(Authier 1992: 333, his (18b))

This hypothesis would reconcile the claims that sentential subjects do not exist at all (Koster 1978) with proposals that they do exist (Davies & Dubinsky 1999, 2001; Miller 2001). To the extent that sentential subjects can occupy the canonical subject position, my proposal is that they have a reduced CP (without Force). Sentential subjects with a full CP (with Force) could then be argued to occupy a peripheral position (Koster 1978; cf. Meinunger 2004). I hope to elaborate this conjecture in later work.

4 CLLD is not a Root Phenomenon

In the preceding sections, I interpret the non-occurrence of topicalization in English in specific clause types in terms of the impoverished structure of their CP-domain. If CLLD were interpretively and structurally identical to English topicalization (cf. Delfitto 2002; Rizzi 1997), we would predict that CLLD should be disallowed in the contexts disallowing topicalization in English, namely in central adverbial clauses, factive complements, sentential subjects and infinitival clauses.[15] This prediction is not borne out at all. I first provide a survey of these contexts.

4.1 Central Adverbial Clauses

In (22)-(26), CLLD is apparently licensed in central adverbial clauses. It would appear that these clauses also refer to events/states of affairs and cannot be plausibly argued to differ interpretively from their English counterparts.[16]

[15] For a survey of the movement vs. base-generation debate and an analysis of CLLD in terms of the Big DP analysis see Cecchetto 2000.

[16] The data are complex, though. Carlo Cecchetto signals that though CLLD is possible in central adverbial clauses, it certainly is not as good as it would be in peripheral adverbial clauses. He gives the following, in which the (a) examples are peripheral adverbial clauses and the (b) examples contain central ones. The example of a temporal central adverbial clause with CLLD in (iiib) is particularly degraded.

(i) a. Se il dolce non lo porti, porta almeno il vino
if the sweet non it bring-2SG, bring at least the wine
'If you are not bringing the sweet, then at least bring the wine.'

b. Se il dolce non lo porti, penseranno che sei mal educato
*if the sweet non it bring, think-FUT-*3PL *that be-2SG badly educated*
'If you don't bring the sweet, they will think that you are not well educated.'

(22) a. Se *gli esami finali* non *li* superi, non otterrai. (It)
if the exams final non them pass-2SG, non obtain-FUT-2SG
il diploma
the diploma
'If you don't pass the final exams, you won't get the diploma.'

b. Se *queste cose* non *le* sai, non supererai l'esame.
if these things non them know-2SG, not pass-FUT-2SG the exam
'If you don't know these things, you won't pass the exam.'

(23) a. Si *aquest examen* no *l'*aproves amb un cinc, (Ca)
if this exam no it pass-2SG with a five,
perdràs el curs sencer.
lose-FUT-2SG the course entire
'If you don't pass this exam with a five, you'll lose the whole year.'

b. Quan *aquesta cançó la* vaig tornar a sentir al cap dels anys,
when that song it returned to hear after some years,
em vaig emocionar molt.
I was emotional very
'When I heard this song again after some years, I got really emotional.'

(ii) a. Se la pasta non la sai fare, è inutile che ci provi
if the pasta non it can-2SG make, is useless that it try-2SG
'If you cannot cook pasta, there's no point in trying.'

b. ?Se la pasta non la sai fare, penseranno che sei un cattivo cuoco
if the pasta non it can-2SG make, think-FUT-3PL that be2SG a bad cook
'If you cannot cook pasta, they will think you're a bad cook.'

(iii) a. Mentre il pesce lo mangia, rifiuta di mangiare la carne
while the fish it eat-3SG, refuse-3SG to eat the meat
'While he eats fish, he refuses to eat meat.'

b.??Mentre il pesce lo mangia, beve vino rosso
While the fish it eat-3SG, drink-3SG wine red
'While he is eating fish he is drinking red wine.'

(24) Si *este examen* no *lo* apruebas con un cinco, perderás (Sp)
if this exam no it finish-2SG with a five, lose-FUT-2SG
el curso entero.[17]
the course entire
'If you don't pass this exam with a five, you'll lose the whole year.'

(25) %Si *ce livre-là* tu *le* trouves à la Fnac, achète-le.[18] (Fr)
if this book there you it find at the Fnac, buy-IMP it.
'If you it find this book at the FNAC, buy it.'

(26) An *afto to vivlio to* vris stin dhimotiki vivliothiki,[19] (MG)
if this the book it find-2SG in-the local library
boris na to paraggilis stin kentriki vilviothiki
could-2SG prt it order-2SG in-the central library
'If you find this book at the local library, then you can order it in the central library.'

4.2 CLLD in Factive Complements[20]

Factive complements resist topicalization in English (and in Japanese, cf. Maki et al 1999); they allow CLLD in Romance:

---

[17] Catalan and Spanish judgement thanks to Josep Quer (personal communication). However, as shown by the following quotation from Escobar (1997), judgements seem to vary. She says:

> For Spanish, left-dislocated phrases with CLLD cannot appear embedded with subjunctive mood which otherwise seems to facilitate the most clear cases of embedding in Spanish:
>
> (i) ??/* Ella prefiere que a Luis, el médico lo examine.
> *She prefers that a Luis the doctor him examines*
>
> …we may conclude that CLLD is a root phenomenon. (Escobar 1997: 248)

On the other hand, Luis Lopez (personal communication) indicates that to him (i) sounds perfect with a postverbal subject:

(ii) Ella prefiere que a Luis lo examine el medico (no el enfermero).
she prefers that Acc Luis CL examine-SUBJ the doctor (not the nurse)

[18] See also Ashby 1988, Barnes 1985, Lambrecht 1981. There is considerable variation among informants

[19] Thanks to Anna Roussou for the MG data. See also Anagnostopoulou (1997: 160) for Modern Greek CLLD.

[20] Factive complements are often subjunctive in Romance. In English subjunctive complements also resist topicalization.

(i)*It's important that *the book* he study carefully. (H&T 1973: 485, their (166))

For French subjunctives, see, among others, Hirschbühler 1997.

(27) a. E' strano che *questo problema* gli studenti non (It)
is strange that this question the students non
l'abbiano potuto risolvere.[21]
it have-SUBJ-3PL can-PART solve

b. Mi dispiace che questo problema gli studenti non (It)
me displeases that this problem the students non
l'abbiano potuto risolvere.
it have-SUBJ-3PL can-PART solve

c. Lamento que aquesta pregunta els meus estudiants no (Cat)
regret-1SG that this problem the my students no
l'hagin contestat correctament.
it have-3PL answered-PART correctly

d. És estrany que aquesta pregunta els meus estudiants no (Cat)
is strange that this question the my students no
l'hagin contestat correctament.
it have-3PL answered-PART correctly

e. C'est bizarre que ce texte-là personne ne le connaisse. (Fr)
it is strange that that text-there no one ne it knows-SUBJ

f. J'ai beaucoup regretté que ce texte-là (Fr)
I have much regretted that that text there
ils n' l'aient pas discuté
they ne it have-SUBJ not discussed-PART

g. Lipithike pu tin diatrivi tu dhen tin ixan paraggili (MG)[22]
resented-3SG that the thesis his not it had-3PL ordered
stin vivliothiki
in-the library

h. Ine parakseno pu afto to vivlio dhen to exoun (MG)
is strange that *this the book not it have-3PL*
stin vivliothiki.
in-the library

4.3 Sentential Subjects

In Italian, sentential subjects also do not pose any particular problems for the licensing of CLLD.[23]

[21] CLLD is slightly more marked there with respect to bridge verb complements, comparable to CLLD with infinitives (Luigi Rizzi, personal communication).
[22] Thanks to Anna Roussou for the MG data.
[23] Thanks to Nicola Munaro and Luigi Rizzi for the judgements on these sentences.

(28) a. Che questo problema, i professori non l'abbiano (It)
that this problem, the professors non it have-SUBJ-3PL
potuto risolvere mi sembra improbabile.
can PART solve me seems unlikely

b. Che questo problema, il governo non lo voglia (It)
that this problem, the government non it want-SUBJ-3SG
discutere mi sembra probabile.
discuss me seems unlikely

For Catalan and Spanish, the judgements are less clear: sentential subjects are marginal and more so with CLLD. But the informant I consulted did not consider them to be ungrammatical:[24]

(29) a. ?Que los profesores no hayan podido resolver (Sp)
that the professors not have can-PART solve
este problema me parece improbable .
this problem me seems unlikely

b.??Que este problema los profesores no lo hayan podido (Sp)
that this problem the professors no it have can-PART
resolver me parece improbable .
to solve me seems unlikely

c. ?Que el gobierno no quiera discutir este problema (Sp)
that the govenment no wants discuss this problem
me parece probable.
me seems likely

d.??Que este problema el gobierno no lo quiera discutir (Sp)
that this problem the govenment no it wants discuss
me parece probable.
me seems likely

(30) a. ?Que els professors no hagin pogut resoldre aquest (Cat)
that the professors no have can-PART solve this
problema em sembla improbable.
problem me seems unlikely

b.??Que aquest problema els professors no l'hagin pogut (Cat)
that this problem the professors no it have can-PART
resoldre em sembla improbable.
solve me seems unlikely

[24] Judgements Josep Quer. Note that both (29a) and (29b) are acceptable for Luis Lopez.

c. ?Que el govern no vulgui discutir aquest problema (Cat)
that the governmnent no wants discuss this problem
em sembla probable.
me seems likely

d.??Que aquest problema el govern no el vulgui discutir (Cat)
that this problem the government no it wants discuss
em sembla probable.
me seems likely

Though this suggests cross-linguistic differences which one would have to further examine, I will conclude from the data above that CLLD is at least more easily available in sentential subjects in Romance than topicalization would be in English sentential subjects, again showing CLLD is not subject to the same licensing requirements.

4.4 CLLD in Infinitival Complements

That CLLD has a wider distribution than topicalization and that it occurs in what Hooper and Thomson referred to as 'reduced' structures is also clear when we consider their 'reduced' contexts. Infinitival control complements resist topicalization in English:

(31) *I have decided *your book* to read.

On the other hand CLLD is (at least marginally) possible in Romance infinitival control clauses as shown by the following data from the literature.

(32) a. Gianni pensa, *il tuo libro*, [$_{Fin}$ di] conoscer*lo* bene.
Gianni thinks, the your book, di know-it well
(Rizzi 1997: 309)

b. Mi sembra, *il tuo libro*, [$_{Fin}$ di] conoscerlo bene. (Rizzi 1997: 309)
me seems, the your book, di know-it well

c. Gianni sostiene, *il tuo libro*,[$_{Fin}$ di] conoscer*lo* bene.
Gianni maintains, the your book, di know it well
(Bianchi 2001: 29, her (69c))

Significantly, though, raising complements disallow CLLD. I return to this presently.

(33) *?Gianni sembra, *il tuo libro*, conoscer*lo* bene.
Gianni seems the your book know –it well

With respect to French, there is speaker variation. Tellier gives the contrast in (34):

(34) a. Je cherche, *ton livre*, à *l'*acheter d'occasion.
I *seek-for your book à it buy second hand*
(Tellier 2001: 356-7)

b. *Je cherche à, *ton livre*, *l'*acheter d'occasion.
I seek-for à your book it buy second hand

Rizzi comments: 'Speakers of French are reluctant to accept CLLD with infinitives. Nevertheless, a detectable contrast exists between control and raising (Ch. Laenzlinger p.c.):

(34) c.??Je pense, *ton livre*, pouvoir le comprendre.
I think, your book, can it understand.

d. *Marie semble, *ton livre*, pouvoir le comprendre.
Marie seems, your book, can it understand
(Rizzi 1997: 331, n. 24)

Spanish is more restrictive than Italian:[25] Observe that there is no overt spell-out of Fin in (35), which might suggest that there is less structure than in Italian, where *di* spells out Fin.

(35) a. *Juan piensa, tu libro, conocerlo bien
Juan thinks, your book, know –it well

b. *Me parece, tu libro, conocerlo bien
Me seems, your book, know-it well

c. *Juan sostiene tu libro conocerlo bien
Juan maintains your book know-it well

4.5 CLLD in French Complex Inversion

Further evidence to distinguish CLLD from topicalization is that in spoken French CLLD constituents may intervene between the constituent that triggers inversion and the inverted verb or auxiliary as discussed by Laenzlinger & Musolino (1995):

(36) a. Où *ce livre* (Jean) l'a -t-il acheté?
where this book (John) it has -he bought
(Laenzlinger & Musolino 1995: 83)

b. Où Jean *ce livre* l'a -t-il acheté?
where John this book it has he bought
(Laenzlinger & Musolino 1995: 83)

[25] Judgement from Enriqueta Perez Vazquez. As shown in note 17, there may be variation among speakers.

Once again, fronted arguments cannot intervene between the trigger for inversion and the inverted auxiliary in English (see Haegeman 2000):

(36) c. Many of these proposals not only do I agree with, but they were included in the text.

d. *Not only do many of these things I agree with.

4.6 Preliminary Conclusion

The data discussed above suggest quite clearly that the CLLD constituent in the left periphery is to be found in environments that resist topicalization in English. In particular while topicalization in English can be related to the availability of anchoring to speaker (which I locate in the functional head labelled 'Force'), this is not a property of CLLD, which has a significantly wider distribution. These findings cast doubt on the assumption that topicalized arguments as well as CLLD constituents invariably target Spec,TopP. Some authors have indeed signalled that CLLD has a wider distribution than English topics. Cinque (1990), for instance, says:

> [the] 'left-dislocated' phrase of CLLD [in Italian, LH] can occur at the front of virtually any subordinate clause type. Here again CLLD contrasts with LD, which typically occurs in root contexts and (to different degrees of marginality) in the complements of only a few classes of propositional attitude verbs (Cinque 1990: 58)

(See also Hirschbühler 1997: 62 for French.)

In the next section I will speculate on the difference between the English-type topicalization and CLLD.

5 A Lower Topic Position in the Left Periphery

5.1 CLLD Topic is Higher than Preverbal Subject

To account for the wider distribution of CLLD, one might propose that the dislocated DPs are IP-adjoined.

> The topic in CLLD… may be adjoined to a root clause or an embedded clause. (Zubizarreta 1998: 187)

Zubizarreta (1998) also suggests that CLLD constituents may actually occupy Spec IP:

> Spanish to some extent resembles some of the Germanic languages – specifically, Yiddish and Icelandic (references omitted)…. Languages with a generalised TP may be said to allow a certain amount of feature syncretism. More precisely, in

> these languages a discourse-based functional feature, such as 'topic', 'focus', or 'emphasis', may combine with the feature T(ense), giving rise to the syncretic categories T/'topic', T/'focus', T/'emphasis'. A topic, focused, or emphatic phrase may therefore be moved to [Spec,T] for feature-checking purposes … This of course is possible only to the extent that the nominative subject can be licensed in these languages in some way other than via specifier-head agreement with T. (Zubizarreta 1998: 100)

In work on German, Frey (2004) proposes that topics may be licensed in a medial position in the IP domain and Meinunger (2000) interprets Germanic scrambling as IP-internal topicalization. One might try to generalise their proposals to CLLD. However, though IP-internal fronted arguments with a topic reading may exist, this analysis does not apply to the left-dislocated DP in CLLD. Observe, for instance, that the CLLD constituent in central adverbial clauses precedes the subject. These data suggest that the CLLD constituent can at best be IP adjoined.

(37) a. Se *queste cose Maria* non le sa, non supererà (It)
if these things Maria non them knows, non pass-FUT-3SG
l'esame
the exam

b. Si *aquest examen el Josep* no l'aprova amb un cinc, (Cat)
if this exam the Josep no pass-3SG with a 5,
perdrà el curs sencer.
lose-FUT-3SG the year whole

c. Si *este examen Juan* no lo aprueba con un cinco, (Sp)
if this exam Juan no pass-3SG with a 5,
perderá el curso entero.
miss-FUT-3SG the year whole

Moreover, in Italian control infinitives (cf. (32)), the dislocated DP constituent precedes *di* which Rizzi associated with the lowest head Fin of the CP domain. The dislocated constituent cannot follow *di*. This means that an IP adjunction analysis cannot account for the distribution of the CLLD constituent.

(38) *Mi sembra, [$_{Fin}$ di] *il tuo libro*, conoscer*lo* bene.
me seems di the your book know –it well
(Rizzi 1997: 309)

5.2 A Lower TopP in the Periphery

The discussion above leads to the conclusion on the one hand, that CLLD constituents are IP-external and on the other, that they do not depend on the presence of Force. One way of interpreting this is to propose that in addition to the higher topic position licensed by Force, there is a lower position for CLLD

constituents. Some such proposals have been elaborated. I will discuss three of them here.

5.2.1 Rizzi 2001

In order to accommodate the distribution of left dislocated constituents and adjuncts in Italian, Rizzi (2001) postulates a recursive topic position below the Focus position, which can be preceded by fronted adverbial adjuncts. I refer to his paper for details.

(39) Rapidamente, i libri, li hanno rimessi a posto.
quickly, the books, them have-3PL put-PART to place
(Rizzi 2001, his (49))

This leads him to propose the more articulated periphery in (40).

(40) Force Top* Int Top* Focus Mod* Top* Fin IP
(Rizzi 2001)[26]

Observe that lower topic is located immediately above Fin and that it is lower than Mod, the position for locally fronted adjuncts. Mod must also be available in central adverbial clauses, since these allow adjunct fronting (Haegeman 2003a). Reduced structures thus allow for the projection of the position Mod. Hence, we expect the lower topic position to be available in reduced structures. In particular, we predict that CLLD is licit in Control clauses, which are arguably reduced CPs with Fin still available, but that CLLD will not be available in Raising clauses which are arguably CP-less structures, lacking Fin altogether. The prediction is borne out as shown by Italian (32/3) and French (34d).

While CLLD is licit in central adverbial clauses, focalization is not possible. This suggests that the reduced CP-structure is indeed truncated above Mod.

(41) a. *Se GLI ESAMI FINALI non superi, non otterrai
If THE EXAMS FINAL non pass-2SG, non obtain –FUT-2SG
il diploma.[27]
the degree

[26] On the recursion of Top, see below. For the projection Int, see discussion in Rizzi's paper.
[27] The judgements are no different if the adverbial clauses occur sentence finally:

(i) a. *Non otterrai il diploma, se GLI ESAMI FINALI non superi.

b. *Non supererai l'esame, se QUESTE COSE non sai.

Thanks to Nicola Munaro for judgements on these examples.

b. *Se QUESTE COSE non sai, non supererai
if THESE THINGS not know-2SG,, non pass–FUT-2SG the il l'esame.
the exam

As expected, focalization also leads to a degradation in sentential subjects, where CLLD is possible (cf. (28) above).[28]

(42) a.?(?)Che QUESTO PROBLEMA i professori non
that THIS PROBLEM the professors non
abbiano potuto risolvere mi sembra improbabile.
have –SUBJ-3PL can-PART solve me seems unlikely.

b.?(?)Che QUESTO PROBLEMA il governo non voglia
that THIS PROBLEM the government non want-SUBJ-3SG
discutere mi sembra probabile.
discuss me seems likely.

Similarly, focalization leads to strong degradation in control complements:[29]

(43) a.?(?)Gianni pensa IL TUO LIBRO di conoscere bene, non il suo.
Gianni thinks THE YOUR BOOK di know well, non the his

b. *Mi sembra IL TUO LIBRO di conoscere bene, non il suo.
me seems THE YOUR BOOK to know well, non the his

If we postulate a lower position for licensing CLLD constituents in Romance, dominating FinP, and if we also assume that this position is not available in English, we can relate the difference in distribution to the proposals elaborated above for the structure of CP. English topicalization depends on the availability of the higher head Force; similarly Focus in the CP domain is anchored to Force. In Romance CLLD can also be licensed by an alternative mechanism. This suggestion entails that there should be some further interpretive differences between the two types of topics. I return to this point presently.

One prediction of Rizzi's hierarchy in (40) is that the 'lower topic' or the fronted adverbial adjunct should be able to follow a focalized constituent or an interrogative *wh*-constituent (assumed to occupy Spec,FocP). This prediction

[28] As expected, the degradation is far less when the clause is extraposed. (cf. (21) in the text).

(i) a. ?Mi sembra improbabile che QUESTO PROBLEMA i professori non abbiano potuto risolvere.

b. ?Mi sembra probabile che QUESTO PROBLEMA il governo non voglia discutere

[29] Thanks to Nicola Munaro for judgements. The apparently neat distinction between (43a) and (43b) remains unaccounted for.

is not borne out. Concerning this problem for his analysis, Rizzi (2001:16) says the following:

> Preposed adverbials can't naturally occur in a position lower than the *Wh* element either, a property plausibly related to the obligatory adjacency between the *Wh* element and the inflected verb, whatever its ultimate theoretical status …:
>
> [44] *Che cosa, rapidamente, hanno fatto?
> what, rapidly, did they do
>
> A particularly clear indication of the peculiar distributional properties of preposed adverbs emerges with *Wh* elements not requiring inversion, such as *perché* in Italian …): the preposed adverb can follow but cannot precede *perché*, while a topic can occur in both positions:
>
> [45] a. Perché, improvvisamente, Gianni è tornato a casa?
> why, suddenly, Gianni went home
>
> b. *Improvvisamente, perché Gianni è tornato a casa?
> suddenly, why Gianni went home
>
> [46] a. Perché, il mio libro, Gianni lo ha portato via?
> why, my book, Gianni took it away
>
> b. Il mio libro, perché Gianni lo ha portato via?
> my book, why Gianni took it away

5.2.2 Benincà & Poletto 2001

An alternative lower topic position is elaborated in work by Benincà (2001) and by Benincà & Poletto (2001), who propose that the left periphery be decomposed as in (47):[30]

(47) ForceP… Hanging topic… Left Dislocated Topic… Focus FinP

This hierarchy distinguishes between a higher (Hanging) Topic (HT) position and a lower Left Dislocated Topic. There is only one Hanging Topic per clause, while there may be multiple Left Dislocated (LD) Topics.

The LD position in (47) could be taken to correspond to the lower position occupied by CLLD constituents. This assumption correctly predicts that. multiple CLLD constituents are possible in Romance (48) (see Delfitto 2002):

(48) a. *Il libro, a Gianni*, glielo daro senz'altro.
the book, to Gianni him-it give-FUT-1SG without doubt
(Rizzi 1997: 290, his (21))

Multiple fronted arguments are also possible in central adverbial clauses. This is expected, if we assume that such arguments target the lower LD position, given that LD is recursive.[31]

[30] I have adjusted their hierarchy to enable easier comparison with Rizzi's hierarchy.

(48) b. Se a Gianni questo libro non glielo mostro,
if to Gianni this book non him-it show-1SG,
sarà molto deluso.
be FUT –3SG very disappointed

c. Se a Maria di questo problema non gliene parleremo,
if to Maria of this problem non her-of-it speak-FUT-1PL,
non potrà aiutarci.
non can- FUT-3SG help-us

As there tends to be only one topic per clause in English (see Rizzi 1997), we do not equate the English topic position with Benincà & Poletto's LD position. Rather we equate the English TopP with their HT position.

Unlike Rizzi's analysis referred to above, Benincà & Poletto's hierarchy straightforwardly predicts that LD topics do not occur to the right of focalized constituents. However, their analysis raises a problem. If we adopt a truncation analysis for central adverbial clauses, sentential subjects, and infinitival clauses, then in order to allow for LD topics to occur in such reduced structures, these clauses would have to be truncated just under the hanging topic:

(47) b. reduced structure

Left Dislocated Topic…Focus FinP

c. full structure

ForceP… Hanging topic…Left Dislocated Topic…Focus FinP

In this view, Focus would have to remain available in reduced structures. This does not give the correct predictions: focalized constituents lead to ungrammaticality in reduced structures.

[31] Thanks to Nicola Munaro for the data. Observe that multiple topicalization is also possible in temporal adverbials:

(i) a. Quando a Gianni questo libro gliel'ho mostrato, ne è rimasto molto deluso.
when to Gianni this book him it have –1SG shown,of it be-3SG remained very disappointed

b. Quando a Maria di questo problema gliene ho parlato,
when to Maria of this problem to her –of it have –1SG talked,
mi ha capita perfettamente.
me has-3SG understood perfectly

Larson & Sawada (2004) point out that in some temporal adverbial clauses only one CLLD constituent is possible. This suggests that such temporal adverbial clauses impose some additional restriction. See also McCloskey 2004.

5.2.3 Frascarelli & Hinterhölzl 2003

In work on the interpretive and prosodic properties of topics, Frascarelli & Hinterhölzl (2003) distinguish three types of topics, two of which are immediately relevant to our concerns.

- The ABOUTNESS TOPIC occupies the highest Topic position in the left periphery. Frascarelli & Hinterhölzl say: 'it is cognitively speaking important for such Topics to occur at the beginning of the sentence.' (cf. Lambrecht 1994: 194). ABOUTNESS Topics are located in a *higher position with respect to WH/Focus* constituents.
- The FAMILIARITY TOPIC occupies the lowest TopP projection. FAMILIAR Topics are located lower than WH/Focus constituents and they can be realized in either peripheries.[32]

The structure these authors propose for the left periphery is the following:

(49) a. $[_{\text{AboutP}}\ [_{\text{ContrP}}\ [_{\text{FocP}}\ \ [_{\text{FamP}}\ [_{\text{IP}}$

In terms of the analysis elaborated here, the ABOUTNESS topic would be associated with an 'illocutionary act' licensed by Speech act/ Force in my own account. The FAMILIARITY topic is not dependent on Force and is licensed in a lower position.

ABOUTNESS topics are unique:

> A sentence can only contain *one* ABOUTNESS Topic, while multiple FAMILIAR Topics are allowed (different elements can be part of background information). (Frascarelli & Hinterhölzl 2003, handout p. 6, their (7))

The hierarchy postulated here is similar to that proposed by Rizzi (2001): the lower FAMILIARITY topic follows the focalized constituent. Again, assuming truncation above FamP for the reduced structures, we correctly predict that reduced clause types will allow FAMILIARITY topics though not focalized constituents nor ABOUTNESS topics. That multiple topics are possible in reduced clauses (48b,c) is also expected:

(49) b. Reduced structures Sub $[_{\text{FamP}}[_{\text{IP}}$

c. Full embedded structures Sub $[_{\text{AboutP}}\ [_{\text{ContrP}}\ [_{\text{FocP}}[_{\text{FamP}}\ [_{\text{IP}}$

Again the non-occurrence of a FAMILIARITY topic with a higher focalized constituent remains to be accounted for. Perhaps one can invoke the adjacency constraint referred to by Rizzi (5.2.1).

[32] CONTRASTIVE topics are located between ABOUTNESS and FAMILIARITY. Lopez (2003) points out that Catalan CLLD arguments are contrastively stressed. Italian or Spanish CLLD arguments do not have to be contrastively stressed, on the other hand.

5.3 The Role of Fin

The proposals discussed above distinguish at least two topic positions, the lower of which could be argued to survive in reduced clauses. This lower position can then be claimed to be targeted by CLLD topics in Romance, and to be unavailable for topics in English. The analysis raises the immediate question why the lower topic position is not available in English (and similar languages).[33] I speculate that it is the feature content of Fin in Romance and in Modern Greek that licenses the lower topic position (cf. Lopez 2003, Grewendorf 2002 for proposals that involve Fin in topic licensing). This analysis gives a more prominent role to Fin in the left periphery. It is not clear to me at this point which property of Fin should be singled out for the licensing of the lower topic. Some properties of Fin that could be explored could be that it encodes Reference time (Reichenbach 1947; Hornstein 1990). In contrast, Speech time could then be related to 'Force'. A proposal along the same lines is that Fin encodes the 'Perspective point' (Bianchi & Bertinetto 1996; Bianchi, Bertinetto & Squartini 1995) (see also Boeckx 1998, 2001: 50, which links FinP and point of view). Adapting proposals by Bianchi (2003), one might also relate the CP domain strongly to the logophoric centre of the clause and propose that Fin encodes the 'Internal logophoric centre' (Bianchi 2003) while Force encodes the External logophoric centre in 'Force' (pace Bianchi 2003).

Inspired by Delfitto (2002), I assume that the relation between the CLLD constituent in the left periphery and the clitic in the IP domain is one of agreement and that no formal feature checking is required. Delfitto (2002) also proposes that multiple topics are possible in the case of CLLD (cf. (48)) precisely because no feature checking is involved. However, if the presence of the clitic as such were always sufficient to allow for multiple topics in CLLD structures, then one would expect Romance ABOUTNESS topics also to be recursive, contrary to Frascarelli & Hinterhölzl's conclusions.

6 A Final Problem: Pied-piping and Adverbial Clauses (Munaro 2004)

There is one remaining problem for the account of CLLD elaborated here. As it stands the occurrence of CLLD is dependent on Fin and should not give rise to any of the illocutionary effects which I associate with the presence of Force.

[33] Note that the topic position postulated for small clauses (Basilico 2003) would have to be interpreted differently. Perhaps in terms of the 'subject of predication' of Cardinaletti (1997, 2000) and of Haegeman (2002b).

However, this does not seem correct. In a discussion of CLLD in conditional clauses in Italian, Munaro (2004) says:

> The topicalization internal to the conditional antecedent is subject to restrictions; a constituent can be felicitously topicalized inside a conditional *only when the* if-*clause precedes the main clause, that is, when it is itself a topic.* (Munaro 2004)

The generalisation also applies to the other Romance languages examined here. The relevant data are given in (50):

(50) a. *Non supererai l'esame se *questo* non lo sai (It)
notn pass-FUT-2SG the exam if this non it know -2SG
(Munaro 2004)

b. *Perdràs el curs sencer, si *aquest examen* no (Ca)
lose-FUT -2SG the course entire if this exam no
l'aproves amb un cinc
it pass-2SG with a five

c. *Perderás el curso entero, si *este examen* no (Sp)
lose-FUT -2SG the course entire if this exam no
lo apruebas con un cinco.
it pass-2SG with a five

d. *Achète-le si *ce livre-là* tu le trouves à la Fnac. (Fr)
buy-IMP it if this book there you it find at the Fnac

One way of reconciling this observation with the account above is to propose (following Munaro 2004) the following:

1. Romance CLLD FAMILIARITY topics may target a lower landing site in the CP domain.
2. However, FAMILIARITY topics still require anchoring to the discourse. The low position the FAMILIARITY topics attain in the central adverbial clause is inadequate to fully license these topics because central adverbial clauses lack the projections to ensure anchoring to the discourse.
3. 'Pied piping' of adverbial clause to the topic projection of matrix CP makes up for internal deficiency of the central adverbial CP and guarantees licensing of (lower) topic.

A similar pied piping analysis has been proposed to account for emphatic topicalization in central adverbial clauses in Bavarian (Bayer 2001) and for the licensing of verb second patterns in complement clauses in German (Meinunger 2004). I hope to return to this issue in future work.

7 Summary

In this paper I examine some differences between English topicalization and Romance (and Modern Greek) CLLD. English topicalization is essentially a root phenomenon: it is excluded from central adverbial clauses, factive complements, subject clauses and infinitival complements. CLLD is not subject to this restriction. I propose that English topicalization be related to assertive illocutionary force as encoded by the functional head Force in the left periphery. When the left periphery is structurally reduced, Force is not projected and topicalization is illicit.

The data suggest that the position occupied by CLLD complements is lower than FocP. CLLD does not depend on Force but is licensed through Fin. In structurally reduced clauses in which Force is not projected but in which Fin is projected, CLLD remains licit. The fact that focalization, unlike CLLD, is not available in the reduced structures suggests that this too depends on Force.

References

Aboh, Enoch. 2004. *The Morphosyntax of Complement-Head Sequences : Clause Structure and Word Order Patterns in Kwa*. Oxford University Press, New York.

Anagnostopoulou, Elena. 1997. Clitic Left Dislocation and Contrastive Left Dislocation. In Elena Anagnostopoulou, Henk van Riemsdijk & Frans Zwarts, eds., *Materials on Left Dislocation,* John Benjamins, Amsterdam, pp. 151-192.

Andersson, Lars-Gunnar. 1975. *Form and Function of Subordinate Clauses.* Gothenburg Monographs on Linguistics 1. Department of Linguistics, University of Göteborg.

Ashby, William. 1988. The Syntax, Pragmatics, and Sociolinguistics of Left- and Right-dislocations in French. *Lingua* 75: 203-229.

Authier, J.-M. 1992. Iterated CPs and Embedded Topicalisation. *Linguistic Inquiry* 23: 329-336.

Barnes, Betsy. 1985. *Left Detachment in Spoken Standard French*. John Benjamins, Amsterdam.

Basilico, David. 2003. On the Topic of Small Clauses. *Linguistic Inquiry* 34: 1-36.

Bayer, Josef. 2001. Asymmetry in Emphatic Topicalization. In Caroline Féry and Wolfgang Sternefeld, eds., *Audiatur Vox Sapientiae, Studia Grammatica* 52. Akademie Verlag, Berlin, pp. 15-47.

Benincà, Paola. 2001. The Position of Topic and Focus in the Left Periphery. In Guglielmo Cinque & Giorgio Salvi, eds., *Current Studies in Italian Linguistics Offered to Lorenzo Renzi*. Foris, Dordrecht, pp. 39-64.

Benincà, Paola & Cecilia Poletto. 2001. Topic, Focus and V2: Defining the CP Sublayers. Ms. University of Padova. Talk presented at the Siena Workshop on Cartography.

Bennis, Hans. 2000. On the Interpretation of Functional Categories. In Hans Bennis, Maarten Everaert, & Eric Reuland eds., *Interface Strategies*. KNAW publications.

Bhatt R, and J. Yoon. 1992. On the Composition of Comp and Parameters of V-2. In D. Bates, ed. *Proceedings of WCCFL* 10. CSLI, Stanford, pp. 41-53.

Bianchi, Valentina. 2001. On Person Agreement. Ms., University of Pisa.

Bianchi, Valentina. 2003. On Finiteness as Logophoric Anchoring. In Jacqueline Guéron and Liliane Tasmowski. *Temps et Point de Vue/Tense and Point of View.* Université Paris X, pp. 213-246.

Bianchi, Valentina, Pier Marco Bertinetto and Maria Squartini. 1995. *Perspective Point and Textual Dynamics.* In Pier Marco Bertineto, Valentina Bianchi, Mario. Squartini and James Higginbotham, eds., *Temporal Reference: Aspect and Actionality,* Vol 1: *Semantic and Syntactic Perspectives*. Rosenberg and Tellier, Turin, pp. 309-324.

Bianchi, Valentina and PierMarco Bertinetto. 1996. Temporal Adverbs and the Notion of Perspective Point. In Violetta Koseska-Toszewa and Danut Rytel-Kuc, eds., *Semantyka a Konfrontacja Jezykowa*. Warszawa Polska Akademia, Nauk, pp. 11-21.

Boeckx, Cedric. 1998. Raising in Romance. Ms., University of Connecticut. (Available at http://mitpress.mit.edu/celebration)

Boeckx, Cedric. 2001. On the Co-occurrence of Expletives and Definite Subjects in Germanic. In Werner Abraham & Jan-Wouter Zwart, eds., *Issues in Formal German(ic) Typology.* John Benjamins, Amsterdam/New York, pp. 45-64.

Cardinaletti, Anna. 1997. Subjects and Clause Structure. In Liliane Haegeman, ed., *The New Comparative Syntax.* Longman, London, pp. 33-63.

Cardinaletti, Anna. 2000. Towards a Cartography of Subject Positions. Ms, University of Venice/SSLMIT, University of Bologna.

Cecchetto, Carlo 2000. Doubling Structures and Reconstruction *Probus* 12: 1-34.

Cinque, Guglielmo. 1990. *Types of A´-dependencies*. MIT Press, Cambridge, MA.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads.* Oxford University Press, Oxford/New York.

Davies, William & Stan Dubinsky. 1999. Sentential Subjects as Complex NPs: New Reasons for an Old Account of Subjacency. *CLS* 34.83-94.

Davies, William & Stan Dubinsky 2001. Functional Architecture and the Distribution of Subject Properties. In Davies, William & Stan Dubinsky, eds., *Objects and other Subjects*. Kluwer, Dordrecht, pp. 247-280.

Davison, Alice. 1979. Some Mysteries of Subordination. *Studies in the Linguistic Sciences* 9: 105-128.

Declerck, Renaat & Susan Reed. 2001. *Conditionals: A Comprehensive Empirical Analysis*. Mouton de Gruyter, Berlin.

Delfitto, Dennis. 2002. On the Semantics of Pronominal Clitics and some of its Consequences. *Catalan Journal of Linguistics* 1: 41-69

Doherty, Monica. 1985. *Epistemische Bedeuting*. Akademie-Verlag, Berlin.

Emonds, Joseph. 1970. *Root and Structure-preserving Transformations*. Ph.D. diss., MIT, Cambridge, MA.

Emonds, Joseph. 2004. Unspecified Categories as the Key to Root Constructions. In David Adger, Cécile de Cat & George Tsoulas, eds., *Peripheries*. Kluwer, Dordrecht, pp. 75-120.

Escobar, L. 1997. Clitic Left Dislocation and other Relatives. In Elena Anagnostopolou, Henk van Riemsdijk and Frans Zwarts, eds., *Materials on Left Dislocation.* Benjamins, Amsterdam, pp. 233-274.

Frascarelli, Maria & Roland Hinterhölzl. 2003. Types of Topics in German and Italian. Workshop on Information Structure and the Architecture of Grammar: A Typological Perspective, 1-2 February 2004.

Frey, Werner. 2004. A Medial Topic Position for German. *Linguistische Berichte* 198: 153-190.

Green, Georgia. 1976. Main Clause Phenomena in Subordinate Clauses, *Language* 52 : 382-97.

Grewendorf, Günther. 2002. Left Dislocation as Movement. In Simon Mauck & Jenny Mittelstaedt, eds., *Georgetown University Working Papers in Theoretical Linguistics* 2, pp. 31-81.

Grohmann, Kleanthes. 2003. *Prolific Domains*. Benjamins., Amsterdam.

Haegeman, Liliane. 1984a. Parasitic gaps and adverbial clauses. *Journal of Linguistics* 20: 229-232.

Haegeman, Liliane. 1984b. Pragmatic conditionals in English. *Folia Linguistica* 18: 485-502.

Haegeman, Liliane. 1991. Parenthetical Adverbials: The Radical Orphanage Approach. In Shuji Chiba, Akira Ogawa, Yasuaki Fuiwara, Norio Yamada, Osamu Koma & TakaoYagi, eds., *Aspects of Modern English Linguistics: Papers Presented to Masatomo Ukaji on His 60th Birthday*. Kaitakusha, Tokyo, pp. 232-53.

Haegeman, Liliane. 2000. Inversion, Non-adjacent inversion and Adjuncts in CP. In Paul Rowlett, ed., *Transactions of the Philological Society, Special Number: Papers from the Salford Negation Conference*. Vol. 98: 121-160.

Haegeman, Liliane. 2002a. Anchoring to Speaker, Adverbial Clauses and the Structure of CP. In Simon Mauck & Jenny Mittelstaedt, eds., *Georgetown University Working Papers in Theoretical Linguistics* 2, pp. 117-180.

Haegeman, Liliane. 2002b. Sentence-Medial NP-adjuncts in English. *Nordic Journal of Linguistics* 25: 79-108.

Haegeman, Liliane 2003a.Notes on Long Adverbial Fronting in English and the Left Periphery. *Linguistic Inquiry* 34: 640-649.

Haegeman, Liliane. 2003b. Speculations on Adverbial Fronting and the Left Periphery. In Jacqueline Guéron and Liliane Tasmowski, eds., *Temps et Point de Vue*/*Tense and Point of View*. Université Paris X, pp. 329-365.

Heycock, Caroline. 2002. Embedded Root Phenomena. Ms., University of Edinburgh.

Hirschbühler, Paul. 1997. On the Source of Lefthand NPs in French. In Elena Anagnostopoulou, Henk van Riemsdijk and Frans Zwarts eds., *Materials on Left Dislocation*. Benjamins, Amsterdam, 55-66.

Hooper, John, and Sandra. Thompson. 1973. On the Applicability of Root Transformations. *Linguistic Inquiry* 4: 465-97.

Hornstein, Norbert. 1990. *As Time Goes By*. MIT Press, Cambridge, MA.

Iatridou, Sabine and Tony Kroch 1992. The Licensing of CP Recursion and Its Relevance to the Germanic Verb-Second Phenomenon. *Working Papers in Scandinavian Syntax* 50: 1-24.

Koster, Jan. 1978. Why Subject Sentences Don't Exist. In S. Jay Keyser, ed*., Recent Transformational Studies in European Languages*. MIT Press, Cambridge, MA, pp. 53-64.

Kuno, Susumo. 1973. *The Structure of the Japanese Language*. MIT Press, Cambridge, MA.

Laenzlinger, Christopher & Julien Musolino. 1995. (Complex) Inversion and Triggers. *GenGenP* 3: 77-96.

Lambrecht, Knud. 1981. *Topic, Antitopic and Verb Agreement in Non-standard French*. Benjamins, Amsterdam.

Lambrecht, Knud. 1994. *Information Structure and Sentence Form: Topic, Focus and the Mental Representations of Discourse Referents*. Cambridge University Press Cambridge.

Larson, Richard. K. and Miyuki Sawada. To appear. Presupposition & Root Transforms in Adjunct Clauses. In Keir Moulton & Matthew Wolf, eds., *Proceedings of NELS 34*. GLSA, University of Massachusetts, Amherst.

Lopez, Luis. 2002. Toward a Grammar without TopP and FocP. In Simon Mauck & Jenny Mittelstaedt, eds., *Georgetown University Working Papers in Theoretical Linguistics*, Vol. 2: 181-209.

Lopez, Luis. 2003. Steps for a Well-adjusted Dislocation. *Studia Linguistica* 57: 193-232.

Lu, Peng. 2003. *La Subordination Adverbiale en Chinois Contemporain*. Ph.D. diss., Paris 7.

Maki, Hideki, Lizanne Kaiser & Masao Ochi. 1999. Embedded Topicalization in English and Japanese. *Lingua* 109: 1-14.

McCloskey, Jim. 2004. Questions in a Local English. Paper presented at Georgetown University Round Table.

Melvold, J. 1991. Factivity and Definiteness. *More Papers on Wh-movement*: *MIT Working Papers in Linguistics.*

Meinunger, Andre. 2000. *Syntactic Aspects of Topic and Comment*. Benjamins, Amsterdam.

Meinunger, Andre. 2004. Verb Second in German(ic) and Mood Selection in Romance. Paper presented at the Workshop on Clause Typing and the Left Periphery. Georgetown University Round Table.

Miller, Philip. 2001. Discourse Constraints on (Non) Extraposition from Subject In English. *Linguistics* 39: 683-701.

Munaro, Nicola. 2004. Computational Puzzles of Conditional Clause Preposing. In R. Delmonte, & A. M. Di Sciullo, eds., *UG and External Systems*. John Benjamins, Amsterdam/Philadelphia.

Newmeyer, Frederick. 2003. Grammar is Grammar and Usage is Usage. *Language* 79: 682-707.

Nilsen, ∅ystein. 2004. Domains for Adverbs. In Artemis Alexiadou, ed., *Adverbs across Frameworks*: *Lingua* 114: 809-847.

Pereltsvaig, Asya. 2004. Topic and Focus as Linear Notions: Evidence from Italian and Russian. In Dirk Bury, Karen Froud, Richard Horsey and Kriszta Szendroï, eds., *Focus and the Interaction between Syntax and Pragmatics: Lingua* 114: 325-344.

Platzack, Christer. 2004, Cross-linguistic Word Order Variation at the Left Periphery: The Case of Object First Main Clauses. In David Adger, Cécile de Cat & George Tsoulas, eds., *Peripheries*. Kluwer, Dordrecht, pp. 191-210.

Quirk, Randolph, Joseph Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. Longman, London.

Reichenbach, Hans. 1947. *Elements of Symbolic Logic.* Free Press, New York.

Reinhart, Tanya 1981. Pragmatics and Linguistics: An Analysis of Sentence Topics. *Philosophica* 27: 53-93.

Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In Liliane Haegeman, ed, *Elements of Grammar*. Kluwer, Dordrecht, pp. 281-337.

Rizzi, Luigi. 2001. Locality and Left Periphery. Ms. University of Siena.

Roussou, Anna. 2000. On the Left Periphery: Modal Particles and Complementisers. *Journal of Greek Linguistics* 1: 65-94.

Rutherford, William. 1970. Some Observations Concerning Subordinate Clauses in English. *Language* 46: 97-115.

Tellier, Christine. 2001. On some distinctive properties of parasitic gaps in French. In Peter Culicover & Paul Postal, eds, *Parasitic Gaps*. MIT Press, Cambridge, MA, pp. 341-367.

Tenny, Carol. 2000. Core Events and Adverbial Modification. In Carol Tenny & James Pustejovsky, eds., *Events as Grammatical Objects.* CSLI, Stnford, pp. 285-334.

Verstraete, Jean-Christophe. 2002. *Interpersonal Grammar and Clause Combining in English*. Ph.D. diss, University of Leuven.

Whitman, John. 1989. Topic, Modality, and IP Structure. In Susumo Kuno et al., eds., *Proceedings of the Third Harvard Workshop on Korean Linguistics*. Hanshin, Seoul.

Zubizarreta, Maria Luisa. 1998. *Prosody, Focus and Word Order*. MIT Press, Cambridge, MA.
Zubizarreta, Maria Luisa 2001. Constraints on Preverbal Subjects in Romance Interrogatives. In Aafke Hulk & Jean-Yves Pollock, eds., *Subject Inversion in Romance and the Theory of Universal Grammar*. Oxford University Press, New York, pp. 183-204.

On the Syntax and Pragmatics Interface: Left-peripheral, Medial and Right-peripheral Focus in Greek

Konstantina Haidou
School of Oriental and African Studies, University of London
109614@soas.ac.uk

Abstract

The present paper explores the extent to which narrow syntax is responsible for the computation of discourse functions such as focus/topic. More specifically, it challenges the claim that language approximates *'perfection'* with respect to economy, conceptual necessity and optimality in design by reconsidering the roles and interactions of the different modules of the grammar, in particular of syntax and phonology and the mapping between the two, in the representation of pragmatic notions. Empirical and theoretical considerations strongly indicate that narrow syntax is 'blind' to properties and operations involving the interpretive components — that is, PF and LF. As a result, syntax-phonology interface rules do not 'see' everything in the levels they connect. In essence, the architecture of grammar proposed here from the perspective of focus marking necessitates the autonomy of the different levels of grammar, presupposing that NS is *minimally structured* only when liberated from any non-syntactic/discourse implementations, i.e., movement operations to satisfy both interface needs. As a result, the model articulated here totally dispenses with discourse projections, i.e. FocusP.

1 Introduction

A key assumption of generative grammar, from very early stages of the theory (e.g., Chomsky 1965) to the present, is that of 'syntactocentrism': that is, that the narrow syntax is the fundamental generative component of the computational system and that the phonological and semantic components are 'interpretive'. According to this view, the infinity of language, which Chomsky takes to be one of its essential and unique characteristics, arises from exactly one component of the grammar: the recursive phrase structure rules — or in the Minimalist Program (e.g., Chomsky 1995), the operations of Select and Merge. Whatever recursive properties phonology and semantics have, they are a reflection of interpreting the underlying recursion in syntactic phrases. Consider the following passage from Chomsky (1965: 136): 'We are in effect assuming that the semantic interpretation of a sentence depends on its lexical items and the grammatical functions and relations represented in the underlying structures in which they appear.'

A departure from this syntactocentric view came from the phonology of the mid-1970s, where, in particular, Autosegmental Phonology (Goldsmith 1976; Liberman & Prince 1977) proposed several independent tiers connected by association lines. One claim of this phonological research was that intonational contours were larger phonological units not derived by erasing syntactic brackets and re-bracketing, but autonomous phonological types in the prosodic hierarchy. Thus, the connection of syntax to phonology was not seen as derivational, but rather involved constraints. On this view, PF is part of phonological structure, and not a late or low level of narrow syntactic structure. This is shown in (1), where the intonational phrasing does not correspond to any standard syntactic units.

(1) Syntactic bracketing:
[This] [is [the cat] that chased [the rat [that ate [the cheese]]]]]]
Phonological bracketing:
[This is the cat] [that chased the rat] [that ate the cheese] (Chomsky 1965)

On this view — one at odds with syntactocentrism — phonology consists of a generative system independent of syntax and related to it by interface rules. The important feature of these interface rules is that they do not 'see' everything in the levels they connect. For example, stress rules do not know about syllabic onsets, and the syntax-phonology interface does not know all of the details of syntactic embedding or of phonological segments. If we extend this line of thought to the syntax-semantics interface, we can see what it too must be 'blind' to syntactic phenomena such as agreement, structural case or verb position; and to semantic phenomena such as aspectual coercion and reference transfer.

The basic claim of this paper is that information structure units, such as the topic and foci conveyed by stress or intonation in many languages, necessitate an approach to grammar in which the phonological and semantic components are independent modules which can be directly available to each other, bypassing syntax. This is strongly implied by the analysis provided here for the discourse functions of a free word order language like Greek. In this respect, we follow Brody (1995), Jackendoff (1997), Reinhart (1995) and Szendrői (2001), among others, in claiming that the grammar should allow for direct PF-LF association without the mediation of syntax.

The outcome of such an approach, from a formal point of view, is a model in which phonology and semantics interface with syntax at the same level. Hence, we follow the main insights of Jackendoff's (1997) hypothesis of Representational Modularity, in that the informational structure of the mind strictly segregates phonological, syntactic and conceptual representations from each other. Each lives in its own module, and there can be no mixed representations that are, for example, partly phonological and partly syntactic.

Rather, all coordination among these representations is encoded in correspondence mapping rules.[1]

The natural question that arises from such a view is the following one: if we allow PF to access LF directly and vice versa, then what is the role of NS? What is left for NS to do? Probably, the answer lies in the assumption of trying to give NS a more simple structure. We argue that NS is free from semantics and more particularly the semantics of discourse notions, such as focus or topic. A fuller description and discussion of the Greek word order facts in sections 4 and 5 will enhance this view.

The present study applies the above assumptions to the syntax-prosody interface, describing information structure in Greek in terms of parallel representations licensed by interface rules. Section 2 rejects Chomskian assumptions about economy in favour of a direct PF-LF connection without the intervention of NS and the view that prosodic information is available at conceptual structure or C-I. Section 3 briefly presents focus strategies in different languages and proposes that in Greek these strategies are optional, given that they have no immediate effect on the semantic focus interpretation. Section 4 presents the word order facts and proposes that the role of syntax in the realization of focus in Greek is smaller than previously thought. Section 5 argues for a unification of focus position, showing that there are no interface differences between two distinct foci in Greek. It also predicts that the syntax of focus is uniform — that is, that both contrastive and information focus can occupy any position in the clause ex-situ or in-situ. Finally, section 6 presents my proposal for syntax-prosody mapping, which accounts in a uniform way for the three attested focus structures in Greek, namely left-peripheral right-peripheral and medial. Section 7 summarizes and offers some concluding remarks.

[1] Evidence for such an approach comes from late lexical insertion. In mainstream generative grammar, words get into sentences by being inserted into syntax by lexical insertion. But Jackendoff (1997), for example, has argued that lexical insertion has to be delayed until S-Structure (see also Di Sciullo & Williams 1987; Koster 1987; Halle & Marantz 1993 for similar proposals). The reason for this is that a lexical item is a mixed representation, an *interface rule* which licenses the linking of phonological, semantic and syntactic information. The information that a particular word is *tree* and not *flower* has to be communicated between phonology and conceptual structure, in order for someone to *utter* what they *mean*. This cannot be performed via syntax because only the syntactic features of a word are what syntax can see, since both of the above words are syntactically indistinguishable. Syntax does not need to drag through a derivation extra phonological and semantic pieces of information inertly. Most differentiation of words is by virtue of sound and meaning structures, since lexical items are not *finely individuated* in syntax, but rather in semantics and phonology.

2 Minimalism, Economy and the Interfaces

The relation between the meanings and the articulations of expressions that is assumed in minimalist research is an indirect one, mediated by the syntax. For example, the language faculty as described by Chomsky (1995, 2000) consists of the syntax and the lexicon, which interact with the 'articulatory-perceptual' (A-P) and the 'conceptual-intentional' (C-I) systems at the interface levels PF and LF, respectively. On this view, a given language is a procedure for constructing sound-meaning pairs out of items selected from the lexicon, the members of these pairs constituting 'instructions' for the relevant performance systems.

Chomsky describes this procedure for constructing such sound-meaning pairs as a derivation which 'converges' if the representations that it yields satisfy a 'Principle of Full Interpretation' at the two relevant interface levels, PF and LF (1995: 219-220). Chomsky takes the convergence of a derivation to involve only its interpretability at both interface levels, there being 'no PF-LF interactions relevant to convergence'. This seems to leave no space for any direct communication between PF and LF, since on this view the performance systems access phonetic and semantic information independently.

Since this Chomskian view of the grammar permits PF and LF to interact only by way of syntax, it permits no principles, filters, rules or definitions that simultaneously and directly refer to both pragmatico-semantic and prosodic information, since there is no place in the grammar where such filters or principles could operate. The basic implication is that the interaction of phonology with the rest of the grammar is limited to the interface with syntax such that the output of the syntactic component constitutes the input to the phonological component (with the possible intervention of readjustment rules).

What I shall attempt to do in this study is to show that such a theory of 'split interfaces' offers no way to capture direct correlations between A-P interpretation, related to the PF interface level, and C-I interpretation, related to LF, which emerge especially in the computation of discourse functions. The investigation of such discourse functions will be my main concern here, although there is a great deal more empirical as well as theory-internal evidence against such an account.[2]

Focus is one of the several linguistic phenomena which appear to require a multidimensional approach to the grammar. Focus is not unique to any of the interfaces or to syntax. Recent research in this area shows that a uniform analysis of focus phenomena requires the examination of a number of factors. For instance, focus is realized with stress or accent in a number of languages and many authors have assumed that a focused constituent will always carry

[2] For a fuller exploration of this evidence, see Haidou, forthcoming.

the main stress (e.g., Cinque 1993; Reinhart 1995; Zubizarreta 1998). Such a direct relation between stress and focus cannot be captured in minimalist terms, where even semantic features such as [+focus] and phonological features such as [+stress] cannot be justified by Full Interpretation (FI) (cf. Chomsky 1995).

Such a direct relation between stress and focus can be captured only in a framework where phonological information, which is eventually relevant for the interaction of the grammar with the articulatory and auditory mechanisms, is independent of syntactic or semantic information, which in due course interacts with the conceptual-intentional system. Within such a framework, syntactic information and phonological information are simultaneously available in the grammar, and the direct relation between stress and focus can easily be accounted for. In other words, we need to reject the hypothesis that no interaction between PF-LF is possible.

Thus, I argue that the standard Minimalist conception of the architecture of grammar is inadequate in the sense that it has to be customized to allow for prosodic information to interface with semantico-pragmatic structure, in order to capture the basic intuition that prosodic information has an effect on semantic and pragmatic structure.[3] The claim that prosody is should be able to influence the semantico-pragmatic structure is discussed in section 4.

To satisfy economy considerations, the analysis proposed here dispenses with movements for discourse reasons, since they do not have any justification in the grammar, as well as with stress-driven movements, since these, as I discuss in section 5, impose greater violations of economy than feature-based grammars.[4] Rather, economy is fully satisfied in the sense that the relation between focus and stress is accounted for via mapping processes that directly relate the interfaces without syntactic considerations. This is the analysis proposed in section 6.

In what follows, I will briefly examine different focus-marking strategies in different languages, showing that languages use different devices to identify

[3] It has long been observed that intonational patterns may have different pragmatic effects (Bolinger 1965; Halliday 1967; Jackendoff 1972; Ladd 1996; Lambrecht 1994; Steedman 2000). It has also been observed that intonation can have an effect on semantic interpretation; for example, in German, different intonational patterns yield different scope readings (e.g., Büring 1997; Féry 1993; Krifka 1998).

[4] I have argued elsewhere (see Haidou 2003, 2004) that stress-driven movement or scrambling operations for focus-internal reasons (scrambling with deaccenting or scrambling with stress assignment) add unnecessary complications to the grammar and violate economy considerations, since the positing of, e.g., movement to a Focus Phrase makes use of a syntactic mechanism, movement, but motivates it only with semantic considerations. I therefore allow such operations only in languages where they satisfy an inherent intonational property. For instance, in Hungarian, stress is by default leftmost; and since stress follows the focused constituent, p-movement rearranging the canonical ordering of the sentence is justified. However, as will be shown below, this cannot be the case in Greek.

focus, some of these devices rendered obligatory by specific semantic or syntactic requirements. However, this study will concentrate on the case of languages, such as Greek, where the occurrence of focus in a number of positions is optional and the mechanisms that realize it render it optional too. The evidence presented in section 4 raises a basic question about syntax and discourse function: namely, whether discourse functions are or are not dependent on particular syntactic configurations.

3 Focus Strategies across Languages

The realization of focus involves many different linguistic components — syntax, phonology, morphology, and pragmatics — one or more of which plays a prominent role in the encoding of focus in a given language. In particular, languages can be thought of as parametrized with respect to their use of morphology or syntax to identify discourse functions. Morphological marking appears to figure, for example, in Navajo (Vallduví & Engdahl 1996, citing Schauber 1978) and a number of Bantu languages (Watters 1979; Odden 1984; Hyman & Watters 1984); whereas the syntactic marking of focus has been claimed for Catalan (Vallduví 1992; Vallduví & Engdahl 1996), and also for English (Rochemont 1986, 1998; Rochemont & Culicover 1990), Spanish (Zubizarreta 1998), Hungarian (Horvath 1986; É. Kiss 1998), Greek (Tsimpli 1995, 1997), Hindi (Kidwai 2000), and other languages. Below, I present example sentences from languages that have been argued to mark focus by syntactic means — in particular, word order:

(2) a. Tengap este **MARINAK** mutattam be Pétert HUNGARIAN
Last night Mary-dat introduced-I perf Peter-acc
'It was **to Mary** that I introduced Peter last night'

b. Tengap este be mutattam Pétert *MARINAK*
Last night I introduced Peter TO MARY'

(3) a. **DEL CALAIX** la Nuria (els) va truer els esperons CATALAN
of.the drawer the Nuria them has taken.out the spurs
'It was **out of the drawer** that Nuria took the spurs'

b. La Nuria (els) va truer *DEL CALAIX* els esperons
'Nuria took the spurs OUT OF THE DRAWER.'

(4) a. **ANNALLE** Mikko antoi kukkia FINNISH
Anna.adess Mikko gave flowers
'It was **to Anna** that Mikko gave flowers'

b. Mikko antoi kukkia *ANNALLE*
Mikko gave flowers TO ANN (É. Kiss 1998)

However, in languages like English, which use both phonological and syntactic means (e.g., cleft and pseudo-cleft constructions) for signalling focus, it is not clear that morphological and syntactic encodings of focus are entirely independent of phonological encoding. Therefore, languages should also be thought of as parametrized with respect to the marking of focus by prosodic cues, including *segmental phrasing* and *prominence* (stress or pitch accent). Note that there is further parametrization within the phonological system, since prosody can identify focus with the assistance of other linguistic levels. We find this in certain languages, where focus, intonation and word order can conflict with each other and languages resolve these conflicts by sacrificing one of these:

A: Canonical pattern of prosodic phrasing:

(5) a. ENGLISH: (John bought the **newspaper**)^{iP} SVO
( ) ( )^{PhonP}
S V O

b. ENGLISH: (JOHN bought the newspaper)^{iP} **S**VO
(X)^{PhonP}
S_{Foc} V O

or B: Canonical constituent order (for prosodic requirements):

(6) SPANISH: (Ayer compro el periodico Juan)^{iP} VO**S**
( )( ) ( )(X)^{PhonP}
V O S_{Foc}
'Juan bought the paper yesterday'

or C: Both:

(7) a. GERMAN: Es wird… dass (der KANzler den Aussenminister ernennt) **S**OV
(X)^{PhonP}
S_{Foc} O V

b. GERMAN: Es wird… dass (den Aussenminister der KANzler ernennt)O**S**V
( )(X)^{PhonP}
O S_{Foc} V
'It is… that the chancellor nominates the foreign-minister'
(Bűring & Gutierrez-Bravo 2002)

Thus, languages which are claimed to mark focus by phonological means do not always exploit the same type of phonological marking or the identification of focus can rely on the syntax-prosody interaction. In this respect, there are different prosodic means for marking focus.

One of the main arguments of this study is that, although the cross-linguistic variation just described shows that languages may use one or more of the above strategies to identify focus, the different strategies employed for each language nonetheless make a strategy obligatory, especially when the

occurrence of a specific strategy is necessarily related with a specific semantic focus interpretation and the opposite result would result in ungrammaticality. Thus, the obligatory nature of focus movement in a language has to account for a special interpretational pattern, such as *exhaustive, contrastive,* or *completive focus*, or a certain phonological requirement.

What I will show for Greek, however, is that, although different strategies have been proposed especially for the syntactic domain, these strategies are all optional, since they are not related with a specific focus interpretation. I show (contra Discourse Configurational approaches) that there is no difference in the semantic focus interpretation in the different spell-out positions of focus. This means that Greek allows the same semantic type of focus to be instantiated by different word orders. Since Greek, as a relatively free word order language, uses both word order and prosody for focusing reasons, I will argue that it requires a special type of modification to the analysis of the syntax-prosody interface.

4 Word Order and Information Structure

In this section, I will investigate the interaction between intonation, information structure and word order in Greek. To keep the investigation as relevant as possible, I will look only at one set of canonical and non-canonical or 'scrambled' constituent orderings of mono-transitive sentences.[5]

Two prosodic patterns will be the focus of this section. The first is the neutral prosodic pattern which characterizes broad focus contexts in declarative sentences.[6] The second prosodic pattern is the non-neutral one, with non-final accent placement realized as narrow focus.[7]

In the neutral prosodic pattern, the typical structure is an SVO sentence structure. In order to examine the interaction between information structure and syntactic position, I will consider all the logically possible constituent orderings of this sentence type. Given that this structure has three major

[5] In Greek all the logically possible word order variations for a simple sentence like that in (9) are grammatical. Studies over the past twenty years have shown that these word order variations do not have the same meaning. More specifically, Agouraki (1990), Alexiadou (1999), Philippaki-Warburton (1982, 1985), Tsimpli (1990, 1995, 1997), Tsiplakou (1998), and Tzanidaki (1994), among others have revealed that communication functions such as topic and focus in Greek are syntactically encoded.

[6] In the neutral pattern no word carries narrow focus except, perhaps, for the final or rightmost content word, which carries the nuclear pitch accent, followed by a combination of phrase accent and boundary tone. According to Arvaniti & Baltazani (2000), the typical melody tune of a Greek declarative in an 'all-new' context, broad focus, is H* accent, followed by L⁻ L% boundary tone.

[7] The accent coincides with any other material in the sentence except for the final element. The typical melody tune of narrow focus is realized as L+ H* nuclear pitch accent.

constituents (Subject, Verb, Object), the number of possible orderings is six. It is clear that a default or canonical order of the nominal arguments is required for getting a broad sentence focus and focus projection or ambiguity possibilities. In addition, the verb can occupy the initial or the medial-string position excluding the final position. I will look first at word order realized under neutral accent placement.

In Greek, for a sentence to be compatible with an 'all-new' context sentence-broad focus, the prosodic/intonational component requires a canonical ordering of the nominal arguments where the verb either precedes the subject or immediately follows it and the final verb position is disallowed. None of the other ordering possibilities can produce an 'all-new' broad focus sentence because they reveal focus domains which are smaller than the whole sentence; only SVO and VSO are compatible with an 'all-new' context. The interesting fact, though, is that all of the orderings allow for a narrow focus on the last constituent, which carries the nuclear stress.[8] Note also that SVO and VSO include the object in the final position, which receives nuclear stress.[9]

(8) a. Kanena neo?
Any news?

b. i kivernisi tha afksisi ti forologia **SVO**√
the government-nom will-fut raise-3sg the taxes-acc
'The government will raise the taxes'

c. *i kivernisi ti forologia tha afksisi SOV

d. *tha afksisi ti forologia i kivernisi VOS

e. *ti forologia tha afksisi i kivernisi OVS

f. *ti forologia i kivernisi tha afksisi OSV

[8] It is interesting to point out that there is still a wider choice of answers that accommodate an all-focus question. Constituent orders such as SVO, OVS, VOS and, generally, verb-initial orders are permitted as answers to an all-focus question in an appropriate context and with special intonation.

[9] Both of these orders in Greek allow for focus ambiguity. This is interesting since it implies that the ordering of the constituents in the utterance with respect to each other is responsible for focus projection. This strengthens the role of word order in the realization of information structure. However, this does not imply that rearrangements in the syntactic constituent ordering are driven by discourse or information structure — a crucial claim in this section and throughout the paper. Rather word order and its rearrangements are there to facilitate the domains of licensing or appearance of focus or given material. Word order allows focus to project or not. That is, I claim, the main function of the syntactic component, and not to trigger syntactic processes for accommodating foci or topics. In Haidou 2004, I show that word order is a much smaller factor in the realization of Information Structure than accent placement or clitic-doubling.

Let us now consider VOS and OVS orders with neutral stress — that is, stress on the rightmost constituent, the subject. Both of these are answers to questions that license narrow focus on the subject, as shown in (9):[10]

(9) a. Pjos afksise ti forologia?
Who raised the taxes?

b. afksise ti forologia I KIVERNISI VO**S**

c. ti forologia afksise I KIVERNISI OV**S**
'The government raised the taxes'

The last orders are the verb-final ones, that is, SOV and OSV. I assume that both orders license narrow focus on the verb. Verb final orders, though grammatical, are understood in the literature as less acceptable. However, if followed by clitic doubling of the object NP, their acceptability improves. Keller & Alexopoulou (2000) argue that these orders become fully acceptable if more material is added after the verb. Note that the context in (10) is a *correction* context which usually induces contrastive focus. The contrast here is between 'lowering' and 'raising' (the taxes):

(10) a. Ti ekane i kivervisi me ti forologia?
what did-3sg/PS the government-nom with the taxes-acc?
Tin KATEVASE?
it-cl -dropped-3sg
'What did the government do with the taxes? Did it LOWER them?'

b. (Ohi,) ti forologia i kivernisi tin AFKSISE OS**V**
(no,) the taxes-acc the government-nom it-cl raise-3sg/PS

c. (Ohi,) i kivernisi ti forologia tin AFKSISE SO**V**
(no,) the government-nom the taxes-acc it-cl raise-3sg/PS
'(No,) the government raised the taxes'

Let us look at the non-neutral prosodic patterns. To accomplish this task, we need to look at all the possible constituent arrangements and the prosodic prominence from constituent to constituent. We have already seen the six possible constituent orderings under neutral intonation, given the fact that we have six possible word orders. What remains is to consider the 12 additional possibilities shown in (11)-(12).

(11) OBJECT FOCUS (FINAL, MEDIAL, LEFT-PERIPHERAL)

a. i kivernisi afksise tus misthous?
the government-nom raise-3sg/PS the salaries-acc/PL?
'Did the government raise the salaries?'

[10] However, none of the above orders can license a VP or sentence focus. Subject-final structures cannot be answers to VP or V focus questions. More specifically, the focus on the subject cannot project focus to the verb.

b. Ti afkise i kivernisi?
what raise-3sg/PS the government-nom?
'What did the government do?'

c. i kivernisi afksise **TI FOROLOGIA** SV***O***
the government-nom raise-3sg/PS the taxes-acc
'The government will raise the taxes'

d. **TI FOROLOGIA** i kivernisi afksise ***O***SV

e. afksise **TI FOROLOGIA** i kivernisi V***O***S

f. i kivernisi **TI FOROLOGIA** afkise S***O***V

g. **TI FOROLOGIA** afksise i kivernisi ***O***VS

h. afksise i kivernisi **TI FOROLOGIA** VS***O***

(12) SUBJECT FOCUS (FINAL, MEDIAL, LEFT-PERIPHERAL)

a. Pjos afkise ti forologia?
who-nom raise-3sg/PS the taxes-acc
'Who raised the taxes?'

b. **I ANDIPOLITEUSI,** afkise ti forologia?
the opposition-nom raise-3sg/PS the taxes-acc
'Was it the OPPOSITION that raised the taxes?'

c. **I KIVERNISI** afksise ti forologia ***S***VO

d. **I KIVERNISI** ti forologia afksise ***S***OV

e. afksise **I KIVERNISI** ti forologia V***S***O

f. ti forologia **I KIVERNISI** afksise O***S***V

g. ti forologia afksise **I KIVERNISI** OV***S***

(13) VERB FOCUS (FINAL, MEDIAL, LEFT-PERIPHERAL)

a. i kivernisi ERIKSE ti forologia?
the government-nom drop-3sg/PS the taxes-acc?
'Did the government lower the taxes?'

b. Ti ekane i kivernisi me ti forologia?
what did-3sg the government-nom with the taxes-acc?
'What did the government with the taxes?'

c. i kivernisi **AFKSISE** ti forologia SV̲O

d. Ti les? ti forologia **AFKSISE** i kivernisi OV̲S

e. **AFKSISE** i kivernisi ti forologia V̲SO

f. **AFKSISE** ti forologia i kivernisi V̲OS

g. ti forologia i kivernisi tin **AFKSISE** OSV̲

Given the examples in (8)-(10) and (11)-(13), we can arrive at the following generalizations. Under neutral intonation (rightward prominence) different word orders realize different focus domains. Thus, we can propose the following generalizations regarding the interaction between stress placement and information structure.

GENERALIZATION 1: An identical intonational structure can realize different information structures.

Under neutral prosody — that is, accent or stress assigned on the final constituent, e.g. H* or L+H* — we can derive different focus domains or different partitions of information structure. This is the case for the set of examples shown in (8)-(10).

The second generalization is that under non-neutral intonation pattern, one and the same word order can provide different focus structures.

GENERALIZATION 2: One word order can realize different information structures.

In fact, in all of the sets of examples it is obvious that SVO word order is involved in at least five focus domains. These include both broad domains — sentence-focus and VP-focus — as well as narrow domains — O-focus, S-focus and O-focus. Also, VOS word order can realize at least four information structures: that is, VP-focus, V-focus, O-focus and S-focus. Similarly, OVS can realize at least two narrow focus domains: O-focus and V-focus and, probably on a marked context, an S-focus. VSO has also realizes an all-focus domain, a V-focus and an S-focus.

Now the reverse is also true: under marked or non-neutral intonation a certain information structure or focus context can be realized by more than one word order. Any focus context can be realized by the focus constituent in initial, medial or final position. For instance, an all-focus context or a wide

domain can be realized by VSO and SVO word orders, and as shown in (8), by OVS and VOS in special contexts (optionally followed by clitic doubling of the object NP). This claim is consistent with generalization 3.

GENERALIZATION 3: A certain information structure can be realized by a range of word orders.

A subject focus context can be realized by, for example, SVO, VOS, OVS, and VSO orders. Similarly, an object focus context can be realized by a number of word orders: object-initial OVS and OSV orders, object-final SVO, and object-medial SOV and VOS orders.

Of course, certain restrictions apply regarding the word orders that can accommodate a certain information structure or the same focus context. Moreover, certain word orders may be preferred in a given context. These restrictions on the information structure of the Greek language hold as a result of a combination of syntactic and phonological factors.[11]

Examination of the data also supports generalization 4:

GENERALIZATION 4: Different intonational structures can realize the same information structure.

Compare a marked prosodic pattern or a 'contrastive' stress pattern with a normal or neutral intonation pattern, for example, **O**VS as in (11) with SV**O** as in (8). The information structure division is the same in both structures; the verb is focused and the subject and object are given or part of the ground. Let us say that one intonation pattern is marked and the other is unmarked. OVS which carries a preverbal focus is marked by definition and SVO is unmarked since the object that carries the stress is the rightmost constituent. Thus, the same information structure, that is, focus on the object, can be followed by different intonational means, unmarked prosody versus marked prosody.

The data above show that the same type of prominence can signal different types of focus domains. This argument supports the view that prominence itself is not sufficient to say what the *exact* focus domain is each time, because it is ambiguous with respect to focus. As argued in Haidou 2004, focus projection, as in SVO structures, is unexceptional because it does not have to be postulated anywhere. If we observe the evidence closely, the role of the relation between focus and stress lies systematically in the directionality of prominence: *all that is sufficient and necessary is rightmost prominence*. I will propose in section 6 that the outcome of the focus projection or of the wide versus narrow focus domain is the result of the alignment or placement of rightmost boundaries of constituents. Therefore, stress assignment on the right

[11] The generalizations can be described in terms of formal constraints that restrict the realization of information structure in the language. For a fuller picture of the role of the different components of grammar that mark the realization of information structure in Greek and how the influence of these components is ranked, see Haidou 2004.

periphery will indicate the focus domain with the consequence that the right border of a constituent will coincide with its right domain of prominence. Any other stress pattern will preclude projection, *as* a result of misalignment of structures, since projection is not motivated independently. It is just the end product of ambiguity between sequences of several rightward constituent borders.

Assuming that syntax 'accommodates' or 'facilitates' the representation of focus in the grammar correctly predicts that the interaction between prominence and focus cannot be anything else than one-to-many because the focus domain is not always isomorphic with the stressed constituent that carries the pitch accent and only one-to-one when focus coincides with the stressed element. I argued in section 2 that the relation between focus and prominence need not be defined in syntax, that is, by feature assignment. Syntax is not responsible for the actual focus that will be chosen each time a sentence is uttered. The role of syntax, which involves the syntactic machinery available in each language — that is, word order, scrambling, clitic doubling, and clefting — is, to use Vallduvi's (1992) term, to 'package' the information chosen by discourse requirements, with the help of intonation or word order or both so as to 'feed' it directly to the interpretive components, i.e. PF and LF.

It appears that focus ambiguity or wide focus domains do not arise as an immediate result of the indirect (one-to-many) computation between stress and focus in the syntax. Rather, focus marking is syntactically unconstrained (Schwarzschild 1999). Focus-markers are freely assigned. The focused constituent will always receive the main stress. That is, focus will always be marked by prosodic means and not by syntactic F-markers. As is obvious from the data above, prosodic prominence can be assigned to any constituent without exception.

My claim is that focus ambiguity can be resolved as the end-product of the interaction between intonation and discourse, and not directly at the correspondence between prominence and focus. It is in fact because each interpretation is linked directly with a specific intonation, defined by discourse conditions, that the output of the grammar is an ambiguous utterance. Thus, discourse requires, and the phonology justifies, the specific positioning of focus. This claim has the further desirable theoretical gain that the phonological information interfaces with the pragmatic component of the grammar, i.e. the conceptual-intentional interface, contra Chomsky (1995, 1999, 2001). This claim also is supported by Haidou (forthcoming) and Szendröi (2001).

Thus, the relation between focus and stress is *always* one-to-one. Focus is defined by prosody — that is, main stress. The ambiguity only arises in the grammar, where according to discourse requirements one particular interpretation is chosen which encodes the focus by means of a special intonation. The ambiguity occurs not because of a direct or indirect

relationship between focus and prominence, but rather because of a relationship between phonology and pragmatics/discourse. In this sense, focus can be considered a pragmatic phenomenon and not a syntactic one. The postulation of focus in the syntax is too restricted to derive the correct predictions regarding the stress-focus correspondence and the notions of new and given information. Hence, it is up to discourse conditions, rather than syntax, to determine whether a derivation with a particular stress is appropriate in a given context.

One could argue that languages behaving like Greek might be *optionally* hierarchically structured. However, given that prosodic effects when they come into play are much stronger, focus turns into a PF phenomenon or rather a multiple phenomenon, an outcome of the *parallel* interaction of the interfaces, PF-Information Structure and LF-Conceptual Structure.

I thus propose that under neutral or marked prosodic patterns, the pragmatics-discourse component of the grammar allows multiple word order variations as equally possible focus answers to only one question.[12] I also propose that the role of word order is *weaker* than thought in earlier analyses. The role of syntactic word order is just to *facilitate* or *mediate* the requirements of discourse/context in the realization of information structure. It just *facilitates* the position of a focus or a topic/given constituent, which in turn will be the outcome of a direct interaction between LF and PF (see Haidou 2004 for detailed discussion). Discourse functions such as focus and topic are accommodated by syntax as purely syntactic objects, but their interpretation is a task further undertaken by PF and LF and not the syntax itself. Syntax is autonomous in the sense of driving computations for a number of different reasons, including case, agreement, EPP, and verb position.

From a formal point of view, I argue, in line with Chomsky (2002), that *discourse-related* phenomena do not involve the licensing of corresponding features in designated pre-existing functional projections to justify the *discourse-related* effects they are assigned. Movement operations in Chomsky 2002 are triggered *only* by uninterpretable syntactic features in the narrow syntax. In effect, the discourse properties of syntactic constituents receive the relevant interpretation by the semantic component after the operation *Spell-Out*, provided that the constituents already appear in the relevant position in the architecture of the clause. In turn, what is carried through the syntactic

[12] In the marked case, the interpretation changes from wide to narrow focus. The difference between the current proposal and others is the claim that 'narrow' versus 'broad' interpretation do not necessarily imply notions such as 'identificational' or 'contrastive'. Narrow focus is not always preverbal and contrastive or identificational (contra É. Kiss 1995a, 1998). It is not the case that ex-situ focus equals identificational or contrastive focus interpretation, since it is also not the case that in-situ focus equals new-information focus. Thus, there seems to be an unusual asymmetry between sentence position, interpretation and prosodic pattern.

derivation, visible to syntactic rules, is not the whole lexical item, but only its syntactic features. On recent Minimalist assumptions, the only formal trigger for syntactic movement is an EPP feature, since Case and Agreement can be satisfied covertly via *Agree*. Sifaki (2003) further extends the argument by assuming that this EPP feature could be available in every functional projection of the clausal hierarchy. The lexical items that enter the derivation carrying or not carrying — depending on one's favourite theory of lexical insertion — their discourse-related properties are arranged in the narrow syntax in displaced positions. This displacement, which results in different word orders, is triggered for EPP-satisfaction reasons (for further details of this proposal, see Sifaki 2003). Accordingly, the structure of the clause is built up in a manner that respects and directly *feeds* the operations relevant only to PF and LF, so that the corresponding properties of the displaced constituents receive an interpretation.

Thus, pursuing the assumptions of section 2, I extend the above analysis by arguing that it would be an undesirable violation of economy considerations if the interfaces (PF and LF) had to rearrange the already organized (displaced) discourse-related syntactic constituents to satisfy their interpretational requirements. Such process would add unnecessary complications to the grammar and would violate the independence of levels of representation proposed in the current analysis. Furthermore, if we allow PF and LF to derive movement operations in the narrow syntactic component to satisfy their needs, we immediately violate the *Inclusiveness Principle* (see Chomsky 1995: 225). This principle states that outputs consist of nothing beyond properties of items of the lexicon — in other words, that the interface levels consist of no more than the rearrangement of lexical features. This means that [+Focus] or (hypothetical) [+Stress] features driving computations to satisfy interface needs are only stipulations and have no justification in the narrow syntax. Thus, the current proposal disallows movement by either LF or PF as conceptually, theoretically and empirically redundant. Moreover, it gains extra theoretical 'simplification' since it accounts for discourse-related phenomena without discourse projections.

There is an additional reason why syntax plays a *minimal* role in the articulation of information structure. Recall generalizations 2 and 3, which state that *one word order can realize more than one information structure* and that *the same information structure can be realized by a number of word orders*. This means that there is no *isomorphism* between syntax and discourse, since a single information structure may correspond to more than one syntactic structure. If one information structure can be realized by more than one word order, this strongly suggests that the different syntactic positions that focused or given constituents are found in may vary. For instance, in cases of O-focus, the object can be realized postverbally, preverbally or in string-medial position, either on its own or supported by

clitic-doubling. Note that for the same information structure to be realized in more than one position or by a number of different word orders, the focused element must have the same semantic interpretation in any of these positions. The Greek data in (8)-(13) have shown that '*ex-situ'* or '*in-situ'* focus can clearly have the same semantic interpretation, being contrastive, exhaustive, or informational. So, it seems that the relation between semantic interpretation and focus is not one-to-one.[13] Although the prosodic factor (prominence-stress) remains stable, it seems that the relation between syntax and semantics is one-to-many. This is the main topic of discussion in section 5 below.

The big question now is: if the pragmatics-discourse component of the grammar allows a certain information structure to be associated with more than one word order without any difference in tinterpretation, is any ordering permitted by the grammar under a single focus question or are there any restrictions? In other words, does the grammar exhaust all its logical ordering possibilities or are certain possibilities more acceptable than others? As it happens, there are orderings which speakers clearly do prefer and whose frequency of use is higher.

Here, the main claim is that not all ordering variants that answer a focus question come with the same strength of acceptability. Rather, the grammar decides that certain word orders satisfy an information structure more efficiently than others. The argument here is that word orders do not all carry exactly the same information weight. However, the grammar allows multiple possibilities, i.e. $n \geq 1, 2, 3$, etc. Which ones will best satisfy a certain information structure partition depends on how speakers' choices match relevant discourse requirements. I leave the discussion open on this matter, pending further research. It might be worth pointing out, though, that the optimal choice between possible orders for a given context and intonation is plausibly attributed to performance or processing effects. However, investigating this possibility would require natural speech corpora and is thus beyond the scope of the current study.

To conclude this section, I have suggested that the syntax of discourse constructions should be independent of the discourse functions encoded (for a similar argument couched in a HPSG analysis, see Alexopoulou 1999). My idea is that the relation between syntax and discourse is non-isomorphic, a particular syntactic structure relating to a discourse function in a one-to-many

[13] This argument has serious implications for the syntax-semantics interface of discourse phenomena, and goes against Discourse Configurational approaches. In the Minimalist framework (Chomsky 1995), the correlation between focus and the grammatical representation of the utterance is strictly determined through a *direct* and *unambiguous* relation between the two. Thus, focus is represented directly in the syntax according to the standard view in the generative literature of the 1980s and 1990s (cf. Antinucci & Cinque 1977; Abraham et al. 1986; Büring 1997; Diesing 1992; Horváth 1986; Jackendoff 1972; É. Kiss 1998b; Rizzi 1997; Rochemont 1986; Vallduvi & Vilnuka 1998; Zubizarreta 1998).

fashion. This does not seem to be in the spirit of many Minimalist analyses of constructions with non-canonical word orders, such as focus movement, clitic-left dislocation, and topicalization, which stipulate syntactic operations using distinct phrase structure projections such as FP and TP. On the view being defended here, *focus* and *given* elements are represented at a level independent of syntax, i.e., Information Structure (IS), whereas the syntax (probably) carries information related, for example, to agreement, structural case, verb position, EPP, and the formation of relatives; and there is no need to replicate all of the distinctions of one structure in the other.

On this view, syntax is a more concrete and relatively 'flatter' system, carrying fewer abstract features and possibly fewer movement operations, or no movement when possible. Along the lines of Jackendoff (1997), I am arguing, then, that we should abandon the idea that syntax, in the generative sense, replicates mismatches between surface structure and conceptual structure. Conceptual structure (C-I) has a complex architecture made up of levels of semantic units which need have no direct relation to syntactic units.

What all of this suggests is that word order is a *weaker* factor in the realization of discourse functions than *accent/stress placement* or prosody. In the next section, I will propose, contra standard assumptions, that there are no interface differences between the two types of focus.

5 Identificational versus Information Focus in Greek? Towards a Unification of Focus at the Interfaces

Greek has traditionally been described as having only one focusing strategy: *focus fronting* (Agouraki 1990, 1993; Tsimpli 1995, 1997; Tzanidaki 1994). However, all the above authors, among others (see also Alexopoulou 1999; Baltazani 2002; Tsiplakou 1998), have recognized that there is evidence for a focus in-situ strategy in the language. Nevertheless, their common assumption is that focus strategies in Greek maintain a rigidly fixed correspondence between the syntactic position of focus and its semantic interpretation.[14]

[14] More specifically, Tsimpli (1990, 1995) formulates a semantic division between ex-situ and in-situ focus and constantly links ex-situ focus with exhaustive listing interpretation (identificational focus) and in-situ focus with new information focus. In the same fashion, Alexopoulou (1999), though acknowledging the different characteristics of ex-situ and in-situ focus, still advocates a mapping which relates the specific positioning of focus with a specific semantic interpretation. Along the same lines, Baltazani & Jun (1999) defend the same correlation between syntax and semantics, in that the position of the focus phrase corresponds to a specific semantic interpretation. In her semantic analysis, the preposed focus phrase carries exhaustive interpretation caused by the existence of an exhaustive identification (EI) operator. Baltazani also ascribes contrastive interpretation to ex-situ focus and as a result ex-situ focus carries features for both interpretations: that is, [+exhaustive], [+contrastive].

My own research (Haidou 2003, 2004) has offered a different picture of the Greek focus phrase, since it allows for an indirect mapping between syntax and semantics/prosody. Moreover, it argues, contra previous work on the language, that the idea of in-situ focus equalling new information and ex-situ focus equalling exhaustive-identificational properties cannot be sustained for Greek. Given the word order facts presented in this and the previous section, it appears that Greek has different word order options for realizing information structure and satisfying discourse requirements.

In line with Grillia's (2004) arguments, I will proceed by providing additional tests and evidence, both semantic and prosodic, to show that there is no correlation between syntactic position and semantic interpretation (contra É. Kiss 1998).[15] In a nutshell, this section argues for a merger of ex-situ and in-situ focus structure — that is, a unification of focus (see also Brunetti 2003 for Italian). That is, focus is one and the same phenomenon realized though different positions allowed by the grammar of discourse and exploited by the computational system C_{HL}.

This section has two aims. The first aim is to clarify the descriptive facts, in order to establish whether there is a systematic correlation between the syntax and semantics of focus, or whether the interpretation of focus rests purely on discourse-pragmatic factors. The second aim is theoretical: to consider the data in the light of Minimalist considerations, in order to present a unified syntactic analysis of in-situ and ex-situ focus. This in turn relates to broader theoretical issues, concerning 'optionality' in a perfectly economical system.

Assuming the notion of 'interface economy' as proposed by Reinhart (1995) and adopted by Chomsky (2000, 2001a, 2001b), a 'marked' or 'costly' operation is only licensed if, at the interface, the outcome is a distinct interpretation not achieved by the less 'marked' alternative. One empirical question that arises from these considerations is thus the following: if a language has more than one focusing strategy (morphosyntactic and/or phonological), can each of these be shown to correspond to a distinct interpretive goal (hence providing support for the notion of language as an economy-driven system), or are interpretive 'choices' forced by pragmatic factors? Here, I will present arguments in favour of the second option and make the assumption that 'economy' is satisfied if we hypothesize that the two foci have the same syntax, the interpretive differences being only apparent.

The classic analysis of Focus in terms of two different grammatical phenomena is that of É. Kiss (1998), who proposes that there is 'identificational focus' and 'information focus'. In the next section, I will provide arguments against a semantic distinction between these two types of

[15] For syntactic evidence and a detailed discussion of prosodic and semantic evidence, see Haidou 2004.

Focus, showing that such an approach to Focus cannot be maintained for Greek. In addition, since approaches that maintain that there is a semantic difference between the two foci have also noted variation with respect to the PF interface — more specifically, the two semantic types of focus, i.e. *contrastive* and *information* focus, carry different types of stress, formalized in terms of distinct prosodic rules — evidence will thus be provided that there are no such phonological differences in Greek either.

5.1 The LF Interface

The central interpretive property that sets the two foci apart, according to É. Kiss (1998), is the property of 'exhaustive identification'. A focused element expresses exhaustive identification when it identifies a 'unique referent' from the context to be interpreted as focus or part of focus. This property is consistent only with syntactically preposed foci or identificational foci. New information focus which expresses non-presupposed information is not compatible with this property.

The first piece of evidence for this comes from test A, which É. Kiss attributes to Szabolcsi (1981). This test supports the idea that identificational focus expresses exhaustive identification and information focus does not, as follows: given a pair of sentences where the first contains focused co-ordinate DPs and the second contains only one of those focused DPs, if the second sentence is *not* among the logical entailments of the first, then the type of focus involved is identificational (exhaustive). According to É. Kiss (1998), test A shows that in Hungarian ex-situ focus will always have identificational properties.

(14) a. Mari **EGY KALAPOT ÉS EGY KABÁTOT** nézett ki magának.-/->
Mary a hat-acc and a coat-acc picked out herself-acc
'It was a hat and a coat that Mary picked out herself.'

b. Mari **EGY KALAPOT** nézett ki magának.
Mary a hat-acc picked out herself-acc
'It was hat that Mary picked for herself.'

It is the exhaustivity of (14b) that results in the failure of the implication. With respect to the data in (14) above, Baltazani (1999) makes a distinction between contrastive focus and information focus for Greek, as shown in (15), where the former appears only in a preverbal position and always receives an exhaustive interpretation due to the presence of an exhaustive identification (EI) operator.

(15) a. **STO YANI KE STI MARIA** agorasa padeloni. -/->
to-the John and to-the Mary bought-1sg trousers-acc-sing
'I bought a pair of trousers for John and for Mary.' (Grillia 2004)

b. **STO YANI** agorasa padeloni.
to-acc John-acc bought-1sg trousers-acc-sing
'I bought a pair of trousers for John.' (Grillia 2004)

As a result, she claims that (15b) is not among the logical entailments of (14a) and therefore that ex-situ focus is always identificational. However, Grillia (2004) successfully shows that Baltazani's (1999) conclusions need to be rethought, based on the observation that the above claim holds only if the predicate is interpreted collectively. According to Grillia's tests, (15a) is ambiguous in that it carries both a collective and a distributive reading. That is, when the predicate gets the distributive reading, (14b) is among the logical entailments of (15a). In that case, ex-situ focus is not identificational. As a result, the ambiguity present in cases like (15) makes the judgements inconclusive with respect to the relation between ex-situ focus and exhaustive interpretation. So, the picture is not so clear after all, with the presence of a collective reading weakening the connection between a particular kind of focus and a particular interpretation. Grillia (2004) thus decides to control for 'collectivity' using (i) an overt distributive marker and (ii) a plural. The test is modified in the following way:

(16) a. **STO YANI KE STI MARIA AGORASA** apo ena padeloni. →
to-the John and to-theMary bought-1sg eachone-acc trousers-acc-sing
'I bought for John and Mary a pair of trousers each'

b. **STO YANI** agorasa padeloni
to-acc John-acc bought-1sg trousers-acc-sing
'I bought a pair of trousers for John'

(16b) is among the logical consequences of (16a), and therefore the ex-situ focus is not identificational. Grillia (2004) also controls for collectivity by using an 'aggressively non-D-linked' *wh*-question, such as *What the hell did you buy for John?* for (16b). Thus, Tsimpli (1995) and Baltazani (1999) seem to have incorrectly attributed to the preposed focus phrase in Greek an exhaustive interpretation resembling that of the English cleft construction.

To control for the collective reading found in (17), Grillia (2004) uses a bare plural instead of a definite DP and replaces the singular predicate in (17) with a plural one, as shown in (18) and (19):

(17) **Ston Petro** danisan to vivlio.
to-the-acc Peter-acc lent-3pl the-acc book-acc
'They lent the book to Peter.'

In this case, (18b) is among the logical consequences of (18a) and the same holds for (19a) and (19b). Not only does the preverbal focus not carry an exhaustive interpretation, but the same focused phrase can also occur in postverbal position with no difference in interpretation:

(18) a. **STON PETRO KE STON YANI** *danisan vivlia.* →
to-the-acc Peter-acc and to-the-acc John-acc lent-3pl books-acc
'They lent books to Peter and to John'

b. **STON PETRO** *danisan vivlia.*
to-the-acc Peter-acc lent-3pl books-acc
'They lent books to Peter'

(19) a. *Danisan vivlia* **STON PETRO KE STO YANI.** →
lent-3pl books-acc to-the-acc Peter and to-acc-the-acc John
'They lent books to Peter and John'

b. *Danisan vivlia* **STON PETRO.**
lent-3pl books-acc to-the-acc Peter
'They lent books to Peter'

What these examples show, then, is that in Greek the ex-situ focus position does not need to receive an exhaustive interpretation. In addition, exhaustivity is susceptible to collectivity, which is not considered by Baltazani (1999) and Tsimpli (1995).

Test B concerns the possibility of negating exhaustivity and information focus. More specifically, in a dialogue pair where the first sentence contains a focus and the second sentence denies the uniqueness of the referent identified by the focus, this focus can only have an exhaustive interpretation. What (20) shows is that in Hungarian exhaustivity can be negated, as shown in (20a, b), but new information focus cannot, as shown in (20c, d):

(20) a. Mari **EGY KALAPOT** nézett ki magának
Mary-nom a hat-acc picked out herself-dat
'It was **a hat** that Mary picked for herself.'

b. Nem, egy kabátot is ki nézett
no a coat too out picked
'No, she picked a coat too.'

c. Mari ki nézett magának **egy kalapot**
Mary-nom out picked herself-dat a hat-acc
'Mary picked **a hat** for herself.'

d. *Nem, egy kabátot is ki nézett
no a coat too out picked
'No, she picked a coat too.'

In example (c) the focused object represents the only thing that Mari picked out for herself. In (d), in contrast, it represents one of the possible relevant things that she could have picked for herself; thus the focused object in (d) is new information focus. The ungrammaticality of (d) is obvious because it unnaturally negates the assertion of a proposition where there is a list of possible referents available rather than only one unique referent. Thus, in Hungarian exhaustivity cannot be negated.

If we apply this test to a Greek example, we can see immediately that there is no direct correlation between ex-situ focus and exhaustive interpretation.

(22) a. **ENA KAPELO** agorase i Eleni.
a hat-acc bought-3sg the Helen-nom
'Helen bought **a hat**.'

b. oxi, agorase ke ena pandeloni.
no bought-3sg and a trousers-acc
'No, she bought (this) and a pair of trousers, too.'

(23) a. i Eleni agorase **ena kapelo**
the Helen-acc bought-3sg a hat-acc
'Helen bought a hat.'

b. oxi, agorase ke ena pandeloni.
no bought-3sg and a trousers-acc
'No, she bought (this) and a pair of trousers, too.'

When applied to Greek, then, this test shows that information focus or in-situ focus can also have the exhaustive interpretation. That is, if by negating the proposition that Helen bought a hat for herself, we negate the exhaustive reading of the proposition, then both types of focus can be interpreted exhaustively. Thus, the Greek data show that we can maintain the claim that focus interpretation is independent of syntactic position. Both positions, in-situ and ex-situ, carry the same interpretation. Therefore, the distinction made by É. Kiss (1998) does not hold for the Greek data.

Intuitively, even in the above test the exhaustive interpretation does not seem very salient. That is, it is not clear that the above exchange in (22)-(23) identifies a unique referent or is the result of the semantic function of *exclusion* of *identification*, in É. Kiss's terms. I believe that the exhaustive interpretation can be maintained in both syntactic positions if the sentences imply *association with focus* with the use of an adverb like *mono* 'only', which inherently carries an exhaustive interpretation.[16] In such a case, the proposition excludes Helen buying something else besides a hat. Thus, the addition of the adverb meaning 'only' can induce exhaustive identification.

(24) a. i Eleni agorase *mono* **ena kapelo**.
the Helen-acc bought-3sg only a hat-acc
'Helen only bought a hat.'

b. oxi, agorase ke ena pandeloni.
no bought-3sg and a trousers-acc
'No, she bought (this) and a pair of trousers, too.'

[16] For a similar test in Italian, see Brunetti 2003. Brunetti shows, interestingly, that the preverbal focus position is acceptable only if the sentence includes an *only*-phrase. In this case, the focus can express exhaustive identification.

Test C shows that identificational focus cannot consist of a universal quantifier, an existential quantifier, an *even*-phrase, or an *also*-phrase, but that information focus does not display these distributional restrictions. É. Kiss attributes these restrictions to the semantic content involved in these cases, which are not compatible with the semantic function of *exclusion of identification*. Interestingly, however, the Greek examples do not show this identification focus/informational focus contrast:

(25) **KATHE FITITIS** perimeni ta apotelesmata (UNIVERSAL QUANTIFIER)
every student-nom wait-3sg the results-acc
'Every student waits for the results'

(26) **KAPJA THEMATA** tha lithoun avrio (EXISTENTIAL QUANTIFIER)
some issues-nom will-fut be solved-3pl tomorrow
'Some issues will be solved tomorrow'

(27) **AKOMI KAI STIN MARIA** edosan vravio (*EVEN*-PHRASE)
even and to-the Maria-accgave-3pl prize-acc
'They gave a prize even to Mary'

(28) **KAI LOULOUDIA** tis agorase tis Elenis o Janis (*ALSO*-PHRASE)
and flowers-acc her-cl bought-3sg the Helen-gen the John-nom
'He bought and flowers for Helen'

As (25)-(26) show, quantifiers can occupy the preverbal position in Greek. Therefore, no restriction with respect to exhaustivity applies: the focus constituent can be any of the quantifier phrases in preverbal position. However, native speakers' opinions are not uniform on the question whether the sentences in (25)-(28) express exhaustive identification. What is most likely is that not all quantifiers in preverbal position have an easily available interpretation as *exclusion of identification*. However, they definitely carry new-information focus, which is also significant, since a preverbal as well as a postverbal position for the quantifier can be filled by a new-information focus phrase. Especially interesting is the case of the existential quantifier. According to É. Kiss, the existential quantifier in Hungarian is not compatible with new information focus, in particular when found in postverbal position (which is the only position consistent with new-information focus in É. Kiss's terms). However, in Greek, this is not the case, as shown in (29):

(29) Yiati oles autes i etimasies?
'Why all these preparations?'
Perimeno kapjon gia fagito.
Wait-1sg/prog someone for dinner-acc
'I am waiting for someone for dinner.'

The fact that the existential quantifier is odd as new-information focus is due to its limited potential to provide precise information in updating the information status of the utterance. Also, the *referential* use of an existential

quantifier is limited to contexts such as questions, which presuppose a referential expression in the answer. Nevertheless, if the quantifier functions as an answer to an all-focus question, given that it becomes more informative, it can also become much more acceptable.

É. Kiss's test D indicates that only identificational focus takes wide scope since only this focus expresses exhaustive identification. This characteristic of exhaustive identification is exactly what makes the focus interact with other scope-carrying elements. For my application of test D to Greek, speakers were presented with examples where the universal quantifier takes scope over focus in-situ (30), and where focus (ex-situ) takes scope over the universal (31).

(30) Kathe sinadelfos ithele me **TON DIEUTHINDI** na milisi
every colleague-nom wanted-3sg with the director-acc to talk-inf
'Every colleague wanted to talk with the director.'

(31) me **TON DIEUTHINDI** ithele na milisi kathe sinadelfos
with the director-acc wanted-3sg to talk-inf every colleague-nom
'Every colleague wanted to talk with the director.'

According to É. Kiss, a similar example in Hungarian would induce two different interpretations. Thus, the Hungarian counterpart of (30) indicates that every colleague wanted to talk with one person, the director, and not with any other relevant person. Thus, the universal quantifier takes scope over the exhaustive identification. On the other hand, the Hungarian counterpart of (31) indicates that the director is the only person all of the colleagues want to talk to and that other people were talked to by a subgroup of colleagues but not all of them. Thus, the exhaustive identification takes scope over the universal quantifier.

In contrast to the situation in Hungarian, native speakers of Greek perceive no difference with respect to the propositional content of the sentences in (30)-(31). That is, these sentences both have the same truth value, namely that all the colleagues wanted to talk to the same person and nobody else. Moreover, none of the sentences prohibit the possibility that some colleagues wanted to talk to with some other person apart from the director. Naturally, the focused phrase carries no property of exclusion, therefore no exhaustive interpretation. In this sense, there is no real scope-taking difference with respect to exhaustivity and the universal quantifier. On the contrary, the focused phrase has the properties of an ordinary focused nominal argument, rather than an operator having scope properties. Note, though, that some scope possibilities are manifested when the quantifier *mono* 'only' is added to the sentence. In this case, the meaning of the examples is similar to the ones in Hungarian:

(32) UNIVERSAL QUANTIFIER >> EXHAUSTIVE IDENTIFICATION
kathe sinadelfos ithele *mono* me **TON DIEUTHINDI** na milisi
every colleague-nom wanted-3sg only with the director-acc to talk-inf
'Every colleague wanted to talk only with the director'

(33) EXHAUSTIVE IDENTIFICATION >> UNIVERSAL QUANTIFIER
mono me **TON DIEUTHINDI** ithele na milisi kathe sinadelfos
only with the director-acc wanted-3sg to talk-inf every colleague-nom
'Every colleague wanted to talk only with the director'

Thus, the claim that identification focus takes scope relevant to its exhaustive interpretation cannot be maintained for Greek. Another problem appears when considering scope effects. Recall that É. Kiss (1995a, 1995b, 1996) argues that focus-in-situ differs from constructions involving movement in that it is not quantificational. First, it does not change the truth conditions of the sentence; and second, it does not involve (semantic) uniqueness. É. Kiss (1995a, b) illustrates this by comparing cleft sentences with focus-in-situ sentences but the same tests may be applied to the difference between focus-in-situ and focus movement. The crucial tests for identifying the quantificational nature of focus come from Szalbolcsi (1981), who shows that the displaced focus in Hungarian does have quantificational force and does change the truth values of the sentences because it implies uniqueness. However, consider the following examples:

(34) a. Tegnap este **MARINAK** mutattam be Pérert
last night Mary-dat introduced I.Perf Peter-acc
'It was TO MARY that I introduced Peter last night'

b. Tegnap este be mutattam Pétert **MARINAK**
'Last night I introduced Peter TO MARY' (É. Kiss 1998, ex. 5)

With respect to interpretation the two cases differ. In (a), the immediately preverbal focus expresses exhaustive identification (in É. Kiss's terms); this sentence indicates that of the set of individuals present in the in the domain of discourse, it was Mary and no one else that I introduced to Peter last night. The postverbal focus in (b), on the other hand, merely represents Mary as presupposed information, without suggesting that Mary was the only one of a set of relevant persons that I introduced Peter to last night (again according to É. Kiss's account of *exhaustion of identification*).

The truth is that whatever the interpretative differences between (a) and (b), there is no difference in the truth conditions of these sentences. The fact that distinct structural positions are involved and that these examples are not simply two optionally available variants does not mean that there is a difference in their propositional content (cf. Alexopoulou 1999). According to Krifka (1992) and Vallduvi (1992), identificational foci assimilate to informational foci; they both have the same semantic structure, since in

general focusing of a constituent does not add to the semantic content of the sentence; it figures only in its information structure. This is very important in arguing for the dissociation of information structure from semantics. Krifka (1992) further assumes that the difference between these sentences lies only in the illocutionary operator that binds them. The same phenomenon is attested in Greek Topicalization/CLLD.

(35) a. amfivalo oti klidose **TIN PORTA**
doubt-1sg that locked-3sg the door-acc
'I doubt that (he) locked the door.'

b. tin porta amfivalo oti tin **KLIDOSE**
the door-acc doubt-1sg that it-cl locked-3sg
'The door, I doubt that (he) locked it.'

Here, again, the two constructions differ in their interpretations, but this difference does not affect their propositional content. The lack of a truth-conditional difference thus provides further proof of the non-quantificational nature of focus.

5.2 The PF Interface

In the previous section, I presented evidence against the standard assumption that there are two semantically unrelated and divergent types of focus in Greek, showing that É. Kiss's (1998) claim does not hold for the language. The analysis of the relevant evidence provided arguments in favour of the claim that focus is a uniform phenomenon with a uniform interpretation: that is, it always expresses new information. The exhaustive interpretation of focus is not an inherent focus-internal property, specific to focus phenomena, but turns out to be the outcome of the interaction between the semantic component and the discourse component, i.e. context.

In what follows, I will argue that focus is also one and the same phenomenon with respect to the PF interface. Focus is mainly related to stress in any position it can be spelled out and there are no different stress/accent assignments corresponding to different semantic types of focus.

The fact that the two types of focus are related to two types of prosodic prominence, contrastive and non-contrastive, has been suggested in accounts of the focus-prosody relation in Germanic languages like English, German and Dutch, particularly within the argument structural (AS) approach to focus structure (Gussenhoven 1984, 1992; Rochemont 1986; Schmerling 1976; Selkirk 1984, 1995). More importantly, though, as has been generally claimed for Romance languages, stress is determined by some version of the Nuclear Stress Rule (NSR), as in work by Cinque (1993) and Zubizarreta (1998) (see also Donati & Nespor 2003; Ladd 1996 for Italian; Costa 1998; Frota 1998 for European Portuguese;). In the latter approaches, the claim that there are two

types of prominence, emphatic and non-emphatic, with two distinct corresponding interpretations has played a central role.

More recently, Donati & Nespor (2003), along the lines of É. Kiss (1998), claim that Focus with an emphatic or contrastive interpretation cannot project in Italian and that 'neutral' prominence associated with Focus always has to be larger than a single word. In addition, Zubizarreta (1998) proposes an extra phonological rule, the Emphatic/Contrastive Rule (E/CSR), to account for focal stress related with a contrastive/emphatic focus interpretation.

In the rest of the section, I will look at Zubizarreta's (1998) account and provide arguments against the E/CSR. Zubizarreta (1998) allows for two types of focus: *informational focus* and *contrastive focus* (i-focus and c-focus, respectively).

(36) a. Q. C'est qui qui a écrit un livre sur les rats?
It is who that wrote a book about rats?'
A. C'est [$_{DP}$ le chat] qui écrit un livre sur les rats.
'It is the cat that wrote a book about rats.'
b. Q. C'est quoi que le chat a écrit?
'It is what that the cat wrote?'
A. C'est [$_{DP}$ un livre sur les rats] que le chat a écrit.
'It is a book about rats that the cat wrote.'

} Clefted questions in French unambiguously c-focus type

The property of exhaustivity distinguishes the two types of focus. I-focus is non-exhaustive and c-focus is exhaustive.

(37) a. Q. Who wrote a book about rats?
A. [$_{DP}$ The cat] wrote a book about rats, and [$_{DP}$ the bat] did too.

b. Q. C'est qui qui a écrit un livre sur les rats?
'It is who that wrote a book about rats?'

c. *C'est [$_{DP}$ le chat] qui a écrit un livre sure les rats, et aussi
[$_{DP}$ la chauve-souris]
'It is the cat that wrote a book about rats, and also the bat.'

C-focus involves an independent emphatic/contrastive phrasal stress rule that places main prominence on the c-focus constituent; this rule identifies c-focus as well as allowing metalinguistic functions such as correction, as in *I said CONfirmation, not affirmation*. Contrastive stress can surface on function words, such as the *do*-form in *John DID leave*. It is always associated with an audibly higher pitch level and is strictly narrow in scope, as in *The cat in the [$_{ADJ}$ BLUE] hat wrote a book about rats (not the one in the red hat).*

I-focus is identified as the result of the prominence assigned by the Nuclear Stress Rule (NSR). NSR assigns main prominence within the focus structure of the phrase. Moreover, function words are invisible for the computation of the NSR: nuclear stress (NS) never surfaces on a function word. Thus, c-focus may be applied anywhere including on functional words, but i-focus involves

a NSR that applies NS. The latter is due to a well-formedness condition and occurs at a point prior to LF.

Zubizarreta argues that the position of NS in Germanic languages is a result of the interplay of two rules, one sensitive to selectional ordering and one sensitive to ordering defined in terms of asymmetric c-command. In both, the 'lowest' constituent receives the NS under different dimensions, as shown in (38)-(39).

(38) S-NSR: Given two sister categories Ci and Cj, if Ci and Cj are selectionally ordered, the one lower in the selectional ordering is more prominent.

(39) C-NSR: Given two sister categories Ci and Cj, the one lower in the asymmetric c-command ordering (as defined in Kayne 1994)is more prominent.

Only the C-SNR is available in Romance languages, subject to parametrization.

(40) a. Un nino ha *bailado* (Spanish)
A boy has danced

b. Un *nino* ha bailado

(41) a. Un garcon a *dansé* (French)

b. Un *garcón* a dansé (examples from Zubizarreta 1998)

In German, English and French, defocalised and anaphoric constituents are 'metrically invisible' with respect to the NSR. However, in Spanish and Italian, all phonologically specified constituents are 'metrically visible'. Main prominence on phrase-internal constituents may be associated with a non-contrastive focus interpretation in Germanic:

(42) Jóhn *ate the apple*
[Who ate the apple?]

In contrast, in Spanish and Italian, the interpretation is contrastive or emphatic, and therefore not compatible with a focus neutral interpretation.

(43) **Juan comio una manzana*
Juan ate an apple

(44) [Who ate the apple?]

(45) JUAN comom una manzana (non Piero).

(46) *Maria puso *el libro sobre la mesa*
Maria put the book on the table.
What did Maria put on the table?]

(47) Maria puso el LIBRO sobre la mesa (no la revista)
Maria put the book on the table not the journal.

(48) **Maria* lee (vs Maria *lee*)
**Maria* baila (vs Maria *baila*)
**Maria* voto (vs Maria *voto*)

(49) **J'ai un probleme à resoudre. (* *un probleme* à resoudre)**
'I have a problem to solve.' (Zubizarreta 1998)

The difference is that all phonological material is metrically visible in Romance and as result not skipped by the NSR. Therefore, the direct relation between focus and stress is always achieved in the most embedded position of the clause. In cases where the focused element appears in a position different from the NS position (phrase-internal or -initial), stress is assigned via the E/CSR, as given in (52). The position of NS is unambiguously at the end of the sentence (or phrase), but the scope of contrastive focus in phrase-internal cases is identified by the E/CSR. Thus, sentences with main prominence on the preverbal subject in Spanish, as in (50)-(51), receive stress via the E/CSR rather than by the NSR, and can only have a contrastive focus interpretation on the preverbal subject, e.g. *Juan* and *Maria*.

(50) a. JUAN llamo por telefono (no Pedro)
Juan phoned (not Pedro)

(51) b. MARIA se comio el pastel (no Marta)
Maria ate the cake (not Marta) (Zubizarreta 1998)

(52) FOCUS/CONTRASTIVE STRESS CORRESPONDENCE PRINCIPLE (E/CSR): A word with contrastive stress must be dominated by every F-marked constituent in the phrase.

If we can show that information focus can occupy any higher position in the clause (phrase-internal, left-peripheral), then the E/CSR in (52) fails to maintain its idiosyncratic nature. In this case, we could dispense with Zubizarreta's extra metalinguistic use of the E/CSR and assimilate it to one rule, the NSR, which reintegrates all the different interpretational functions.

According to (52), the element that bears the stress of the sentence must be dominated by any focused part of the sentence. Zubizarreta offers the following examples as support for the E/CSR. In (53), with contrastive stress on the adjective, either the adjective or a constituent that exhaustively dominates the adjective may constitute the scope of the contrast. In (54), with contrastive stress on the noun, the scope of contrast is limited to the noun. In effect, the DP that contains the contrastively stressed noun cannot be interpreted as focused, because the DP is marked [F]. So is the PP that it dominates, but the contrastively stressed noun does not dominate the PP. Thus, [+F]-marked constituents may only dominate [+F]-marked constituents.

(53) a. El gato de sombrero {ROJO} escribio un libro sobre ratones
the cat of hat red wrote a book about rats
(no el sobrero azul).
(not that of the hat blue).
'The cat with a red hat wrote a book about rats (not the one with a blue hat).'

b. {El gato de sombrero ROJO} escribio un libro sobre ratones
the cat of hat red wrote a book about rats
(no el perro de chaqueta VERDE).
(not the dog of the jacket green)
'The cat with a red hat wrote a book about rats (not the dog with a green jacket).'

(54) a. El {GATO} de sombrero rojo escribio un libro sobre ratones
the cat of hat red wrote a book about rats
(no el PERRO de sobrero rojo).
(not the dog of the hat red)
'The cat with a red hat wrote a book about rats (not the dog with a red hat)"

b. *El {GATO de sombrero rojo} escribio un libro sobre ratones (no el PERRO de chaqueta verde). (Zubizarreta 1998)

What seems to be important in the two sets of examples is that in accordance with the E/CSR, stress must always coincide with the most embedded constituent of the focused phrase. In effect, every word that is F-marked dominates the stressed constituent as of that position. Thus, the only difference in the requirements between the NSR and the E/CSR is that in the former, main stress must coincide with the most embedded constituent of the clause in Romance, whereas in the latter, contrastive/emphatic stress must fall on the most embedded constituent of the focused phrase. The Greek word order examples given in section 4 clearly established that stress assigned to the focused element does not always have to be rightward or the most embedded in a clause. What is required is that the stress indication of focus must be as far right as possible within the phrase that contains it. In this respect, it can freely occupy any position in the clause, as long as it falls on the most embedded element in the phrase carrying the focus.

Given this, there seems no need to postulate another rule to account for the metalinguistic interpretational/contextual effects of focus. E/CSR is conceptually and empirically redundant, since it derives exactly the same result as the NSR. Stress-inducing focus (c-focus or i-focus) is assigned by the NSR to the rightmost constituent of the phrase containing it, regardless of the position of the phrase in the clause. As such, the realization of focus by prosodic means is independent of the syntax of focus.

There is an additional challenging inconsistency in the nature of the E/CSR, one concerning its relation to stress-driven (or in Zubizarreta's terms prosodically driven) movement, as mentioned in section 2.

In line with Cinque (1993), Zubizarreta assumes a *Focus-Prominence Rule* (FPR), given in (55), that regulates the relation between prosody and focus. The FPR states that between two sister categories, one focused and the other non-focused, the first must be more prominent than the second.

(55) FOCUS PROMINENCE RULE: The F-Structure of the sentence is constrained by the location of main phrasal prominence: Given two sister categories Ci (marked [+F]) and Cj (marked [-F]), Ci is more prominent than Cj.

Recall that the modularized version of the NSR (extending Cinque's NS account) explains the differences between Germanic and Romance. Now, in certain cases both the FPR, as given in (55), and the C-NSR, given in (39) for Romance, apply, yielding conflicting outputs. The former requires a direct mapping between stress and focus and the latter assigns stress to the most deeply embedded constituent. In Germanic languages the grammar resolves this conflict by considering 'defocalized' constituents as metrically invisible, as stated above. However, in Romance, where there is no metrical invisibility, the conflict is resolved by allowing for 'defocalized' material to undergo movement, so that the focused material in the most embedded position receives stress according to the NSR. This is what Zubizarreta calls *prosodically-driven movement* or *p-movement*, since this movement satisfies PF interpretations. Moreover, the focused constituent first moves to the specifier of FocusP, a pre-verbal position in the left periphery. This allows for a remnant type of p-movement of defocalized material — that is, movement of a phrase that includes the trace of a previously removed constituent — to an even higher position. This permits a successful mapping between focus and main prominence, placing focus where stress falls, in the most embedded position.

Nevertheless, focus in the most embedded or clause-final position can certainly be contrastive, as shown in section 4 for Greek and illustrated in (56) below, which provides a VOS structure:

(56) a. [[$_{TP}$ tin askisi tin elise] [$_{FP}$ **I MARIA**]] (oxi i Eleni)
the exercise-acc it-cl solved-3sg Maria-nom (not Helen)

b. [[$_{TP}$ to fagito efage [**O COSTAS**]] (oxi o Yannis).
the food-acc ate-3sg Costas-nom (not Yannis)

If we followed Zubizarreta, we would have to take the focused item in (56) to be assigned stress by the E/CSR. But why should this item stay in final position, if it can be assigned stress by the E/CSR in the preverbal or medial position (actually the default case for contrastive stress)? There is no need for

the focused item to occupy the clause-final position and for the remnant TP material above it to be p-moved if stress can apply in clause-initial position. The question is: given the existence of the E/CSR, why resort to 'costly' operations that violate economy considerations? If the E/CSR applies consistently every time contrastive focus is relevant, then p-movement loses its empirical motivation. To allow for p-movement to operate in cases such as (56) would mean that that E/CSR does not apply uniformly to all cases of contrastive focus.

The above considerations indicate that one of the two prosodic operations, application of E/CSR or syntactic p-movement, needs to be eliminated, since having both operations is empirically and theoretically superfluous. I will dispense with the E/CSR, since it accounts for a situation similar to information focus, involving the application of information focus to other than clause-final positions. The amalgamation of the two rules is clearly consistent with the argument presented in previous sections, namely that an interpretive difference between the two foci cannot be maintained.

To summarize this section and the previous one, I have discussed the properties of focus with respect to the interfaces, LF and PF, and shown that there are not two different types of focus from interpretive and prosodic perspectives. Rather, focus is a single phenomenon in the syntax and at both interfaces. In the next and final section, I will propose a syntax-prosody mapping to account for the Greek data in section 4.

6 The Syntax-Prosody Interface

As mentioned in section 1, I adopt the position of Chen (1987), Nespor & Vogel (1986), Zec & Inkelas (1990) and Jackendoff (1997), among others, that the grammar represents syntactic and phonological-prosodic information in two distinct levels of representation.

The rules of phonology proper (i.e. rules that govern phonological patterning, including rules of stress assignment) do not refer directly to syntactic constituents but rather operate on the prosodic structure and, more precisely, on the units of the Prosodic Hierarchy (see Chen 1987; Nespor & Vogel 1986; Selkirk 1984, 1986). Thus, the prosodic representation is not derived directly and unambiguously from the syntax, as it is in Minimalism.[17] In other words, phonological rules apply to units of the Prosodic Hierarchy in the prosodic domain, these units not always structurally isomorphic to syntactic representations. Focus is not always rightmost but only as far right as

[17] This approach goes against Cinque's (1993) stress-based account and accounts such as those of Zubizarreta (1994, 1998) and Reinhart (1995), who claim a syntax-based NSR. However, it agrees with stress-based theoretical accounts such as Szendrői's (2001).

possible, and so is stress. Thus syntactic and prosodic representations are related by *mapping rules* that group the terminal elements in a string in a way that creates units which are not in one-to-one relation with the constituents of the syntactic hierarchy. Prosodic units are created by means of a *mapping algorithm* — that is, a set of rules that determine the type of information accessible from one grammatical module to another. Consequently, the phonological feature sets of lexical items are grouped into prosodic structure: forming prosodic words (ω), which in turn form phonological phrases (φ), which in turn are grouped intonational phrasse (IntPs) (see Nespor & Vogel 1986).[18]

Selkirk's mapping algorithms are basic to an analysis where phrase-edge prominence plays a crucial role. I will follow Selkirk (1986) in assuming the following mapping procedure in (57) for phonological phrase, or p-phrase (*φ*), formation (also adopted in Neeleman & Reinhart 1998):

(57) Φ-FORMATION
Close φ when encountering] $_{XP}$

The procedure in (57) has the effect that the right edges of phonological phrases coincide with the right edges of syntactic phrases. Selkirk (1995) claims that there is a predisposition towards lexical categories. More specifically, Selkirk proposes that only lexical categories and their projections, and not functional ones, are visible to the mapping rules. There is considerable empirical evidence in support of such a restriction, which complements Nespor & Vogel's (1986) *non-visibility* of empty categories and their projections. Prosodic constraints refer to lexical elements (L^0 elements and their projections, L^{max}) but not to functional elements (F^0 elements and their projections, F^{max}) nor to *empty categories* and their projections, in accordance with the *Lexical Category Condition* (LCC) of Truckenbrodt (1999: 226).[19]

In Optimality Theory (e.g., McCarthy & Prince 1993; Prince & Smolensky 1993), edge-based rules have been converted into McCarthy & Prince's (1993) *Generalized Alignment* constraint system. Each alignment constraint represents a requirement on the matching of morphosyntactic with prosodic edges. Selkirk (1995) has proposed the following constraints on edge-alignment of syntactic phrases with phonological phrases:

[18] The status of the p-phrase as the most important part of prosodic constituent structure is well established in the linguistic literature (see, e.g., Hayes 1989; Nespor & Vogel 1982, 1986; Selkirk 1978, 1981, 1986, 1990). The p-phrase is the principal constituent mediating between syntactic structure and prosodic form. The task of showing how syntax interfaces with phonological structure is quite complicated and is usually undertaken by the construction of the mapping algorithms.

[19] This later condition includes Selkirk's *Categorical Invisibility of Function Words* (1984: 337), and emphasizes the invisibility of function words with respect to the application of the prosodic algorithms.

(58) EDGE-ALIGNMENT CONSTRAINTS:

a. Align-XP,L: Align (XP, L; PPh, L)
'For each XP, there is a PPh such that the left edge of XP coincides with the left edge of PPh.'

b. Align-XP,R: Align (XP, R; PPh, R)
'For each XP, there is a PPh such that the right edge of XP coincides with the right edge of PPh.'

Truckenbrodt (1995, 1999) has offered a convincing argument for the necessity of including a cohesional constraint WRAP-XP, stated in (59), in the family of interface constraints. In many languages, a major syntactic phrase preserves its integrity and is mapped into a single p-phrase. In accordance with the LCC, the constraint penalizes separate phrasing of lexical projections but, interestingly, permits the split up of functional ones. His argument builds on the phrasing differences of three Bantu languages.

(59) WRAP-XP: Each XP is contained in a phonological phrase.[20]

I thus follow Selkirk and Truckenbrodt (1995, 1999) in maintaining the idea that syntactic structure is parsed into prosodic constituents and that the heads of these constituents in turn determine the rhythmic grid eventually responsible for the position of main stress. Once the mapping rules are applied, syntactic structures can no longer be used to condition phonological rules. The theory thus predicts that two sentences with same linear sequence of lexical elements but different syntactic structures will be ambiguous if their prosodic structures are equal (cf. Nespor 1993, 1996). Non-isomorphism between syntactic and phonological structures is thus established.

6.1 Aligned versus Misaligned Mapping

Assuming the framework introduced above, I propose that two types of rules are operational in the mapping process: *default alignment rules* and *focus-related rules*. The former are responsible for the assignment of main stress in the unmarked cases and the identification of the sentence's focus. The latter identify focus positions other than clause-final ones — for example, phrase-

[20] An abstract example will clarify how exactly the end-based algorithm applies. Assume a syntactic string like the one in (i). The p-boundaries below the string denote the results of the application of ALIGN-XP,L (1a), ALIGN-XP,R (1b) and WRAP-XP (2c). Differences in phrasing across languages result from different ranking of the relevant constraints.

(i) $[V\ NP\ PP]_{VP}$ syntactic string

a. [ ] [ ] [ ] phrasing due to ALIGN-XP,L
b. [ ] [ ] phrasing due to ALIGN-XP,R
c. [ ] phrasing due to WRAP-XP

internal or left-peripheral — and in the case of stress assignment, they result in a *misalignment* between syntax and phonology. Therefore, according to the two types of mapping strategies the two representations, syntactic and prosodic, may be either aligned or misaligned. The mapping process will decide and constrain which syntactic trees can be successfully mapped to a given prosodic tree and vice versa.

In the unmarked cases, which I will call Syntax-Prosody Matching or *Alignment* (henceforth, SPA), a well-formed syntactic representation can be paired up with a well-formed prosodic representation in a way that the syntax-prosody mapping is completely satisfied. This is the case where the right edge of prosody meets the right edge of syntax, where NSR is applied to the most embedded syntactic constituent.

In cases where an element other that the most embedded in the syntactic structure is to be focused, a *misaligned* mapping is performed to ensure that the element in question appears at the relevant edge of the phonological domain to receive main stress. I will call these cases Syntax-Prosody Mismatch or *Misalignment* (henceforth, SPM). The relation between the syntactic and the prosodic structure can be altered in such a way so that the focused constituent closes off the right edge of a phonological phrase (or inserts a left boundary, subject to parametrization) other than the one that is final in the clause. The postfocal phonological phrases are integrated into the larger phonological or intonational phrase corresponding to the clause.

This mapping reflects the view that the position of focus is prosodically determined — also the main insight of syntax-based prosodic accounts developed by Cinque (1993), Reinhart (1995) and Zubizarreta (1994, 1998). The same structures, however, show that the main stress is not always rightmost but only as far right as possible, the result of the *misalignment* process. This is one of the advantages of the proposed mapping, since it immediately captures the above generalization. Such a generalization is nevertheless problematic for syntactic approaches to stress under parametric analyses, so it offers a serious challenge to them.[21]

[21] Any syntax-based approach that determines nuclear stress has the serious drawback of requiring the identification of the position of stress earlier than the syntactic operations responsible for stranding focus in the position of stress. In this way, they have no choice but to refer to a syntactic definition of main stress determined in a cyclical fashion until focus and stress are matched in the same position. In contrast, in the mapping operation proposed here, the syntactic and prosodic components are assessed simultaneously and the mapping rules will allow for the acceptable structures provided that the combination of syntactic and prosodic representations will satisfy these mapping rules. For instance, in cases of string-middle focus construction, it will not matter for the prosodic operation of stress assignment that the element is not the rightmost within the syntactic structure, as the grammar has two distinct prosodic and syntactic representations.

6.1.1 The SPA of the Right Periphery

Recall that in section 6.1, I illustrated the three modules of the grammar that are responsible for a particular focus interpretation of an utterance: syntax, prosody and the syntax-prosody mapping. Syntax in the unmarked case contains no extra operations apart from merge and feature-driven movement (for EPP satisfaction, see Sifaki 2003). As for the syntax-prosody mapping, I assume, following Selkirk (1986), that it applies in the following manner (see also Inkelas & Zec 1995; Neeleman & Weerman 1999; Nespor & Vogel 1986; Szendrői 2001; Truckenbrodt 1999).

In particular, I propose that the mapping between syntactic and phonological phrases is subject to the Default Alignment Mapping Rule given in (60).

(60) SYNTAX-PROSODY MAPPING OF PHRASES (GREEK):
Align the right edge of a syntactic phrase with the right edge of the phonological phrase.

On the level of the clause and the intonational phrase, the following principle is operative in Greek:

(61) SYNTAX-PROSODY MAPPING OF CLAUSES (GREEK):
Align the right edge of the IP with the right edge of the intonational phrase corresponding to that IP.

Principles (60) and (61) capture the case of unmarked right-peripheral information focus, which has been claimed to occur as the most embedded constituent of any XP according to phrasal metrical rules (Cinque 1993; Zubizarreta 1998).

As far as prosodic phonology is concerned, nuclear stress in Greek is assigned as follows:

(62) NSR (GREEK):
Assign main stress on the phonological word in the rightmost phonological phrase of the intonational phrase.

Under wide focus, the rightmost p-phrase within the IP is the intonationally most prominent and receives main stress.

A formulation of the Greek nuclear stress rule is given in (63):[22]

[22] In the diagram in (65), I use a metrical tree notation (see Liberman 1979 and Liberman & Prince 1977). Metrical trees are annotated as Strong (S) or Weak (W). S is assigned to the top node. The main stress falls on the node that is only dominated by S-s, which is indicated in bold.

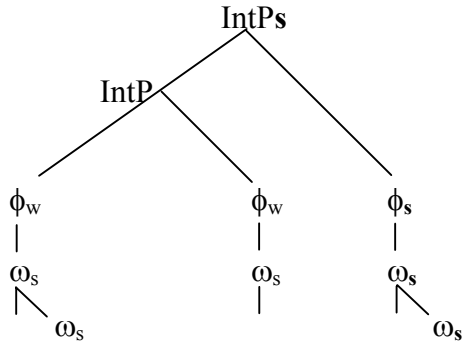
(63) STRESS RULE (GREEK):
Assign a Strong label to the rightmost phonological word in the phonological phrase. Otherwise assign Weak.
Assign a Strong label to the rightmost phonological phrase in the intonational phrase. Otherwise assign Weak.
Assign a Strong label to the highest intonational phrase.

Let me start by illustrating the application of syntax-prosody mapping together with the stress assignment rules with the example in (64a) and the focus set in (64b).

(64) a. [$_F$ pire tilefono o Yanis [$_F$ ti **MARIA**] ke tis ipe…
[$_F$ took-3sg phone the Yanis-nom the Maria-acc] and her-CL told-3sg

b. Focus set: {DP_{DO}, VP, IP}

(65)



[$_{IP}$ pire tilefono [$_{VP}$[$_{DP}$ o Yanis [$_{DP}$ ti **MARIA**]]]]

The unmarked mapping and prosodic rules derive the representation in (65) from the sentence in (64). Relevant to these rules is the fact that in (64), *MARIA* is the rightmost syntactically most embedded constituent and the rightmost phonological word in the rightmost phonological phrase. Therefore in the unmarked case (64), the right edge of the intonational phrase is aligned with the right edge of the clause. Given the NSR in (62), *MARIA* will receive main stress. Therefore at the clausal level of (64), nuclear stress and phrasal stress occur together on *MARIA* according to the mapping principles (60) and (61). That is, nuclear stress in Greek is assigned to the rightmost phonological phrase in the intonational phrase, according to (61), while phrasal stress is assigned to the rightmost phonological word in the phonological phrase, according to (60). Given the stress-focus correspondence and focus ambiguity facts, we predict that (64) has the focus set indicated in (64b): {DP_{DO}, VP, IP}. We also predict that directly relating LF and PF will allow a direct connection between stress assigned by the NSR and the [+F] feature which identifies the focused constituent as the legitimate recipient of stress. Thus, the proposed syntax-prosody mapping rules and the NSR derive the fact that an utterance with unmarked intonation may take wide scope by having different possible focus readings.

To summarize: in this section I have accounted for the right-peripheral focus construction in Greek. These are by definition the default cases, as stress is assigned to the rightmost constituent in Greek in the unmarked case. The model proposed here consists of a mapping operation between syntax and prosody, which is revealed as the domain of application for the default alignment mapping rules. The match is direct and creates no complications, since it is one-to-one, the prosody being the image of syntax. However, the interpretations we derive from the default alignment mapping are many-to-many, since, as we have seen, right-peripheral focus is broad and projects (cf. SVO structure). Thus, a particular utterance carrying right-peripheral focus, under a different context question and with a given intonation, may have more than one interpretation, with more than one possible focus, the focus set of the utterance (in Reinhartian terms).

In the next sections, we will look more closely at clause-internal and left-peripheral focus constructions in Greek. As argued in section 5, these focus constructions are of particular interest, since even though they have narrow scope, they do not necessarily show any semantic distinction between contrastiveness and exhaustiveness.

6.1.2 The SPM of Middle Focus

In this section, I will explore the cases of clause-peripheral internal focus constructions. As previously mentioned, these cases are particularly interesting in Greek because, as in the case of right-peripheral focus, the same focused constituent can appear in a string-medial position with no difference in interpretation. Relevant to these cases is the following hypothesis regarding the syntax-semantics interface related to focus.

(66) SYNTAX-SEMANTICS OF FOCUS HYPOTHESIS
Each focus interpretation of a particular utterance included in the focus set which is implemented by a *wh*-question can be satisfied by a number of word order variations (as shown above), where the same focused constituent can be found in different spell-out positions with the same interpretation.

The identification of the clause-internal focus constructions by the syntax-prosody interface is achieved by a special syntax-prosody *misaligned mapping*, via the misalignment of focus-related mapping rules. Given that the present analysis makes use of interpretative rules that do not directly refer to syntactic structure, such an analysis of clause-internal focus becomes possible. As we saw above, in the unmarked right-peripheral construction, the *right edge* of prosody meets the *right edge* of syntax.

In cases where an element other that the most embedded in the syntactic structure is to be focused, the right edge of the intonational phrase cannot meet the right edge of the clause. This is true of clause-internal focus material. How can we then resolve the conflict between syntax and prosody? In other words,

how can we avoid the conflict between the *Focus-Prosody interaction*, which requires the focused constituent of a phrase to contain the intonational nucleus of that phrase, found in sentence-medial position, and the *NSR*, which assigns stress to the most deeply embedded constituent in the clause? This calls for a *misaligned* syntax-prosody mapping to ensure that the element in question appears at the relevant edge of the phonological domain to receive main stress.

6.1.2.1 Clause-internal Focus and Misalignment

We know that main phrasal stress plays a crucial role in identifying the intonational nucleus of the intonational phrase (or I-phrase), and that the intonational nucleus is the centre around which the intonational contour is organized. Studies that assume the classic NSR, as well as some of those that have attempted to revise it (e.g. Cinque 1993; Zubizarreta 1998), have recognized that syntactic information plays a crucial role in the computation of main phrasal prominence (and therefore of the intonational nucleus) in the Germanic and Romance languages. But this does not seem to be universally true, as this work has revealed.

In Greek, as in Germanic and Romance, the locus of NS plays a role in determining the possible scope of the focus. However, as shown so far (section 4), syntax cannot play any direct role in the computation of NS and therefore of the intonational nucleus. Instead, NS in Greek is computed in terms of phrasing and, more specifically, the syntax-prosody mapping, which itself is constrained by the syntax.

This has a further theoretical consequence for Greek. If syntax cannot play a role in the computation of NS then hypothesis (66) — namely, that the same clause-internal focus constituent can carry the same semantic interpretation in any other position, right- or left-peripheral — clearly holds. Since syntax is not involved in grammatically encoding focus by the computation of NS but rather that it is prosody, and more specifically the syntax-prosody mapping, that is involved, then the conclusion is that there will be no predetermined syntactic position for focus in Greek.

Returning now to the analysis of sentence-medial focus constructions, with respect to the mapping between syntax and prosody, we can identify the following phrasal stress rules for Greek:

(67) GREEK P-PHRASE STRESS RULE:
Within the P-phrase, the leftmost non-clitic word is prosodically the most prominent carrying the intonational nucleus of the phrase.

(68) GREEK I-PHRASE STRESS RULE:
A P-phrase bearing narrow focus receives the most prominent stress of its IntP.

Furthermore, as far as prosodic phonology is concerned, the prosodic phrasing domain is defined as follows.[23]

(69) In Greek, a P-phrase boundary must be inserted at the left edge of the focused constituent.

Thus, from the Align (Info, Pcat) family of constraints that Selkirk (1995) proposes in her model of information structure-phonology interface, we can use the constraint ALIGN-FOCUS, L in (70) to ensure the mapping of some edge of a focus constituent with some edge of a prosodic unit.

(70) ALIGN-FOCUS, L
Align the left edge of a Focus constituent in information structure with the left edge of a P-phrase in the prosodic structure.

Given (69) and (70), we may offer in place of the NSR the following mapping rule for misaligned or internal focus-related structures:

(71) MISALIGNMENT MAPPING NSR (GREEK): Within the I-phrase, NS falls on the rightmost intonationally most prominent P-phrase, the left edge of which must be *aligned* with the left-edge of the focused constituent.

The above rule predicts that in a narrow-focused constituent in clause-medial position, NS will fall within the intonationally most prominent P-phrase of the I-phrase. In such cases, the last phrasal stress will be the strongest. Hence, in cases where the narrow-focused constituent is internal to the I-phrase, the NS will not be rightmost but as far right as possible.

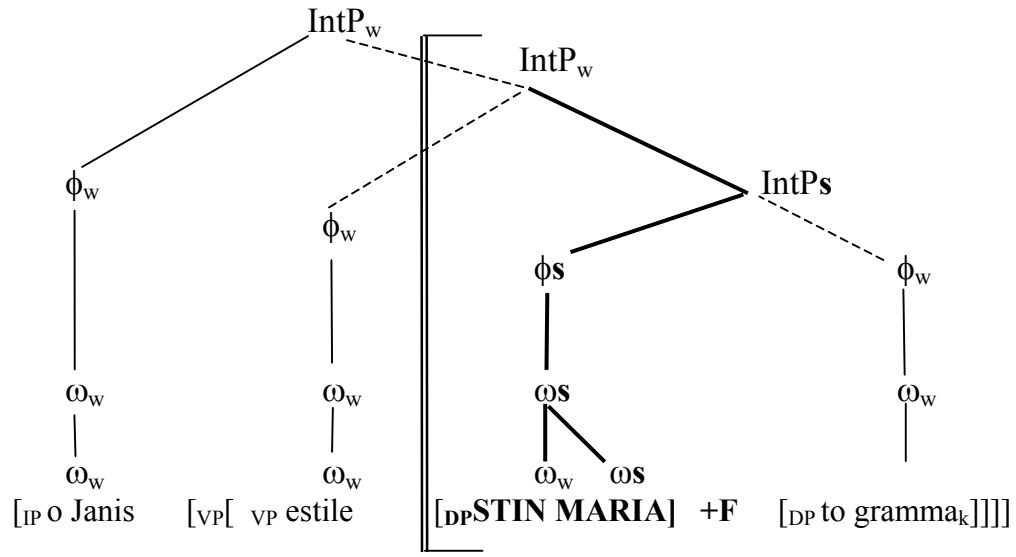
Let us see now how we can apply the above considerations to the clause-internal focus discussed in this section and represent the misaligned mapping. This is illustrated in the sentence and tree diagram in (72) below.

(72) o Janis esteile **STIN MARIA** to gramma.
John-nom sent-3sg to Mary-dat the letter-acc
'John sent to Mary the letter.'

[23] The rule in (69) accords with Baltazani's (2002) and Revithiadou's (2003) analyses of prosodic phrasing (sandhi rules) and intonation in Greek. The narrow focus constituent inserts a left φ-boundary, thus triggering rightward rephrasing of the string, as in (i):

(i) O Fedon baringile [ANGISTRIA]φ
'Phaedon ordered hooks.'

In Greek, focus restructuring proceeds to a direction opposite to syntactic recursion (contra Frascarelli 2000; Kanerva 1989, 1990).



The tree above indicates misalignment between syntactic and prosodic components. According to the misaligned mapping rules, the structure is a narrow focus structure within the I-phrase. Thus, in accordance with Greek P-phrase stress, **STIN MARIA** is prosodically the strongest phonological word of the phonological phrase it belongs to in virtue of being the rightmost one. Intonationally, the narrow-focused constituent is realized by an intonational boundary taking the form of a L+H* nuclear pitch accent (Baltazani 2002), which signals the beginning of a new P-phrase. The following material is deaccented; this material is in turn followed by a LL% boundary, which closes off the intonational phrase. As regards Greek I-phrase stress, **STIN MARIA** will bear narrow focus. As a result of the mapping process the intonational boundary on the focus constituent marks its prosodic prominence and as the rightmost intonationally accented constituent it will receive the strongest stress in the intonational phrase.

The P-phrase boundary will be inserted at the left edge of **STIN MARIA**, which carries the focus. Therefore, the misaligned syntax-prosody mapping process decides that the left edge of the most prominent P-phrase within the I-phrase will coincide with the left edge of the focused constituent. This in turn means that the left edge of the phonological phrase that is inserted when it encounters the focused material will be aligned with the left edge of the syntactic XP that contains that material, in accordance with the mapping rules. The P-phrase boundary defines the domain of the assignment of the NSR. The NS will receive focus since it constitutes intonationally the rightmost P-phrase of the I-phrase. Thus, in cases of where the narrow-focused constituent is internal to the I-phrase, the NS will not be rightmost in the clause. On the

contrary, it will be rightmost in the phonological phrase that is closed off when it 'reads off' the focus structure.

Assuming a notion of prosodic extrametricality, the material that follows the focused constituent counts as extrametrical; it is part of the phrase containing the focused constituent but is intonationally de-accented. This is also a result of the misaligned mapping process.

It is now apparent how a misaligned syntax-phonology mapping provides a way of focusing a constituent which is not on the right-edge of the utterance: we have to align the left-edge of the phonological/intonational boundary which closes off the focused material with the left edge of the syntactic phrase which contains the constituent to be focused. Given that main stress is assigned to the rightmost element in the *prosodic structure*, main stress will fall on the focused constituent. It does not matter for the prosodic operation of stress assignment that this element is not the rightmost within the syntactic structure, as the grammar has distinct prosodic and syntactic representations.

6.1.3 The SPM of the Left Periphery

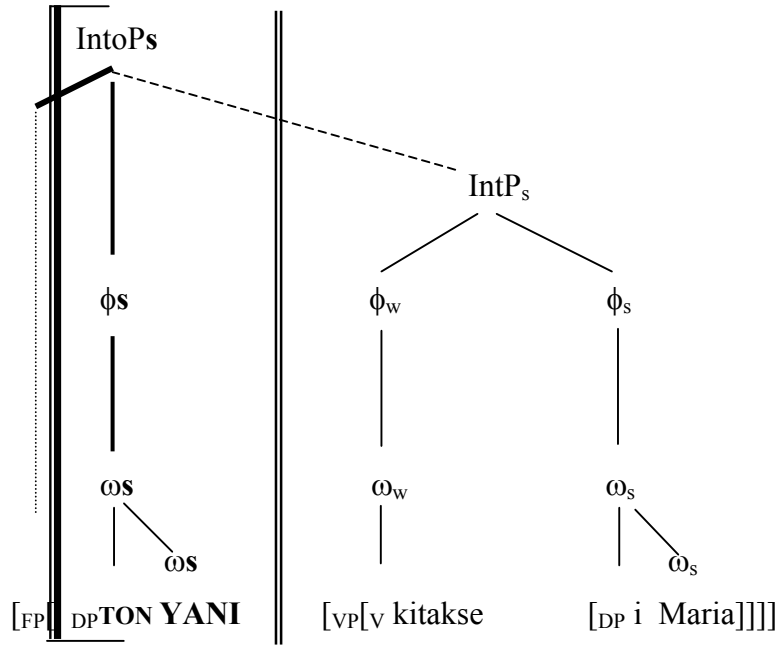
Having analysed right-peripheral and clause-internal focus constructions, I will now analyse the last set of focus constructions attested in Greek, the left-peripheral constructions. The following example contains a left-peripheral focus:

(73) Pjon kitakse i Maria?
'Who did Mary look at?'
[$_F$ **TON YANI**] kitakse i Maria
[$_F$ the Yani-ACC] looked-3SG the Maria-NOM
'Maria looked at Yanis.'

Given the stress rules in (67) and (68) and the misalignment mapping in (71), I assume that an intonational phrase boundary is introduced before the focused constituent. In the example in (73), the context question indicates that the whole IP except for the focused constituent is given or 'discourse-linked'. The misaligned mapping operation discussed ensures that the focused constituent is at the right edge of its intonational phrase in order to receive stress. Since the focused constituent is a legitimate discourse entity on its own (it can be a sentence fragment), it forms its own intonational phrase. It inserts a left-boundary when focus is introduced in the sentence but it also forms an independent intonational phrase (right boundary) realized as a rising pitch accent H* followed by a LL% boundary tone. Any material that follows will be phonologically unparsed in the Intonational phrase that closes after the focus is encountered and parsed within its own intonational phrase. This makes the postfocal material discourse linked. However, the material that follows is not phonologically de-accented, in contrast to the previous cases

(clause-internal focus) in section 6.1.2.1, and can therefore form a separate intonational phrase. The misaligned mapping process is illustrated in the following tree:[24]

(74)



7 Concluding Remarks

The present study has sought to challenge the claim that language embraces 'perfection' in arguing against economy considerations as pursued by the Minimalist Program. What I proposed was that the standard Minimalist grammatical architecture has to be modified to allow for both syntactic and prosodic information to access the interface with conceptual structure (C-I) (cf. Reinhart 1995). In other words, the grammar has to reflect the basic intuition that prosodic information has a direct influence on semantics and pragmatics — in particular, that stress = focus. Thus, I argued for a direct interaction between PF and LF, bypassing syntax, in order to capture the observation that a focused constituent will always carry the main stress.

[24] Given that the syntactic and phonological components are distinct and independent, though only linked by a discourse-required special mapping, it is unnecessary for the left-peripheral constituent to be moved by the existence of a focus feature or for the position targeted by movement to be a designated [Spec, Focus] position. The interpretation achieved by the misaligned mapping operation is one of narrow scope but, as indicated in previous discussion, is not necessarily one of *contrast* or *exclusion of identification*.

Based on the above assumptions, I proposed that the syntactic, semantic and prosodic representations are independent components of grammar linked by interface mapping processes that access each other simultaneously when necessary (Jackendoff 1997; Williams 2003).

Such a grammatical architecture is forced by the evidence from Greek regarding the interaction of focus with the other components of the grammar. It was shown that in Greek there is no one-to-one mapping between focus position and semantic interpretation. Moreover, it was shown that focus is also a uniform phenomenon at the PF interface. Working in the framework assumed above, I proposed a special type of mapping (SPA and SPM) which accounts for word order variation on the hypothesis that the different spell-out positions of the same focus constituent carry the same interpretation.

I argued that focus is freely assigned via stress and further claimed that focus-markers are syntactically unconstrained and freely assigned. This has the major theoretical consequence: namelym that in a language with no pre-determined position for stress there will be no predetermined position for focus. This dispensed with the postulation of unjustified syntactic Focus projections.

The model proposed here is conceptually advantageous since it respects the independence of different levels of representation. No movement for focus-internal reasons is permitted in the syntax in order to derive a consistent set of mapping principles from syntax to phonology/semantics (contra Costa 1996; Choi 1996; Neeleman & Reinhart 1998; Szendrői 2001; Zubizarreta 1998). On the contrary, the mapping process proposed here straightforwardly predicts that *rightmost prominence* at the right *edges* is all that is needed for focus identification.

References

Abraham, Werner et al., eds. 1986. *Topic, Focus and Configurationality*. John Benjamins, Amsterdam.

Agouraki, Georgia. 1990. On the Projection of Maximal Categories. *UCL Working Papers in Linguistics* 2: 182-200.

Agouraki, Georgia. 1993. *Spec-Head Licensing: The Scope of the Theory*. Ph.D. diss., UCL, London.

Alexiadou, Artemis. 1999. On the Properties of Some Greek Word Order Patterns. In A. Alexiadou, G. Horrocks, and M. Stavrou, eds., *Studies in Greek Syntax*. Kluwer, Dordrecht, pp. 46-65.

Alexopoulou, Theodora. 1999. *The Syntax of Discourse Functions in Greek: A Non-Configurational Approach*. Ph.D. diss., University of Edinburgh.

Antinucci, Fransesco & Guglielmo Cinque. 1977. Sull'ordine delle parole in Italiano: l'emarginazione. *Studi di grammatica Italiana* 6: 121-146.

Arvaniti, Amalia & Mary Baltazani. 2000. Greek ToBI: A System For The Annotation Of Greek Speech Corpora. *Proceedings of Second International Conference on Language Resources and Evaluation* (LREC2000), Vol. 2: 555-562.
Baltazani, Mary. 1999. Topik and Focus in Greek. Paper presented at the LSA Conference, Los Angeles.
Baltazani, Mary. 2002. Focus, Prosodic Phrasing and Hiatus Resolution in Greek. Ms., UCLA.
Bolinger, David. 1965. *Forms of English: Accent, Morpheme, Order*. Harvard University Press, Cambridge, MA.
Brody, Michael. 1995. *Lexico-Logical Form*. MIT Press, Cambridge, MA.
Brunetti, Lisa. 2003. *A Unification of Focus*. Ph.D. diss., University of Florence.
Büring, Daniel. 1995. *The 59th Street Bridge Accent: On the Meaning of Topic and Focus.* Ph.D. diss., University of Tübingen.
Büring, Daniel. 1997. The Great Scope Inversion Conspiracy. *Linguistics & Philosophy* 20: 175-194.
Büring, Daniel & Gutierrez-Bravo. 2002. Focus-related Word Order Variation without the NSR: A Prosody-based Cross-linguistic Analysis. In Seamas Mac Bhloscaidh, ed., *Syntax at Santa Cruz 3*, pp. 41-58.
Chen, Matthew. 1987. The Syntax of Xiamen Tone Sandhi. *Phonology Yearbook* 4: 109-150.
Choi, H.-W. 1996. Topic and Focus in Korean: The Information Partition by Phrase Structure and Morphology. *Japanese/Korean Linguistics* 6: 545-561.
Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. MIT Press, Cambridge, MA.
Chomsky, Noam. 1995. *The Minimalist Program*. MIT Press, Cambridge, MA.
Chomsky, Noam. 1999. On the Nature of Pragmatics and Related Issues. *Brain and Language* 68: 393-401.
Chomsky, Noam. 2000. Minimalist Inquiries: The Framework. In Roger Martin, David Michaels & Juan Uriagereka, eds., *Step by Step.* MIT Press, Cambridge, MA, pp. 89-155.
Chomsky, Noam. 2001a. Derivation by Phase. In Michael Kenstowicz, ed., *Ken Hale: A Life in Language*. MIT Press, Cambridge, MA, pp. 1-52.
Chomsky, Noam. 2001b. Beyond Explanatory Adequacy. Ms., MIT, Cambridge, MA.
Chomsky Noam, 2002. *On Nature and Language*. Cambridge University Press, Cambridge.
Cinque, Guglielmo. 1993. A Null Theory of Phrase and Compound Stress. *Linguistic Inquiry* 24: 239-297.
Costa, João. 1996. Constituent Order and Constraint Interaction. Ms., HIL/Leiden University; In Seminários de Linguística, University of Algarve.
Costa, João. 1998. *Word Order Variation: A Constraint Based Approach*. Ph.D. diss., Leiden University.
Diesing, Molly. 1992. *Indefinites*. MIT Press, Cambridge, MA.
Di Sciullo, Anna Maria & Edwin Williams. 1987. *On the Definition of Word*. MIT Press, Cambridge, MA.
Donati, C. & Marina Nespor. 2003. From Focus to Syntax. *Lingua* 113: 1119-1142.
Féry, Caroline. 1993. *German Intonational Patterns*. Niemeyer, Tübingen.
Frascarelli, Mara. 2000. *The Syntax-Phonology Interface of Focus and Topic Constructions in Italian*. Studies in Natural Language and Linguistic Theory vol. 50. Kluwer, Dordrecht/Boston/London.
Frota, Sonia. 1998. *Prosody and Focus in European Portuguese*. Garland, New York.
Grillia, Stella. 2004. Ex-situ and In-situ Focus in Greek: A Unified Minimalist Approach. Ms., University of Leiden.
Goldsmith, John. 1976. *Autosegmental Phonology*. Ph.D. diss., MIT, Cambridge, MA.

Gussenhoven, Carlos 1984. *On the Grammar and Semantics of Sentence Accents*. Foris, Dordrecht.
Gussenhoven, Carlos. 1992. Sentence Accents and Argument Structure. In Iggy Roca, ed., *Thematic Structure: Its Role in Grammar*. Foris, Berlin/New York, pp. 91-106.
Haidou, Konstantina. 2003. Stress Mechanisms in the Syntactic and Phonological Domain of Focus. *SOAS Working Papers in Linguistics* 13: 135-158.
Haidou, Konstantina. 2004. On the Interaction of Prosodic Phrasing and Information Structure in Greek Word Order Variation. Poster presented at Tone and Intonation in Europe (TIE), Santorini, 9-11 September 2004.
Haidou, Konstantina. Forthcoming. *The Syntax-Prosody Interface of Focus Phenomena in Greek*. Ph.D. diss., SOAS, University of London.
Halle, Morris & Alec Marantz. 1993. Distributed Morphology and the Pieces of Inflection. In Kenneth Hale & S. Jay Keyser, eds., *The View from Building 20*. MIT Press, Cambridge, MA, pp. 111-176.
Halliday, M. A. K. 1967. Notes on Transitivity and Theme in English, Part II. *Journal of Linguistics* 3: 199-244.
Hayes, Bruce. 1989. The Prosodic Hierarchy in Meter, Phonetics and Phonology. In P. Kiparsky & G. Youmans, eds., *Rhythm and Meter*, Volume 1. Academic Press, San Diego, pp. 201-260.
Horvath, Julia. 1986. *Focus in the Theory of Grammar and the Syntax of Hungarian*. Foris, Dordrecht.
Hyman, Larry M. & John R. Watters. 1984. Auxiliary Focus. *Studies in African Linguistics* 15: 223-273.
Inkelas, Sharon. 1989. *Prosodic Constituency in the Lexicon.* Ph.D. diss., Stanford University.
Inkelas, Sharon & Draga Zec. 1995. Syntax-Phonology Interface. In John Goldsmith, ed., *Handbook of Phonology.* Blackwell, Cambridge, MA, pp. 535-549.
Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. MIT Press, Cambridge, MA.
Jackendoff, Ray. 1997. *The Architecture of the Language Faculty*. MIT Press, Cambridge, MA.
Kanerva, Jonni. 1989. *Focus and Phrasing in Chichewa Phonology*. Ph.D. diss., Stanford University.
Kanerva, Jonni. 1990. Focusing on Phonological Phrases in Chichewa. In Sharon Inkelas & Draga Zec, eds., *The Phonology-Syntax Connection*. University of Chicago Press, Chicago/London, pp. 145-161.
Kayne, Richard. 1994. *The Antisymmetry of Syntax*. MIT Press, Cambridge, MA.
Keller, Frank & Theodora Alexopoulou. 2000. Phonology Competes with Syntax: Experimental Evidence on the Interaction of Word Order and Accent Placement in the Realization of Information Structure. *Cognition* 79: 301-372.
Kidwai, Ayesha. 2000. *XP-Adjunction in Universal Grammar: Scrambling and Binding in Hidi-Urdu*. Oxford Studies in Comparative Syntax. Oxford University Press, Oxford.
Kiss, Katalin É. 1995a. Introduction. In Katalin É. Kiss, ed., *Discourse Configurational Languages*. Oxford University Press, Oxford, pp. 3-27.
Kiss, Katalin É. 1995b. NP Movement, Operator Movement, and Scrambling in Hungarian. In Katalin É. Kiss, ed., *Discourse Configurational Languages*. Oxford University Press, Oxford, 207-243.
Kiss, Katalin É. 1996. *The Focus Operator and Information Focus*. Institute of Linguistics, Budapest.

Kiss, Katalin É. 1998. Identificational Focus versus Informational Focus. *Language* 74: 245-273.
Krifka, Manfred. 1992. A Compositional Semantics for Multiple Focus Constructions. In Joachim Jacobs, ed., *Informationsstruktur und Grammatik*, Sonderheft der Linguistischen Berichte,
Krifka, Manfred. 1998. Scope Inversion under the Rise-Fall Pattern in German. *Linguistic Inquiry* 29: 75-112.
Koster, Jan. 1987. *Domains and Dynasties*. Foris, Dordrecht.
Ladd, D. Robert. 1996. *Intonational Phonology*. Cambridge University Press, Cambridge.
Lambrecht, Knud. 1994. Information Structure and Sentence Form. Cambridge University Press, Cambridge.
Liberman, M. 1979. *The Intonational System of English.* Garland Press, New York. (Ph.D. diss., MIT, 1975.)
Liberman, M. & Alan Prince. 1977. On stress and linguistic rhythm. *Linguistic Inquiry* 8: 249-336.
McCarthy, John. & Alan Prince. 1993. Generalized Alignment. *Yearbook of Morphology* 1993: 79-154
Neeleman, Ad & Tanya Reinhart. 1998. Scrambling and the PF Interface. In Miriam Butt and Wilhelm Geuder, eds., *The Projection of Arguments: Lexical and Compositional Factors*. CSLI, Stanford, pp. 309-353
Neeleman, Ad. & Fred Weerman. 1999. *Flexible Syntax: A Theory of Case and Arguments*. Kluwer, Dordrecht.
Nespor, Marina & Irene Vogel. 1982. Prosodic Domains of External Sandhi Rules. In Harry van der Hulst & Norval Smith, eds., *The Structure of Phonological Representations,* Vol. 1. Foris, Dordrecht, pp. 225-255
Nespor, Marina & Irene Vogel. 1986. *Prosodic Phonology.* Foris, Dordrecht.
Nespor, Marina. 1993. *Fonologia*. Il Mulino, Bologna.
Nespor, Marina. ed. 1996. Phonology between Words and Phrases. *The Linguistic Review*.
Odden, David. 1984. Formal Correlates of Focusing in Kimatuumbi. *Studies in African Linguistics* 15: 275-299.
Philippaki-Warbuton, Irene. 1982. Problimata shetika me tin sira ton oron stis ellinikes protasis. *Glossologia* 1: 99-107.
Philippaki-Warburton, Irene. 1985. Word Order in Modern Greek. *Transactions of the Philological Society,* 113-143.
Prince, Alan & Paul Smolensky. 1993. Optimality Theory: Constraint Interaction in Generative Grammar. Report no. RuCCS-TR-2. Rutgers University Center for Cognitive Science, New Brunswick, NJ.
Reinhart, Tanya. 1995. Interface Strategies. *OTS Working Papers*. OTS, Utrecht University.
Revithiadou, Anthi. 2003. Focusing in Greek. In Georgia Katsimali, Elena Anagnostopoulou, Aleksis Kalokerinos & Ioanna Kappa, eds., *Proceedings of the 6th International Conference in Greek Linguistics*. University of Crete, Rethymnon.
Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In Liliane Haegeman, ed., *Elements of Grammar: Handbook in Generative Syntax*, Kluwer, Dordrecht, pp. 281-337.
Rochemont, Michael. 1986. *Focus in Generative Grammar*. John Benjamins, Amsterdam.
Rochemont, Michael & Peter Culicover. 1990. *English Focus Constructions and the Theory of Grammar*. Cambridge University Press, Cambridge.
Rochemont, Michael. 1998. Phonological Focus and Structural Focus. In P. Culicover and L. McNally, eds., *The Limits of Syntax*. Academic Press, New York, pp. 337-364.

Schauber, E. 1978. Comparison of English Intonation and Navajo Particle Placement. In D. J. Napoli, ed., *Elements of Tone, Stress, and Intonation*. Georgetown University Press, Washington, DC, pp. 144-173.

Schmerling, Susan F. 1976. *Aspects of English Sentence Stress*. Ph.D. diss., University of Texas at Austin.

Schwarzschild, Roger. 1999. GIVENness, AvoidF and Other Constraints on the Placement of Accent. *Natural Language Semantics* 7: 141-177.

Selkirk, Elizabeth. 1978. *On Prosodic Structure and Its Relation to Syntactic Structure*. Indiana University Linguistics Club, Bloomington.

Selkirk, Elizabeth. 1981. On Prosodic Structure and its Relation to Syntactic Structure. In Thorstein Fretheim, ed., *Nordic Prosody II*, TAPIR, Trodheim. pp. 111-140.

Selkirk, Elizabeth. 1984. *Phonology and Syntax*. MIT Press, Cambridge, MA.

Selkirk, Elizabeth. 1986. On Derived Domains in Sentence Phonology. *Phonology Yearbook* 3: 371-405.

Selkirk, Elizabeth & Shen. T. 1990. Prosodic Domain in Shanghai Chinese. In Sharon Inkelas & Draga Zed, eds., *The Phonology-Syntax Connection*. University of Chicago Press, Chicago/London, pp. 145-161.

Selkirk, Elizabeth. 1995. Sentence Prosody, Intonation, Stress and Phrasing. In John A. Goldsmith, ed., *The Handbook of Phonological Theory*. Blackwell, Oxford.

Sifaki, Evangelia. 2003. EPP Satisfiers: Verb-Initial Orders in Greek. Ph.D. diss., University of York.

Steedman, Mark. 2000. Information Structure and the Syntax-Phonology Interface. *Linguistic Inquiry* 31: 649-689.

Szabolcsi, Anna. 1981. The Semantics of Topic-Focus Articulation. In Jeroen Groenendijk, Theo Janssen & Martik Stokhof, eds., *Formal Methods in the Study of Language*. Matematisch Centrum, Amsterdam, pp. 513-541.

Szendrői Kriszta. 2001. *Focus and the Syntax-Phonology Interface*. Ph.D. diss., UCL, London.

Truckenbrodt, Hubert. 1995. *Phonological Phrases: Their Relation to Syntax,Focus and Prominence*. Ph.D. diss., MIT, Cambridge, MA.

Truckenbrodt, Hubert. 1999. On the Relation between Syntactic Phrases and Phonological Phrases. *Linguistic Inquiry* 30: 2 219-255.

Tsimpli, Ianthi-Maria. 1990. The Clause Structure and Word Order of Modern Greek. UCL *Working Papers in Linguistics* 2: 226-255.

Tsimpli, Ianthi-Maria. 1995. Focussing in Modern Greek. In Katalin É. Kiss, ed., *Discourse Configurational Languages*. Oxford University Press, New York, pp. 176-206.

Tsimpli, Ianthi-Maria. 1997. Individual and Functional Readings for Focus, WH-and Negative Operators: Evidence from Greek. In Brian D. Joseph, Geoffrey C. Horrocks and Irene Philippaki-Warburton, eds., *Themes in Greek Linguistics II.* Current Issues in Greek Linguistics 159, Benjamins, pp. 197-227.

Tsiplakou, Stavroula. 1998. *Focus in Greek: Its Structure and Interpretation*. Ph.D. diss., School of Oriental and African Studies. University of London.

Tzanidaki, Dimitra. 1994. *Word-order in Modern Greek*. Ph.D. diss., UCL, London.

Vallduví, Enric. 1992. Informational Packaging: A survey. Research Paper, University of Edinburgh.

Vallduví, Enric & E. Engdahl.1996. The Linguistic Realisation of Information Packaging. *Linguistics* 34: 459-519.

Vallduví, Enric & Vilnuka 1998. On Rheme and Kontrast. In Peter Culicover and Louise McNally, eds., *The Limits of Syntax*. Syntax and Semantics 29. Academic Press. pp. 79-108

Watters, John R. 1979. Focus in Aghem: A Study of its Formal Correlates and Typology. In Larry M. Hyman, ed., *Aghem Grammatical Structure*: *Southern California Occasional Papers in Linguistics* 7. University of Southern California, Los Angeles, pp. 137-97.

Williams, Edwin. 2003. *Representation Theory.* MIT Press, Cambridge, MA.

Zec, Draga & Sharon, Inkelas. 1990. Prosodically constrained syntax. In Sharon Inkelas and Draga Zec, eds., *The Phonology-Syntax Connection*. University of Chicago Press, pp. 365-378.

Zubizarreta, Maria-Luisa. 1994. Grammatical Representation of Topic and Focus; Implications for the Structure of the Clause. *Cuardenos de Linguistica del I. U. Ortega y Gasset* 2: 181-208.

Zubizarreta, Maria-Luisa. 1998. *Prosody, Focus and Word Order*. MIT Press, Cambridge, MA.

How the Left-periphery of a *Wh*-relative Clause Determines Its Syntactic and Semantic Relationships

Anke Holler
Ruprecht-Karls-Universität Heidelberg
holler@cl.uni-heidelberg.de

Abstract

This paper discusses a certain class of German relative clauses which are characterized by a *wh*-expression overtly realized at the left periphery of the clause. While investigating empirical and theoretical issues regarding this class of relatives, it argues that a *wh*-relative clause relates syntactically to a functionally complete sentential projection and semantically to entities of various kinds that are abstracted from the matrix clause. What is shown is that this grammatical behaviour clearly can be attributed to the properties of the elements positioned at the left of a *wh*-relative clause. Finally, a lexically-based analysis couched in the framework of HPSG is given that accounts for the data presented.

1 Introduction

This paper concentrates on German relative clauses introduced by a *wh*-expression and therefore called '*wh*-relatives'. A typical example of a *wh*-relative clause is given in (1):

(1) Anna hat die Schachpartie gewonnen, was Peter ärgerte.
Anna has the game of chess won which Peter annoyed
'Anna won the game of chess, which annoyed Peter.'

The investigation of the *wh*-relative clauses is worthwhile for three reasons. First, *wh*-relatives are syntactically peculiar as they show characteristics of both, root and subordinate clauses. Second, *wh*-relatives matter semantically as they can be related to different semantic entities contained in the matrix clause. This relationship is only restricted by the semantic type of the left-peripheral *wh*-expression. Third, although *wh*-relatives are mentioned in almost every grammar book of German, to date their grammatical properties have not been studied comprehensively, the only exception being Brandt (1990). Brandt, however, focusses on the pragmatic aspects of the *wh*-relative construction and therefore a formalized syntactic and semantic analysis of the *wh*-relatives is still missing.

The paper is organized as follows. In sections 2 and 3, it will be argued that the assumption common in the philological literature that *wh*-relatives are generally sentence-related is incorrect. In section 2, it will be shown that the

antecedent of a *wh*-relative is sentential only with respect to its syntax. Semantically, however, a *wh*-relative potentially can refer to any entity that can be abstracted from the preceding syntactic string. In section 3, it is argued that this relationship is only restricted by the semantic type of a *wh*-anapher introducing the relative clause.

Section 4 will further investigate the syntactic behaviour of *wh*-relative clauses – in particular, how *wh*-relatives are linked to the complex sentence structure. It will be argued that a *wh*-relative is a typical non-integrated clause, which can be attributed to the properties of a phonologically empty relativizer that serves as the head of a *wh*-relative.

In section 5, an HPSG analysis will be developed that gives an adequate formalization of the data presented. Section 6 will conclude the paper.

2 Are *Wh*-Relatives Sentence-related?

In the philological literature (see Helbig 1980, among others) it is stated that *wh*-relatives are generally sentence- or fact-related. It is assumed that the complete matrix clause is the syntactic and semantic antecedent of the left-peripheral *wh*-expression introducing the *wh*-relative clause. However, it can be shown that *wh*-relative clauses should be considered sentence-related only with respect to their syntax, since they can be related semantically to various kinds of abstract entities. The anaphoric *wh*-expression introducing the *wh*-relative clause determines the semantic type of this abstract object.

2.1 Overt Left-peripheral Expressions

Three kinds of expressions which may act as a complement or an adjunct of the relative clause's predicate can be observed on the left of a *wh*-relative. The first is the underspecified pronoun *was* ('*which*'), as illustrated in (2). *Was* represents either a verbal phrase or a nominal phrase. In the latter case *was* is not specified with respect to person, number and gender, but depending on the selection properties of the respective predicate, it is case-marked as nominative or accusative.

(2) a. Max kann Orgel spielen, was$_{VP}$ Anna auch kann.
Max can organ play which Anna too can
'Max can play the organ, which Anna can, too.'

b. Max spielt Orgel, was$_{NP[NOM]}$ gut klingt.
Max plays organ which good sounds
'Max is playing the organ, which sounds good.'

c. Max spielt Orgel, was$_{NP[ACC]}$ Anna überrascht.
Max plays organ which Anna surprises
'Max is playing the organ, which surprises Anna.'

The second kind of expression is *wh*-adverbs such as *weswegen* ('*why*') and *wofür* ('*for which*'), as illustrated in (3). These adverbs preserve their modal, temporal or causal meaning if they occur in a *wh*-relative.

(3) a. Otto hat sich sein Bein gebrochen, weswegen er jetzt im
Otto has REFL *his leg broken that's why he now in*
Krankenhaus ist.
hospital is
'Otto broke his leg, and that's why he is in hospital now.'

b. Otto schenkt Emma Schokolade, wofür sie ihm dankt.
Otto gives Emma chocolate for which she him thanks
'Otto gives Emma chocolate for which she thanks him.'

The third kind of expression is complex expressions including a *wh*-element and an abstract noun as exemplified in (4). In this case, the meaning of the abstract noun has to be compatible with the meaning of the matrix clause's predicate.

(4) Max bat Maria, einen Brief einzuwerfen, welcher Bitte sie
Max asked Maria a letter to mail which request she
nachkam.
granted
'Max asked Maria to mail a letter, and she granted this request.'

2.2 Variants of the *Wh*-relative Construction

It is generally agreed that *wh*-relatives can be considered relative clauses: they are attached to a preceding clause and they are introduced by a *wh*-relative constituent that is grammatically dependent on the predicate of the *wh*-relative and linked to an element in the matrix clause. Depending on the syntactic status of the *wh*-expression three *wh*-relative construction variants can be distinguished, which are referred to 'variant A', 'variant B' and 'variant C'. In the construction variants A and B, the left-peripheral *wh*-expression is selected by the relative clause's predicate. In the construction variant C, the *wh*-expression modifies the respective predicate.

The sentence given in (1) is an example for the variant A construction. Predicates that occur in a *wh*-relative of this variant are subcategorized for a finite sentential or an infinitival complement of the '2. Status' (Bech 1957) that can alternatively be realized as a nominal or prepositional phrase. For this reason a verb like *sich weigern* 'to refuse to do something' cannot occur in a *wh*-relative,

as can be seen in (5). Although *sich weigern* allows an infinitival complement, as shown in (5b), it cannot take a nominal complement, as shown in (5c).

(5) a. * Peter soll seinen Freund verraten, was er sich weigerte.
Peter was to his friend betray which he REFL *refused*
'Peter was to betray his friend, but he refused it.'

b. Peter weigerte sich, seinen Freund zu verraten.
Peter refused REFL *his friend to betray*
'Peter refused to betray his friend.'

c. * Peter weigerte sich den Verrat seines Freundes.
Peter refused REFL *the betrayal his friend*

Examples of the variant B construction are given in (6). This construction variant is similar to VP-ellipsis, as *was* 'which' realizes a VP complement. The class of verbs occurring in these constructions is restricted to auxiliary verbs such as *haben* 'to have', *sein* 'to be' and *werden* 'will' and to auxiliary modal verbs with root interpretations. Hence, example (7) containing an epistemic modal is ungrammatical.

(6) a. In München hat es geschneit, was es in Stuttgart auch
In Munich has EXPL *snowed which* EXPL *in Stuttgart as well*
hat.
has
'It snowed in Munich and in Stuttgart as well.'

b. Otto muss nach Frankreich fahren, was Max jetzt auch soll.
Otto must to France go which Max now too should
'Otto must go to France, which Max should do now, too.'

(7) * Peter muss krank gewesen sein, was Otto auch muss.
Peter must sick been has which Otto too must.

As mentioned before, variant C construction covers all clauses introduced by a *wh*-phrase modifying the *wh*-relative's predicate. This is exemplified in (8):

(8) Otto ist krank, weshalb er zu Hause bleiben muss.
Otto is sick that's why he at home stay must
'Otto is sick, and that's why he has to stay at home.'

The construction variants also differ semantically, since the antecedent of a *wh*-relative depends on the semantic properties of the respective *wh*-expression. This issue will be discussed in the following sections.

2.3 The Antecedent of a *Wh*-relative

In the literature on *wh*-relatives one mostly finds the statement that a *wh*-relative is sentence-related. Based on the assumption that the matrix clause of the *wh*-relative construction can be transformed into a component of the relative clause,[1] it is claimed that a *wh*-relative and its matrix clause establish an inverse dependency relation. Assuming this inverse relationship, the *wh*-expression is taken as a place holder or a variable representing the whole matrix clause, as is done, for instance, by Helbig (1980) and Steube (1991).

Contrary to this assumption, Brandt (1990) argues that examples like (9) show that *wh*-relatives can be related to sub-sentential syntactic units, too.

(9) Er kann schon schwimmen, was sie noch nicht kann.
He is able to already swim which she yet not is able to
'He is able to swim, which she isn't, yet.'

However, the phenomenon she describes cannot be attributed solely to syntax. As suggested by example (10), the data should instead be explained in semantic terms.

(10) a. Die Geologen erforschen einen neuen Vulkan, was sehr
the geologists explore a new volcano which very
interessant ist.
interesting is
'The geologists explore a new volcano, which is very interesting.'

b. Dass sie einen neuen Vulkan erforschen, ist sehr interessant.
'That the geologists explore a new volcano is very interesting.'

c. Einen neuen Vulkan zu erforschen ist sehr interessant.
'To explore a new volcano is very interesting.'

d. Das Erforschen eines neuen Vulkans ist sehr interessant.
'The exploring of a new volcano is very interesting.'

Depending on the interpretation of the *wh*-anaphor, (10a) has three readings, (10b) - (10d). *Was* ('*which*') can be resolved (i) by the proposition denoted by the matrix clause, as in reading (10b); or (ii) by an event-type such as the process of exploring, as in reading (10c); or (iii) by the exploration-event, as in reading (10d). Because the string of the matrix clause standing alone is not ambiguous at all, examples like (10) prove that the crucial grammatical relation between a *wh*-relative and its matrix clause is a semantic one. This view is also supported by the data given in (11).

(11) a. Maria will sich ihre Haare kämmen, was Hans auch will.
Maria wants REFL *her hair comb which Hans too wants*
'Maria wants to comb her hair, which Hans wants to do, too.'

[1] In the German grammar tradition, the term *Satzglied* is used here.

b. Hans$_i$ will sich$_i$ seine Haare kämmen.
'Hans wants to comb his hair.'

(11a) has a reading where the reflexive pronoun *sich* 'herself' / 'himself' gets a sloppy interpretation, as expressed by (11b). This reading could not be explained by a syntactic operation that just transforms parts of the matrix clause into a component part of the *wh*-relative.

The semantic nature of the reference relation is further substantiated by (12). The indefinite NP in the matrix clause is interpreted generically, whereas it gets a specific interpretation within the *wh*-relative. Thus, the semantic information of the matrix clause is accessible from the *wh*-relative clause.

(12) Maria wollte keinen Linguisten heiraten, was sie dann aber doch
Maria wanted no linguist marry which she then PART PART
getan hat.
done has
'Maria didn't want to marry a linguist, which she did in the end.'

Consequently, one must strictly distinguish between the syntactic and the semantic relations established within the *wh*-relative construction: whereas the semantic relation is triggered by the left-peripheral *wh*-anaphor, the syntactic relation affects the way the *wh*-relative is attached to its preceding clause. As will be shown later, this is controlled by a phonologically empty relativizer heading the *wh*-relative clause. Beforehand the semantic relationship between the *wh*-anapher and its antecedent will be further investigated.

3 Semantic Aspects

It is generally claimed that a *wh*-relative must refer to a fact. This claim is incorrect. A reference to facts is indeed possible, as (13) shows:

(13) Grass sagte die Lesung ab, was bedauerlich ist.
Grass cancelled the reading PART *which regrettable is*
'Grass cancelled the reading, which is regrettable.'

However, the example in (10) and the ones in (14) below indicate that a *wh*-relative refers to non-propositional entities as well, since the left-peripheral *wh*-anaphor can be related to entities of various semantic types.

(14) a. Nachbars Hund bellte, was sogar Anna hörte, obwohl sie zwei
neighbor's dog barked which even Anna heard although she two
Straßen weiter wohnt.
blocks away lives
'The neighbor's dog barked, which even Anna heard although she lives two blocks away.'

b. Max rasierte sich, was eine halbe Stunde dauerte.
Max shaved REFL *which an half hour took*
'Max shaved, which took him half an hour.'

c. Anna gewinnt immer die Schachpartie, was Peter ärgert.
Anna wins always the game of chess which Peter annoys
'Anna always wins the game of chess, which annoys Peter.'

d. Karl hat den K2 bestiegen, was Otto auch gelungen ist.
Karl has the K2 climbed which Otto as well achieved is
'Karl climbed the K2, which Otto achieved as well.'

In (14a), the predicate of the *wh*-relative consists of a recognition verb, namely *hören* 'to hear', and the *wh*-anaphor *was* 'which' refers to the event of a dog barking. Similarly, the *wh*-anaphor in (14b) restricted by the verb *dauern* 'to last' refers to an event. (14c) and (14d) show once more that event-types are possible antecedents of a *wh*-relative. (14c) means that Peter is annoyed *every time* Anna wins the game of chess. The verb *gelingen* 'to achieve' in (14d) generally selects an event-type if the respective argument is verbal. If *was* 'which' of example (14d) referred to a fact or an event, Otto would have given Karl a piggyback, which is certainly not the meaning of (14d).

Even if one restricted the antecedents of the *wh*-relative to propositional ones, *wh*-relatives are not only fact-related. In (15), for instance, the *wh*-relative is related to an attitude.

(15) Fred glaubte, dass Grass die Lesung abgesagt hatte, was Anna nicht
Fred believed that Grass the reading cancelled had which Anna not
gedacht hätte.
expect had
'Fred believed that Grass cancelled the reading, which Anna didn't expect.'

Finally, the examples in (16) show that so-called projective propositions, such as interrogative clauses or infinitival complements of modal verbs, can be appropriate antecedents of the *wh*-anaphor introducing a *wh*-relative clause.

(16) a. Maria will wissen, welche Prüfungen sie ablegen muss, was
Maria wonders which exams she take must which
sich Max ebenso fragte.
REFL *Max as well wonders.*
'Maria wonders which exams she has to take, which Max wonders, too.'

b. Karl wollte eine Maus halten, was seine Mutter ihm aber nicht
Karl wanted a mouse keep which his mother him PART *not*
erlaubte.
allowed
'Karl wanted to keep a mouse, which his mother didn't allow.'

Thus, we have to conclude that a fact is one possible antecedent of the *wh*-anaphor, but not the only possible antecedent.

However, there is a semantic restriction that limits the class of admissible predicates and restricts the potential antecedents of the *wh*-anaphor. More precisely, the restriction given in (17) controls the *wh*-relative construction:

(17) In a *wh*-relative construction, the semantic type of the *wh*-anaphor must correspond to the semantic type of at least one entity that can be abstracted from the matrix clause.

Restriction (17) accounts for the fact that (18a) but not (18b) is ungrammatical. In both cases, the *wh*-anaphor is an argument of the verb *glauben* 'to believe' and therefore denotes a belief. An attitude, however, can be abstracted from the matrix clause only in (18b), but not in (18a).

(18) a. * Fred heiratet Anna, was Max glaubt.
Fred married Anna which Max believes.

b. Karl glaubt, dass Fred Anna heiratet, was Max auch
Karl believes that Fred marries Anna which Max as well
glaubt.
believes
'Karl believes that Fred marries Anna, which Max believes, too.'

Adapting the DRT-based theory of Asher (1993), we can account for these facts by analyzing the semantic relation between the *wh*-relative and its matrix clause as an anaphoric relation established between the *wh*-anaphor and an entity abstracted from the matrix clause. Thereby it is assumed that the *wh*-anaphor introduces into the representation a discourse referent that needs to be characterized or resolved. The semantic type of this discourse referent is restricted by the predicate of the *wh*-relative in case the *wh*-anaphor is an argument of the relative clause's predicate. Otherwise it is propositional.

The discourse representations (K1) to (K3) illustrate the analysis for the ambiguous *wh*-construction (10), here repeated as (19).

(19) Die Geologen erforschen einen neuen Vulkan, was sehr interessant
the geologists explore a new volcano which very interesting
ist.
is
'The geologists explore a new volcano, which is very interesting.'

(K1) represents the propositional reading where *was* 'which' introduces an abstract discourse referent of type proposition which is characterized by the proposition denoted by the matrix clause.

(K1)

X, y, e, e_1, p
Geologen(X) Vulkan(y) e-erforschen(X, y) e_1-interessant_sein(p) p ≈ [X′, y′, e′ | Geologen(X′) Vulkan(y′) e′-erforschen(X′, y′)]

(K2) represents the event-type reading of (19), whereby a concept referent is characterized by an event-type abstracted from the matrix clause.

(K2)

X, y, e, e_1, c
Geologen(X) Vulkan(y) e-erforschen(X, y) e_1-interessant_sein(c) c ≈ λX′ λe′ [y′, e′ | Vulkan(y′) e′-erforschen(X′, y′)]

The event reading is represented by (K3). The *wh*-expression introduces a discourse referent of type event, which is resolved by an appropriate event from the matrix clause.

(K3)

X, y, e, e_1, e_2
Geologen(X) Vulkan(y) e-erforschen(X, y) e_1-interessant_sein(e_2) e_2 = λX′ [y′, e′ | Vulkan(y′) e′-erforschen(X′, y′)]

Regarding the semantic relation between the *wh*-relative clause and the matrix clause, we can conclude that a *wh*-relative construction is grammatical if at least one suitable antecedent for the discourse referent introduced by the left-peripheral *wh*-anaphor can be found in the matrix clause. If the matrix clause contains several entities that can act as an antecedent of the *wh*-anaphor, a *wh*-construction is ambiguous.

Next, we will discuss how *wh*-relatives are syntactically related to their matrix clause.

4 Complex Sentence Structure

With regard to the syntactic relation, it becomes apparent that a *wh*-relative is not licensed by the predicate of the matrix clause.[2] The *wh*-relative neither saturates one of the argument positions of the matrix predicate nor modifies the matrix predicate. Nevertheless, it is obvious that *wh*-relatives are dependent clauses.

Reis (1997) argues that there are certain clauses in German that are linked to the complex sentence structure without being part of the verbal projection of the matrix clause. Reis calls these clauses 'non-integrated', and she lists four main properties of this clausal class.

Firstly, a non-integrated clause is syntactically dispensable. Secondly, non-integrated clauses are prosodically and pragmatically independent of the matrix clause, which is indicated by an independent focus domain. Thirdly, variable binding is not allowed from the matrix clause into the non-integrated clause; and fourthly, a non-integrated clause always occurs at the end of a complex sentence.

By applying these criteria to the *wh*-relatives it can be shown that *wh*-relatives are in fact typical non-integrated clauses.

4.1 Root Clause Properties

According to the first criterion, *wh*-relatives are syntactically unnecessary, since they behave like root clauses. This is supported by examples (20) - (22), which illustrate phenomena symptomatic of root clauses. (i) A *wh*-relative clause can easily be transformed into a main clause, as shown in (20). (ii) It can contain epistemic expressions, performative indicators, modal particles and so on, as shown in (21). (iii) It is not possible to form a yes/no-question integrating the whole *wh*-relative construction, as shown in (22).

[2]This can be shown by applying the traditional constituent tests, which clearly reveal that a *wh*-relative is neither attached to a verb nor a verbal phrase of the matrix clause, cf. Holler (2001).

(20) Anna hat die Schachpartie gewonnen. Das ärgerte Peter.
'Anna won the game of chess. This annoyed Peter'.

(21) a. Anna hat die Schachpartie gewonnen, was Peter sicher
Anna has the game of chess won which Peter certainly
ärgerte.
annoyed
'Anna won the game of chess, which must have annoyed Peter.'

b. Die Firma handelt mit Waffen, weshalb ich hiermit
the company deals with weapons that's why I hereby
kündige.
hand in my notice
'The company deals with weapons, and that's why I hereby hand in my notice.'

c. Max hat den Preis bekommen, was wohl jeden überraschte.
Max has the prize won which well everyone surprised
'Max won the prize, which was probably surprising for everyone.'

(22) * Hat Anna die Schachpartie gewonnen, was Peter ärgerte?
has Anna the game of chess won which Peter annoyed

Thus, regarding the first criterion, *wh*-relatives clearly behave like non-integrated clauses.

4.2 Independent Focus Domain

The second criterion for non-integrated clauses is that they are prosodically and pragmatically independent from the matrix clause and, thus, establish an independent focus domain.

The standard test for focus assumes that the focus structure of a given declarative utterance can be identified by reconstructing a question that would license the utterance as a coherent answer. The focus corresponds to the interrogative constituent in that question. Based on these test conditions, (23) suggests that the focus does not project out of the *wh*-relative, since (23a) is not a coherent answer to the question '*What happened?*'.[3]

[3]In the example, focus is marked by a syntactic focus feature that projects from the pitch-accented focus exponent written in capital letters.

(23) *Was ist passiert?*

a. # [Anna gewann die Schachpartie, was Peter von seiner
Anna won the game of chess which Peter from his
SCHWEster erwartet hat.]$_F$
sister expected has
'Anna won the game of chess, which Peter expected from his sister.'

The independent focus domain of a *wh*-relative is also supported by (24), which demonstrates that the focus sensitive particle *nur* 'only' occurring in the matrix clause does not scope over the *wh*-relative:

(24) ? Anna gewann nur die Schachpartie, was Peter von seiner
Anna won only the game of chess which Peter from his
Schwester erwartet hat.
sister expected has
'Anna only won the game of chess, which Peter expected from his sister.'

The observation that a *wh*-relative establishes an independent focus domain within the *wh*-relative construction provides additional evidence for the non-integratedness of a *wh*-relative clause.

4.3 No Quantification into a *Wh*-relative

The third of Reis's criteria applies to *wh*-relatives as well. A quantifier occurring in the matrix clause cannot bind a variable within the *wh*-relative. This is confirmed by (25).

(25) a. * Niemand$_i$ gewann das Schachspiel, was ihn$_i$ maßlos
nobody$_i$ won the game of chess which him$_i$ extremely
ärgerte.
annoyed

b. * Jeder$_i$ hat sich das Bein gebrochen, weswegen er$_i$ jetzt im
everyone$_i$ has REFL *the leg broken that's why he$_i$ now in*
Krankenhaus ist.
hospital is

4.4 Clause-final Position

Last but not least, the fourth criterion for non-integrated clauses is also met by *wh*-relatives. (26) and (27) illustrate the observation that a *wh*-relative always comes last because it has to follow an extraposed complement clause (26) or relative clause (27).

(26) a. Es fiel Maria nicht auf, dass sie sich verrechnet hatte,
EXPL *realized Maria not* PART *that she* REFL *mistaken had*
weswegen sie sich jetzt ärgert.
that's why she REFL *now annoyed*
'Maria didn't realize that she made a mistake, and that's why she is annoyed now.'

b. * Es fiel Maria nicht auf, weswegen sie sich jetzt
EXPL *realized Maria not* PART *that's why she* REFL *now*
ärgerte, dass sie sich verrechnet hatte.
annoyed that she REFL *mistaken had*

(27) a. Anna hat einen Ring verloren, der sehr wertvoll war, weshalb
Anna has a ring lost that very valuable was that's why
sie sich jetzt maßlos ärgerte.
she REFL *now extremely annoyed*
'Anna lost a ring that was very valuable, and that's why she was annoyed now.'

b. * Anna hat einen Ring verloren, weshalb sie sich jetzt
Anna has a ring lost that's why she REFL *now*
maßlos ärgerte, der sehr wertvoll war.
extremely annnoyed that very valuable was

Taking these four criteria into account, we can conclude that *wh*-relatives can be classified as non-integrated clauses. As has been shown, they establish an independent focus domain; they are inaccessible for variable binding from outside; they are syntactically dispensable, as they can be transformed into a main clause; and they are placed at the end of a complex sentence.

We can account for these facts by analysing a *wh*-relative as a projection of a specific phonologically empty relativizer heading a non-integrated relative clause. The lexical specification of this relativizer leads to an analysis in which a *wh*-relative attaches to the sentential projection introduced by the respective matrix clause.

The last part of the paper concentrates on this analysis, which is couched in the framework of HPSG.

5 HPSG Analysis

The standard phrase-structural analysis of restrictive relative clauses in HPSG, going back to Pollard and Sag (1994), is based on the assumption that a relative clause is a projection of a phonologically empty relativizer. The lexical entry of this relativizer is given in (28). The relativizer is subcategorized for two

complements: a phrase containing a relative constituent expressed by a non-empty REL value and a finite verbal projection which is slashed by this relative phrase. The SLASH dependency is bound off by the relativizer. The relative clause is attached to a preceding noun by an application of the HEAD-ADJUNCT schema triggered by the attribute MOD. Since the indices of the noun and the relative phrase are identified and their RESTRICTION values are unified, the relative clause is interpreted as a property.

(28)
$$\left[\begin{array}{l}\text{LOC}\left[\begin{array}{l}\text{CAT}\left[\begin{array}{l}\text{HEAD}\left[\begin{array}{l}\textit{rltvzr}\\ \text{MOD}\ \ \text{N'}\left[\text{TO-BD}\,|\,\text{REL}\,\{\boxed{1}\}\right]\!:\left[\begin{array}{l}\text{INDEX}\ \boxed{1}\\ \text{RESTR}\ \boxed{3}\end{array}\right]\end{array}\right]\\ \text{SUBC}\ \langle\left[\text{LOC}\ \boxed{4},\ \text{INHER}\,|\,\text{REL}\,\{\boxed{1}\}\right],\\ \qquad\text{S}\left[\textit{fin, unmarked},\ \text{INHER}\,|\,\text{SLASH}\,\{\boxed{4}\}\right]\!:\ \boxed{5}\rangle\end{array}\right]\\ \text{CONT}\left[\begin{array}{l}\text{INDEX}\ \boxed{1}\\ \text{RESTR}\,\{\boxed{5}\}\cup\boxed{3}\end{array}\right]\end{array}\right]\\ \text{NLOC}\,|\,\text{TO-BD}\,|\,\text{SLASH}\,\{\boxed{4}\}\end{array}\right]$$

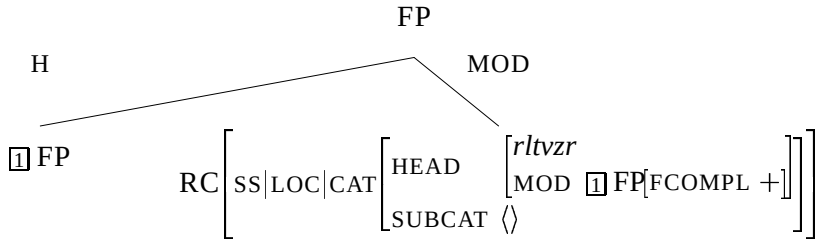
An analysis of the *wh*-relative construction has to account for at least two major properties of a *wh*-relative: (i) that it is a non-integrated clause; and (ii) that its syntactic antecedent may differ from its semantic one. Whereas the syntactic relation is always unique, as there is only one way a *wh*-relative is attached to its matrix clause, the semantic relation depends on the potential antecedents resolving the left-peripheral *wh*-anaphor.

To cope with these properties, a new relativizer is defined that serves as head of a non-integrated *wh*-relative clause.[4] Similar to the restrictive relativizer, the newly defined relativizer takes two complements: a relative phrase and a finite verbal projection slashed by this phrase. It also bears a non-empty MOD-attribute. In contrast to the restrictive relativizer, however, the value of the MOD attribute is specified as FP, as indicated by the schematic analysis in (29). The *wh*-relative thus syntactically combines with a functionally complete and fully saturated sentential projection (i.e. FP) and not – as in the restrictive case – with a nominal phrase.[5]

(29) To cover the semantic relation between the *wh*-relative and its antecedent, I depart from the semantics used in standard HPSG. In line with Frank and Reyle (1995), the structure of the CONTENT attribute and the Semantics Principle are changed, thereby integrating aspects of the framework of DRT into the

[4]The proposed analysis could easily be restated in a construction-based setting, as in Sag (1997). We adhere to the phrase-structural account since i.a. it is not clear how the proliferation of types is prevented within a construction-based analysis. See Holler-Feldhaus (2001) for further arguments.

[5]Leaving the details of German sentence structure aside, we assume binary branching and the concept of functional completeness following Netter (1996). Functional completeness is expressed by a binary feature FCOMPL, which is specified as 'plus' if a sentential head (e.g. a complementizer) has been realized and as 'minus' otherwise.

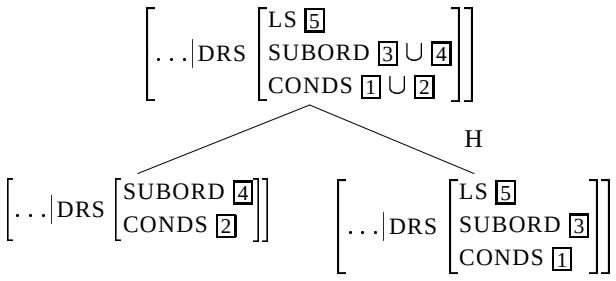


semantic component of HPSG. As one can see in (30), the CONTENT attribute is replaced by a complex feature structure, called DRS, which consists of three attributes, LS, SUBORD and CONDS. CONDS is a set of labelled DRS conditions, SUBORD contains information about the hierarchical structure of a DRS and LS defines distinguished labels within this hierarchy. Additionally, it is assumed that the DRS conditions instantiating the CONDS value are represented by a set of objects of type *p*(*artial_*)*drs*.

(30)
$$\begin{bmatrix} \textit{drs} & \\ \text{LS} & \begin{bmatrix} \text{L-MAX} & \mathbf{l}_{max} \\ \text{L-MIN} & \mathbf{l}_{min} \end{bmatrix} \\ \text{SUBORD} & \{\mathbf{L} \leq \mathbf{L'}\} \\ \text{CONDS} & \textit{set-of-pdrs} \end{bmatrix}$$

The Semantics Principle adapted from Frank and Reyle (1995) is depicted in (31). It controls the inheritance of the partial DRSs defined in the CONDS attributes of the daughters to the CONDS value of the phrase. The semantic conditions are always inherited from both daughters and therefore project to the uppermost sentential level.

(31)



Moreover, an attribute DREF appropriate for objects of type *pdrs* that introduce a discourse referent is defined. The value of DREF is lexically instantiated. For instance, a verb introduces an event variable and a definite determiner an individual variable.

Given this theoretical framework, the semantic analysis sketched earlier can be implemented in HPSG. The *wh*-anaphor introduces a discourse referent by instantiating its DREF-attribute, and this discourse referent has to be related to

an appropriate semantic object abstracted from the DRS of the matrix clause. This is ensured by a two-place function called *abstr*(*act*)*-obj*(*ect*), which takes the discourse referent of the *wh*-anaphor and the partial DRS of the matrix clause, and yields an abstract object appropriate to resolve the *wh*-anaphor.

This analysis is made possible by the SYNSEM value of the relativizer given in (32). In (32), the value of REL contains the *d*(*iscourse_*)*ref*(*erent*) of the *wh*-anaphor marked by tag [1]. Tag [2] represents the DRS conditions of the matrix clause whereas *abstr-obj*([1],[2]) represents the abstracted object which is the antecedent of the *wh*-anaphor's discourse referent.

(32)
$$\left[\begin{array}{l}\text{L}\left[\begin{array}{l}\text{C}\left[\begin{array}{l}\text{HD}\left[\begin{array}{l}\text{MOD FP}\left[\begin{array}{l}\text{LOC}\left[\begin{array}{l}\text{CAT}\left[\text{FCOMPL}\ +,\ \text{SUBC}\ \langle\rangle\right]\\ \text{DRS}\,|\,\text{CONDS}\ \{\boxed{2},\ \textit{abstr-obj}(\boxed{1},\boxed{2}),\ldots\}\end{array}\right]\\ \text{NLOC}\,|\,\text{TO-BD}\,|\,\text{REL}\ \{\boxed{1}\}\end{array}\right]\\ \text{FCOMPL}\ +\end{array}\right]\\ \text{SC}\ \langle\left[\text{LOC}\ \boxed{3}\left[\text{DRS}\,|\,\text{CONDS}\{\boxed{1},\ldots\}\right],\ \text{INH}\,|\,\text{REL}\ \{\boxed{1}\}\right],\\ \text{VP}\left[\textit{fin},\ \text{FCOMPL}\ -,\ \text{SUBC}\ \langle\rangle,\ \text{INHER}\,|\,\text{SLASH}\ \{\boxed{3}\}\right]\rangle\end{array}\right]\right]\\ \text{NLOC}\,|\,\text{TO-BD}\,|\,\text{SLASH}\ \{\boxed{3}\}\end{array}\right]$$

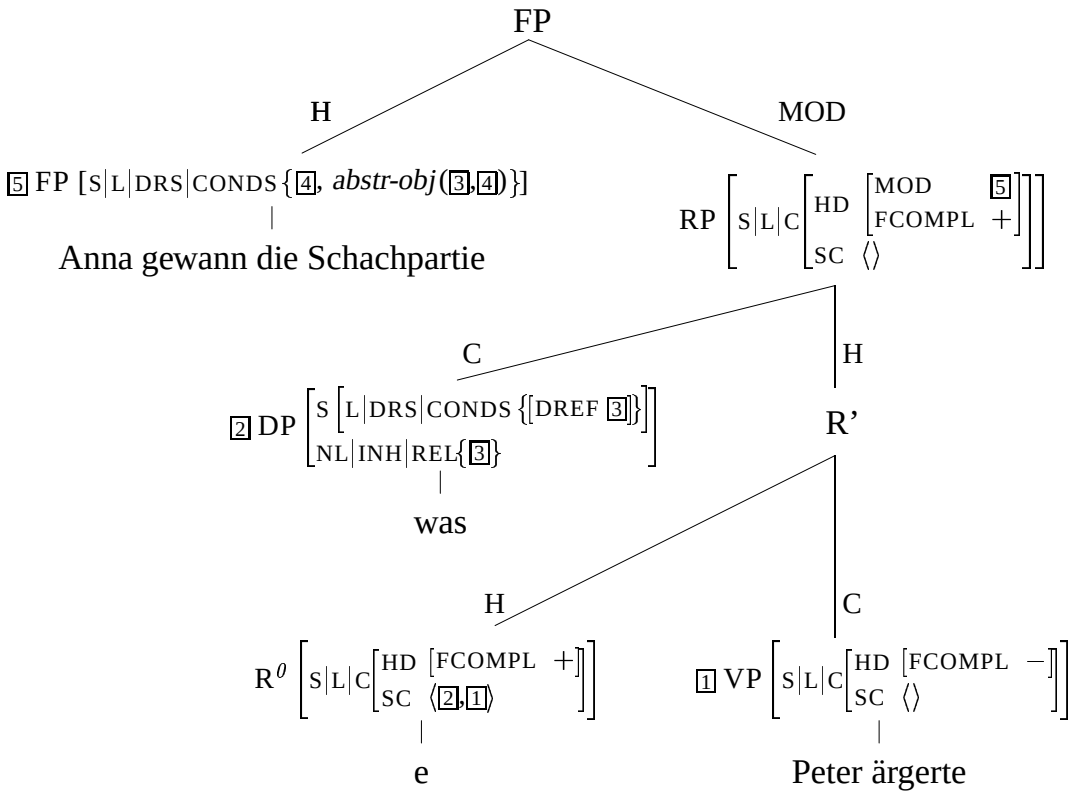
The simplified partial structure for the sentence *Anna gewann die Schachpartie, was Peter ärgerte* 'Anna won the game of chess, which annoyed Peter.' given in figure (33) illustrates the proposed analysis.

(33)

In this example, the *wh*-relative clause (= RP) is a projection of a functionally complete empty relativizer subcategorized for a fully saturated but functionally incomplete VP (= [1]) and a relative phrase (= [2]). This relative clause is syntactically attached to a matrix clause that is functionally complete (= [5]FP) by applying the HEAD-ADJUNCT Schema. The semantic relation between the matrix clause and the *wh*-relative is established by the anaphor *was*. According to the selection properties of the predicate *ärgern* 'to annoy', *was* 'which' introduces a propositional discourse referent (= [3]) into the representation. This referent is resolved by an object (= *abstr-obj*([3],[4])) that is abstracted from the proposition introduced by the matrix clause (= [4]).

6 Conclusion

By investigating the empirical properties of *wh*-relative clauses it was shown that they establish a class of German relative clauses of their own. Syntactically, they behave like typical non-integrated clauses and they are related to a functionally complete sentential projection. Semantically, however, *wh*-relatives can refer to entities of various semantic types, such as events, event-types or (projective) propositions. This grammatical behavior clearly can be attributed to the properties of the left periphery of a *wh*-relative clause. To account for the



facts presented an HPSG analysis was developed that copes with *wh*-relative clauses. This analysis is based on the lexical properties of two left-peripheral elements: a *wh*-anaphor and a phonologically empty relativizer.

References

Asher, Nicholas. 1993. *Reference to Abstract Objects in Discourse*. Studies in Linguistics and Philosophy 50, Kluwer, Dordrecht.

Bech, Gunnar. 1957. *Studien über das deutsche Verbum Infi nitum*. Munksgaard, Kopenhagen, unver¨and. Auflage 1983, Niemeyer, T¨ubingen.

Brandt, Margareta. 1990. *Weiterführende Nebensätze*. Almquist & Wiksell International, Stockholm.

Frank, Annette and Uwe Reyle. 1995. Principle Based Semantics for HPSG. In *Proceedings of the 7th Conference of the EACL, March 27-31, Dublin*, pp. 9–16.

Helbig, Gerhard. 1980. Was sind weiterf¨uhrende Nebens¨atze? *Deutsch als Fremdsprache*, 17: 13–23.

Holler, Anke. 2001. Empirische und theoretische Aspekte der Grammatik der weiterf¨uhrenden Relativs¨atze. Ph.D. diss., University of T¨ubingen.

Holler-Feldhaus, Anke. 2001. An HPSG Analysis of German Wh-Interrogatives. In Tibor Kiss and Detmar Meurers, eds., *Constraint-Based Approaches to Germanic Syntax*, CSLI, Stanford, pp. 67–100.

Netter, Klaus. 1996. Functional Categories in an HPSG for German. Ph.D. diss., Universit¨at

des Saarlandes, Saarbr¨ucken, Published 1998 in Saarbr¨ucken Dissertations in Computational Linguistics and Language Technology, Vol. 3.

Pollard, Carl and Ivan A. Sag. 1994. *Head-Driven Phrase Structure Grammar*. CSLI and University of Chicago Press, Chicago.

Reis, Marga. 1997. Zum syntaktischen Status unselbst¨andiger Verbzweit-S¨atze. In Christa D¨urscheid, Karl Heinz Ramers, and Monika Schwarz, eds., *Syntax im Fokus: Festschrift für Heinz Vater.*, Niemeyer, T¨ubingen.

Sag, Ivan A. 1997. English Relative Clause Constructions. *Journal of Linguistics*, 33: 431–484.

Steube, Anita. 1991. w-W¨orter als Konnektoren in den sog. weiterf¨uhrenden Nebens¨atzen der deutschen Gegenwartssprache. In Marga Reis and Inger Rosengren, eds., *Fragesätze und Fragen*, Niemeyer, T¨ubingen, pp. 95–111.

Topic and Focus at the Peripheries: The Dynamics of Tree Growth

Ruth Kempson, Jieun Kiaer, Ronnie Cann
King's College London and Edinburgh
kempson/kiaer@dcs.kcl.ac.uk, ronnie@ling.ed.ac.uk

Abstract

In this paper topic and focus effects at both left and right periphery are argued to be epiphenomena of general properties of tree growth. We incorporate Korean into this account as a prototypical verb-final language, and show how long- and short-distance scrambling form part of this general picture. Multiple long-distance scrambling effects emerge as a consequence of the feeding relationship between different forms of structural underspecification. We also show how the array of effects at the right periphery, in both verb-final and other language-types, can also be explained with the same concepts of tree growth. In particular the Right Roof Constraint, a well-known but little understood constraint, is an immediate consequence of compositionality constraints as articulated in this system.

1 Preliminaries

In this paper, we take the structural concepts of Dynamic Syntax, together with the dynamics of tree growth which it articulates, sketch out how they can be used to characterise left and right periphery effects (see Cann et al 2004), and show how the explanations naturally extend to Korean, as a typical verb-final language. In doing so, we show how focus and topic effects can be explained on an appropriately general cross-linguistic basis as due to general properties of tree growth.[1]

What the Dynamic Syntax model seeks to reflect is the step-wise way in which interpretation is built up during a parse sequence. It does so by defining a mapping from words, as parsing actions, onto progressively enriched representations of content, until a fixed (in part, contextually established) interpretation is constructed. What is distinctive about this framework is its articulation of underspecification and processes of update as intrinsic to the structural explanation of language. The growth process is taken as the basis of syntactic explanation, replacing all concepts of movement: a sentence is defined to be well-formed just in case there is at least one possible route through that process.

[1]This paper is an extension of ideas on topic and focus set out in Kempson et al 2004a, which was in its turn an extension of earlier work by Kempson and Cann in collaboration with Masayuki Otsuka and others. We are grateful to him for his contribution to that work, and to all those over recent years who have helped in the exploration of syntax through the dynamics of incremental processing. Particular thanks to Wilfried Meyer-Viol, without whom the formal framework could not have emerged in this form. Work for this paper was supported by the Leverhulme Trust's professorship to the first author.

Interpretation in this framework is articulated as a semantically transparent tree structure, in which a logical formula decorates the top node, and the various sub-terms of that formula decorate the nodes it dominates. Individual nodes are decorated either with *Formula* (Fo) and *Type* (Ty) values, or with *requirements* for such values. For example, decorations on nodes such as $?Ty(t)$, $?Ty(e)$, $?Ty(e \rightarrow t)$ etc. express requirements to construct formulae of the appropriate type on the nodes so decorated, and these drive the subsequent tree-construction process.[2] The process of satisfying such requirements forms the dynamic basis of the framework, while the formal system underpinning the partial trees that are constructed is a logic of finite trees (Blackburn and Meyer-Viol 1994). There are two basic modalities, $\langle\downarrow\rangle$ and $\langle\uparrow\rangle$, such that $\langle\downarrow\rangle\alpha$ holds at a node if α holds at its daughter, and its inverse, $\langle\uparrow\rangle\alpha$, holds at a node if α holds at its mother. Function and argument relations are distinguished by defining two types of daughter relation, $\langle\downarrow_0\rangle$ for argument daughters, $\langle\downarrow_1\rangle$ for functor daughters.

The process of both setting out and building up such an interpretation is defined as a serial process of tree growth following the order of words in a string. Individual steps take the parser from a single root-node of a tree, decorated with $?Ty(t)$, indicative of the requirement (the assigned goal) of establishing a formula of type *t*, finally deriving a binary branching tree with all nodes decorated with formula values (Figure 1). There is always one node identified as under development, indicated by the pointer, $\Diamond$):

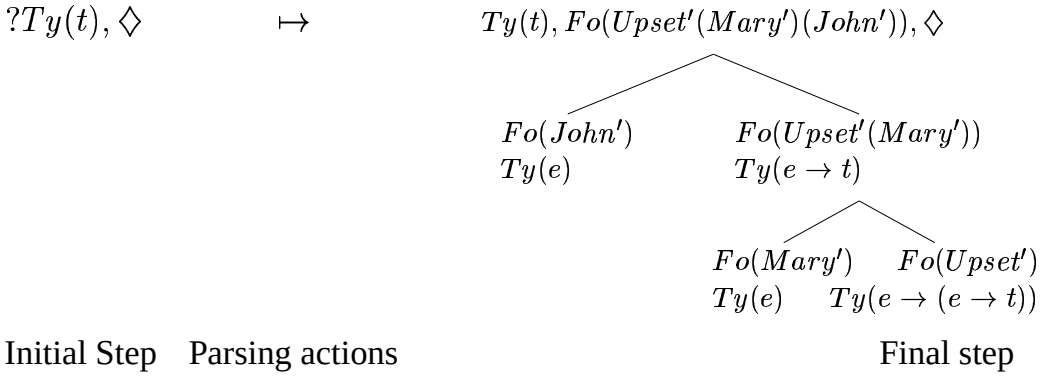


Figure 1: Parsing *John upset Mary*

These steps are determined either by general computational actions, such as anticipating a subject-predicate structure, or lexical actions triggered by lexical items. In both cases, these are defined as actions for updating a partial tree from

[2]All noun phrases are taken to project terms of type e. The logical language in terms of which these *Formula* values are expressed is the epsilon calculus, the language constituting the formal study of arbitrary names of predicate logic proofs. Accordingly all quantification is expressed in terms of type e terms, with all scope dependencies expressed within the restrictor of the individual terms. We leave this on one side in this paper. See Kempson et al 2001, and Kempson and Meyer-Viol 2004.

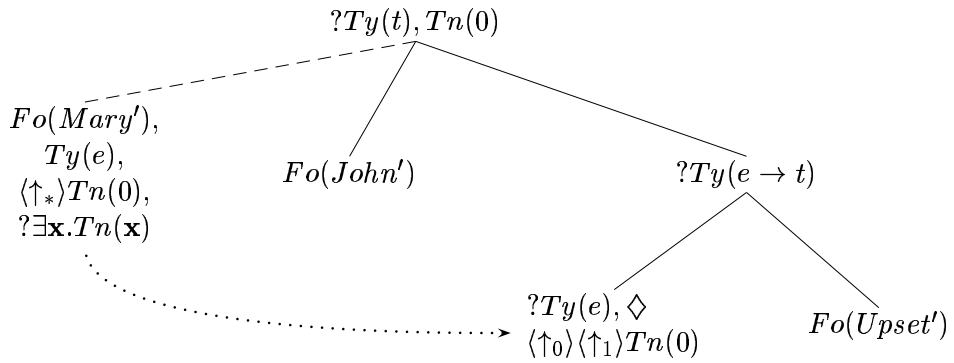
the initial tree with but a single node to a tree whose top node is decorated with a propositional formula. There is cross-linguistic variation in the balance of computational and lexical actions. In some languages, e.g. English, the verb projects only predicate-internal structure. In others – the pro-drop languages – the verb projects a propositional structure, with variation as to which of those arguments are pronominal-like in being decorated in a way that enables their identification directly from the context.

Central to this account are concepts of structural and content underspecification and their update, both expressed in terms of tree growth, with well-formedness defined as the availability of at least one derivation leading to a tree with no outstanding requirements, having used all the words in sequence. First, content underspecification, the familiar case of context-dependence, involves lexical projection of a place-holding *meta-variable* to be replaced as part of the interpretation-construction process, such variables being projected by anaphoric and other expressions (eg. verbs with pro-drop properties, in decorating their argument nodes with such place-holding variables). $Ty(e)$ meta-variables take the form $Fo(\mathbf{U}), ?\exists x.Fo(x)$, the requirement indicating that the meta-variable $\mathbf{U}$ must be replaced with a specific formula value. As we shall see, anaphoric expressions differ according to whether these meta-variables are associated with a restriction that they decorate the terminal node in a tree, as do regular words, or not (in which case they are more like agreement devices).[3] More controversially, the concept of underspecification is extended to structure, with long-distance dependency effects expressed by the construction of a node in the logical structure which does not have a specified, fixed, position within the tree at the stage in the interpretation process at which it is introduced. A rule of **Adjunction* introduces such an unfixed node, which does not have a fixed tree node address: it is marked as being dominated by the top node through the underspecified modal relation, $\langle\uparrow_*\rangle Tn(0)$, where $Tn(0)$ is the tree node address of the top node. In other words, a node is introduced that is linked through an unspecified sequence (possibly null) of mother relations to the top node and that needs, at some point in the construction process, to be fully specified, thus fixing the node in the structure.[4] The fixing of this node is thus resolved at some later point in the derivation, at the point in movement frameworks where a gap appears. Schematically, we represent this in Figure 2, which shows the result of parsing *Mary, John upset*: the dashed line indicates the unfixed node and the dotted arrow indicates the process by which this is merged with the object-

[3]The restriction that the decoration must be on a node that remains terminal throughout the derivation is expressed as $?[\downarrow_0]\bot$ - 'in all developments, any decorations on a daughter node yields falsity'.

[4]Formally, this characterisation of domination in terms of the Kleene star operator is standard in tree-theoretic grammars (see Rogers 1995), and is identical to *functional uncertainty* of LFG, but the DS characterisation is distinctive in incorporating the dynamics of the progressive updating of that specification within an individual construction process from left to right.

argument node. Note the requirement $?\exists x.Tn(x)$ which drives the merge process. The result of such a process, which unifies the information on the unfixed node with that on the object node, yields a final tree identical to that obtained from parsing *John upset Mary*.



Structural position update

Figure 2: Parsing *Mary, John upset.*

This introduction and subsequent updating of unfixed nodes can be further constrained. In rich case-marking languages such as Greek, Korean, etc., the range of positions which such an initially unfixed node can ultimately inhabit within the resulting configuration may be narrowed down by the case specification. Accusative case may be defined as a requirement for a predicate node as mother, in the form $?\langle\uparrow_0\rangle Ty(e \rightarrow t)$, and nominative as a requirement of the form $?\langle\uparrow_0\rangle Ty(t)$. In Greek, for example, the case serves to ensure that a node decorated at the left periphery by an accusative-marked NP can only merge with a node which in the result will turn out to be immediately dominated by a node of $Ty(e \rightarrow t)$:

(1)	*Ti*	*Maria*$_{Acc}$	*(ti)*	*sinantise*	*xtes*	[Greek]
	'the	Maria,	(her)	I met	yesterday.'	

In such a language, since the two nodes can be merged anyway, we would expect such pronouns to be optional. Case may, however, play a more constructive role. For example, in verb final languages, with their free local NP-ordering within a clause, case specifications may induce the construction of the requisite tree relation:[5]

[5]The word order variation in local scrambling is reported to involve no difference in propositional meaning. See Büring 1997, Hoffman 1995.

(2) *Jina-ka* *sakwa-rul* *mek-ess-ta*
Jina$_{NOM}$ apple$_{ACC}$ eat$_{PAST,DECL}$ [Korean]
'Jina ate an apple.'

(3) *sakwa-rul* *Jina-ka* *mek-ess-ta*
apple$_{ACC}$ Jina$_{NOM}$ eat$_{PAST,DECL}$
'Jina ate an apple.'

The process is one of building an unfixed node, decorating it, fixing its relation to the local type-t-requiring node, and then repeating this sequence of actions as many times as necessary. We display the process schematically for (3) in Figures 3-5. In Figure 3, we begin with an unfixed node which permits the parse of the accusative NP. This is then updated, fixing the position of this node as the internal object.[6] Figure 4 shows the process of parsing the subject, *Jina-ka*, while the actions defined by the lexical specification of the verb project a full template of structure, collapsing its argument nodes with any non-distinct unfixed nodes; and the formula decorations on the nodes then duly combine to form the tree in Figure 5 to yield the resulting logical formula:

$$Fo(Mek'(\epsilon, x, Sakwa'(x))(Jina')), Ty(t)$$

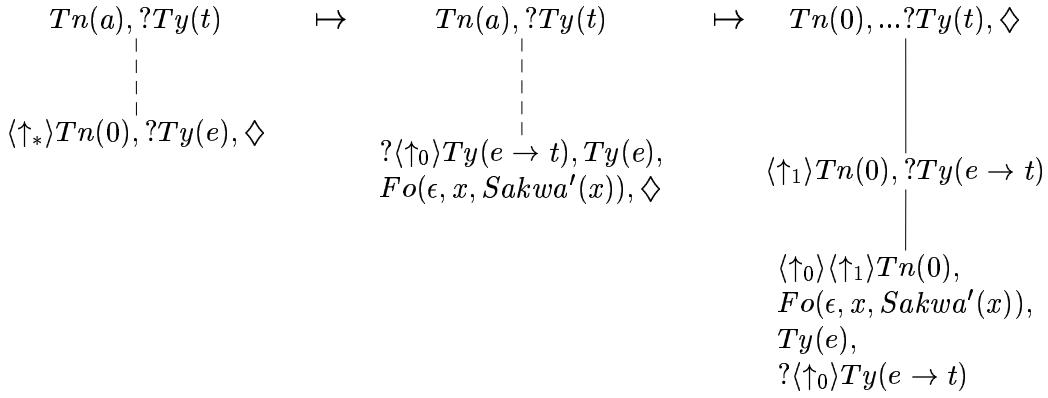


Figure 3: Parsing *sakwa-rul* in (3)

It is thus the successive application of ***Adjunction*** plus immediate updating of such unfixed nodes that underpins the free ordering of NPs within a clause.[7]

[6] $\epsilon, x, Sakwa'(x)$ is an epsilon term, the epsilon calculus equivalent of existential quantification, here ranging over apples.

[7] Such local scrambling is associated with fixed scope effects, at least when an indefinite NP precedes a nonindefinite NP. We do not take up scope effects in this paper, but see Kempson and Meyer-Viol 2004 for a discussion of the extent to which these follow linear order, and explanation of cases which diverge from this.

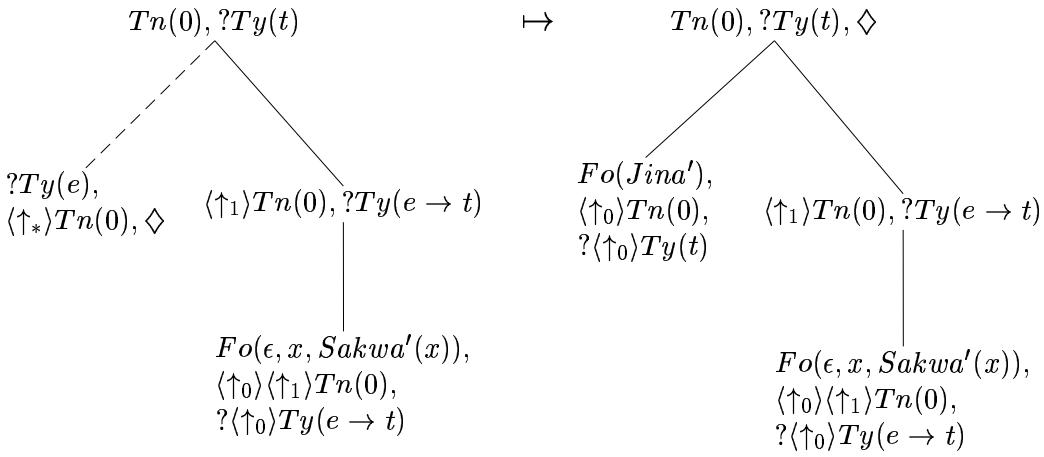


Figure 4: Parsing *Sakwa-rul Jina-ka* in (3)

Notice how the resulting structure is identical to the structure derived from the English parsing actions, commensurate with the view that structures underpinning natural language are universal, differences between languages residing in the varying computational/lexical actions that yield such logical-form structures as output.

This successive enrichment of each node – introduced first as unfixed, but then fixed immediately subsequently by the case specification – is essential as a means of inducing structure over a sequence of noun phrases when the verb follows them all, as there will be no template of structure provided by the verb; and the DS system imposes the restriction that only one type of unfixed tree relation be introduced from a given node at a time. This is because introduction of any tree relation, even if only partially determined, must preserve unique identifiability of node relations in partial trees. Formally, there is no restriction to this effect, apparently allowing the introduction of more than one unfixed node, but since, with no fixed structure, the introduction of a second relatively weakly specified tree relation won't be distinct from the already introduced unfixed node, the two nodes will always collapse with each other to yield a nondistinct result, generally leading to inconsistency.[8] This restriction forces us to presume that case has this constructive function wherever more than one such node appears to be introduced, in order to ensure the enrichment of the first introduced unfixed node before the second unfixed node is introduced; and so on. It also forces us to posit distinct processes introducing unfixed nodes subject to different locality constraints on the domain within which that unfixed node needs to be resolved (parallelling resolution of anaphoric expressions), since long and short scrambling effects can co-occur, as we shall shortly see.

[8]Thanks to Wilfried Meyer-Viol for extensive discussions persuading us of this.

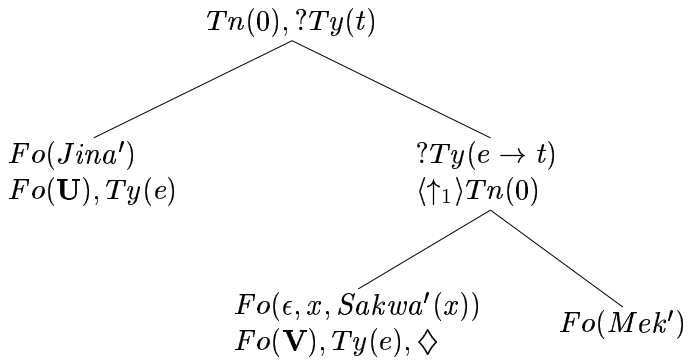


Figure 5: Parsing *Sakwa-rul Jina-ka mek-essta* in (3)

So we define:

(i) a process of introducing an unfixed node which has to be locally resolved within a single predicate-argument array (*Local*Adjunction*);

(ii) a process of constructing an unfixed node which has to be resolved within an individual tree but not necessarily locally (**Adjunction*); and

(iii) a process constructing a node without any constraint on the fixing of its relation to other nodes in the tree other than having to be determined within the overall construction process (*Generalised Adjunction*).

Of these, it is the first two that play an essential role in this paper, with *Local*Adjunction* operative in short scrambling, as we have just seen.[9] **Adjunction* is the process already introduced in connection with English, which we return to in discussing long-distance scrambling. The use of this range of strategies for licensing the introduction of unfixed nodes, with its natural parallelism with constraints on anaphora, provides a notable advantage in addressing verb-final languages, since the assumption that at some level all languages project the same structural configuration can be preserved without having to postulate the extensive scrambling processes needed to sustain such a claim in other frameworks (Kayne 1994; Simpson and Bhattacharya 2003).

Like all other rules, this process of introducing unfixed nodes that are subject to a locality constraint may vary across languages as to whether the process is available as the general computational action of *Local*Adjunction*, as in Korean and Japanese, or as a lexical action, providing first confirmation of this as a distinct process. In the Romance languages and Greek, this process is arguably

[9]This is differentiated from **Adjunction* by the additional constraint of the form $?\langle\uparrow_0\rangle\langle\uparrow_*^1\rangle Tn(a)$ determining that the node in question can only be resolved at an argument node within an individual predicate-argument structure. See Kempson et al 2001 for justification of this characterisation of locality.

restricted to lexical action, being the basis for the pre-verbal position of clitics in finite clauses:

(4) *Jean le lui a donné* [French]
Jean it_{ACC} him_{DAT} has given
'Jean gave it to him.'

1.1 Building Linked Trees

The process of inducing semantic structures in tree format is extended to the construction of paired trees by the incorporation of a LINK relation between trees. An additional modal operator, $\langle L \rangle$, and its inverse $\langle L^{-1} \rangle$, are used to define transitions from an arbitrary node in one tree to the top node of a new tree, with a requirement on this new tree that it must involve development so that one of its nodes shares a term with the node (the 'head') from which the transition was constructed. Such a device is used to analyse relative clauses – notice the interpretation of *who* as picking out the same individual as that assigned to *John*:

(5) John, who Sue upset, cried.

The action of introducing such paired trees is a general computational action which projects, from a node decorated by some term, α, a linked tree (indicated in Figure 6 by the modality $\langle L^{-1} \rangle$) which is required to contain a copy of α. Again, we use the Kleene operator, but this time in combination with the concept of requirement. A decoration, $?\langle \downarrow_* \rangle Fo(John')$ is thus a requirement that somewhere in the tree as it develops there must be a node decorated with $Fo(John')$. It is this requirement which determines the shared term in the output semantic representation of this paired, so-called linked tree, for no output will be wellformed unless such a requirement is met. As Figure 6 illustrates, the first partial tree contains a binary branching structure made up of what is to be construed as the head of the relative plus a twinned predicate-requiring node. The second, linked, tree is introduced by a $LINK$ transition from this subject node, and this newly introduced tree has a requirement for an occurrence in that tree of the term $Fo(John')$. Parsing the relative pronoun *who* provides the required copy of this term at an unfixed node, hence the position of such expressions at the left periphery of the relative clause.

Then, in subsequently following the parse, the unfixed node that the relative pronoun has decorated will get unified with the node denoting the object of *upset*, just as in the simple case of Figure 5. The adjunct 'linked' tree is then completed, and, with $Fo(Upset'(John')(Sue'))$ decorating the top node of that adjunct tree, the pointer will return to the primary structure and the parse proceed to the predicate, where parsing *cried* will lead to the addition of

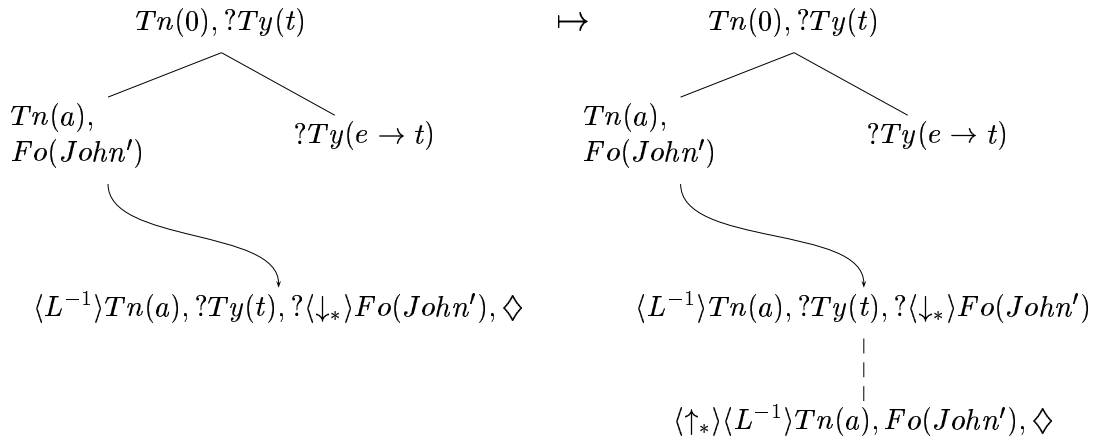


Figure 6: Parsing *John, who...*

the predicate formula $Fo(Cry')$ (we ignore tense in this paper), and the overall result will duly be a conjunction of formulae derived from the primary and linked structures: $Fo(Upset'(John')(Sue') \wedge Cry'(John'))$.[10]

Two things should be noted about the decorations on such trees, and the words that give rise to them. First, lexical items do not decorate trees themselves, nor is the structure definable over the string. The items that decorate the nodes of the tree are sub-terms of the logical-form language. This is most obviously true of the anaphoric expressions *her* and *who*, but is a general property. Words are defined as procedural devices that provide the actions that lead to tree-decorations. Secondly, decorations on the resulting tree show no reflex of the linear order of the words that led to such a tree. The hierarchical configuration given by an individual tree reflects solely the mode of combination which leads to a resulting interpretation. As a mapping from string onto semantically transparent tree structure, this might seem a notational variant of much more standard accounts of left-periphery accounts in terms of the two-fold distinction between base-generation (involving essential anaphoric co-indexing) and generation by movement. But, as we shall see, the possibility of structures with characteristics partly redolent of movement, partly of base generation, will emerge here unproblematically as mixed effects that arise through the feeding relations between anaphora and tree growth process, as an interpretation is progressively built up.

[10]See Kempson 2003 for justification of this account of nonrestrictive relatives. See Kempson et al 2001 for justification of this as an account of relative clause construal in general.

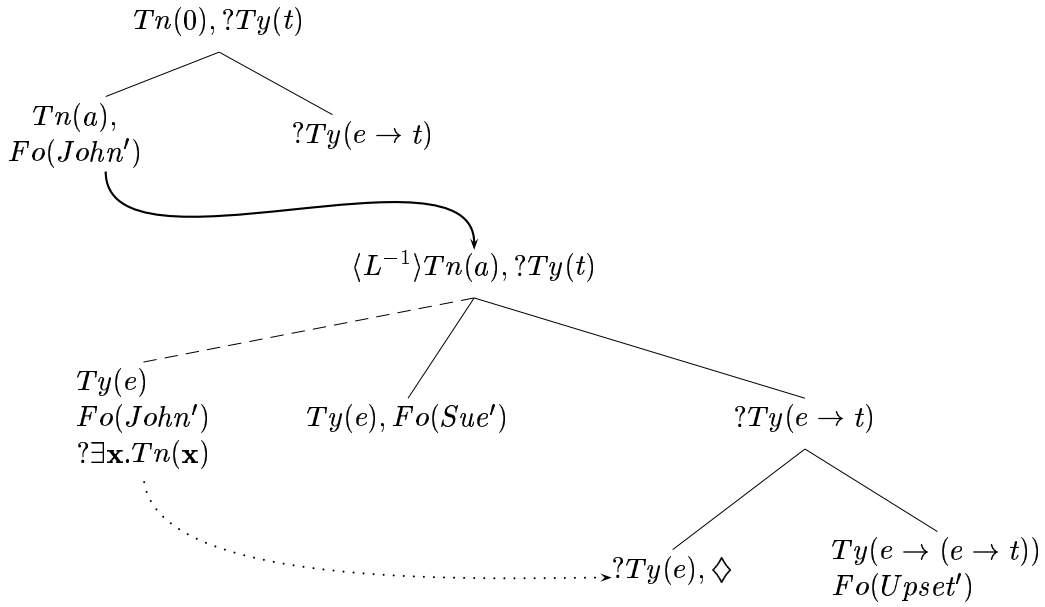
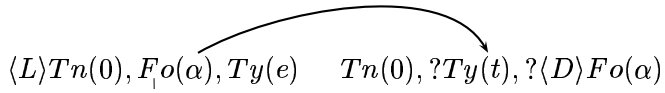


Figure 7: Parsing *John, who Sue upset, ...*

1.2 Building Linked Structures at the Outset

With these tools in mind, we can now see what applicability the concepts of linked structures and unfi xed nodes have to the characterisation of left-periphery effects. One strategy for interpreting left-peripheral expressions as in *John, I like him* uses the same concept of paired linked structures used in relative clause construal, but this time without any analogue of a relative pronoun, so an anaphoric relation has to be established. Nothing in the concept of paired linked trees precludes the possibility of one such tree being a tree with top node of type e, so that a LINK transition is defi ned from that node, as decorated by the left-peripheral expression:[11]



Though, at fi rst sight, it isn't obvious that this is a display of two trees, it is: both trees at the particular stage of development displayed contain but a single node. The bonus of having analysed relative clause construal in terms of a constructed LINK transition across trees, in so doing imposing an anaphoric connectedness, is that it immediately carries over to these structures, imposing equally the requirement of anaphoric relatedness. And here, with no analogue to a relative pronoun, we expect the obligatory occurrence of a pronoun. In the particular format of $?\langle D\rangle Fo(\alpha)$, there is effectively no locality restric-

[11] D is an operator ranging over LINK or daughter relations.

tion on this anaphoric relatedness, since the copy required can occur at any node of any subsequently introduced structure. Nevertheless, the modal requirement has some force. Given the association of satisfying all requirements with wellformedness, all successful derivations must involve the construction of a copy of the term decorating $Fo(John')$ and, with no analogue to a relative pronoun to provide such a copy by lexical stipulation, this requirement can only be met through suitable construal of the anaphoric expression. Notably no item-specific characterisation of the pronoun is needed to reflect this obligatory co-dependency of pronoun and left-peripheral expression. This strategy corresponds to Hanging Topic Left Dislocation (HTLD: Anagnostopoulou 1997), and is displayed by Greek mismatching case effects:[12]

(6) *I Maria, xtes gnorisa ton andra pu tin*
the$_{NOM}$ Maria yesterday met$_{1st.ps.sg}$ the man that her$_{ACC}$
patreftike [Greek]
married
'Mary, yesterday I met the man that married her.'

As we would expect in such an environment, there should be no case specification providing instructions on decorating the linked structure, as that node will not become a substructure within the primary structure: the two trees remain as independent structures in the output, suitably anaphorically linked.

The form of the requirement imposed in this LINK transition suggests an immediate basis for variation. Given that it is expressed in terms of a modal requirement, we can define natural variants by varying the modal operator. For example, we can vary the domain within which the copy is to be provided to that involving the $\langle\downarrow_*\rangle$ relation, which means that the copy is required to occur within an individual tree. With this variation, we have a paired structure with essential anaphoric connectivity but whose requirement matches the constraint imposed by introducing an unfixed node whose position has to be resolved within an individual tree. This constraint appears to be operative in Korean, and also in Romanian:[13]

(7) ?? *Sakwa-nun Jina-ka mek-un haksayng-ul a-n-ta.*
apple$_{TOP}$ Jina$_{NOM}$ eat$_{REL}$ student$_{ACC}$ know$_{PRES,DEC}$
'As for an apple, Jina knows the student who ate.' [Korean]

[12]Nominative case in Greek is expressed as morphologically null differentiation of the determiner.

[13]Romanian has two forms: one analogous to *as for* in English, which isn't subject to any such island sensitivity, and one, the simpler form as here, which is.

(8) * *Pe* *Ion* *n-am* *întîlnit fata* *care* *l-a* *văzut*
As-for John not-I-have met the girl which him-has seen
anul *trecut*.
the-year last. [Romanian]
'As for John, I have not met the girl who saw him last year.'

So we get the first blurring of the anaphoric and structural forms of update, a tightening of the locality constraint that yields Clitic Left Dislocation effects in head-initial languages (CLLD: Cinque 1990), with its intermediate status, in having some characteristics diagnostic of movement. Despite the varying stringency in the way such requirements have to be met, all share one property: the presented term which constitutes the point of departure for the LINK transition acts as a context relative to which the subsequent emergence of structure is defined. All such developments display a term that is shared with the structure which forms the starting sequence of the actions building a linked structure. Such an analysis, accordingly, reflects the way in which, in both HTLD and CLLD structures, the first expression is construed as providing a context.

1.3 Building Unfixed Nodes at the Outset

The building of linked structures is by no means the only analysis available for left-peripheral expressions. To the contrary, the building of an unfixed node within an individual tree provides another strategy. In applying this alternative strategy, we get the inverse of the HTLD and CLLD effects, the first expression projected as providing some isolated term, which is to provide an update to what is projected immediately subsequently. This process, by definition, doesn't require pairing with a lexical pronoun. However, such a strategy may yet be possible in the presence of a pronoun within the primary structure, as in the Greek clitic-doubling sequences, already exemplified in (1) and analysed in Figure 8.[14] It is of interest in this connection to note the preverbal position of the clitic pronoun, a reflex of its having been introduced as decorating a locally unfixed node, which is then updated – just as set out earlier for Korean. Notice that this introduction of an unfixed node for the clitic to decorate is not precluded by the presence of the unfixed node decorated by *Ti Maria*, since **Adjunction* and *Local*Adjunction* are distinct rules associated with distinct, even if unfixed, tree relations.

There is an immediate consequence to proposing any such analysis which is important in setting out bases for cross-linguistic variation. As Figure 8 shows, any pronominal expression which serves to identify the node with which the unfixed node is to unify must decorate a non-terminal node in the tree: this puts

[14] We use the iota term $\iota, x, Maria'(x)$ to reflect the definiteness. Arguably, all natural-language names project this type of structure, Greek reflecting this in its morphology. In general, however, we suppress this level of detail.

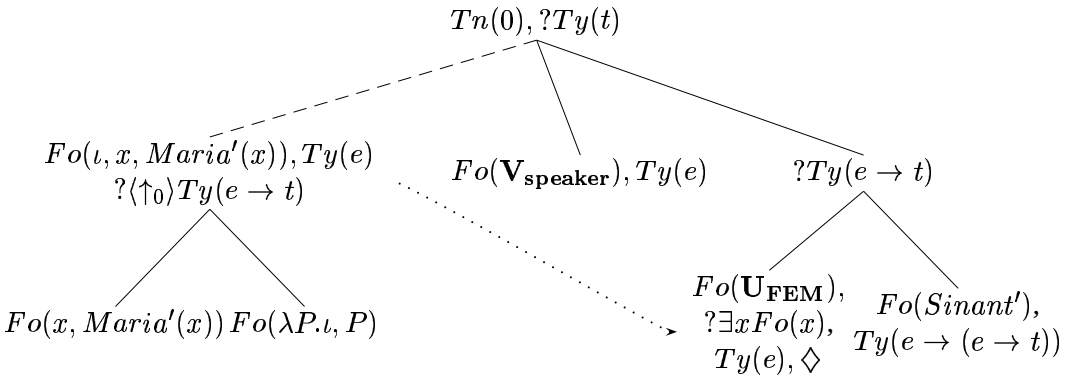


Figure 8: Parsing (1)

it in a category unlike other lexical expressions – one basic criterion of wordhood has got lost. This is a source of variation not only between individual languages, but also between individual pronouns within a single language. It notably matches the distinctiveness of dative clitic doubling in Spanish, which, unlike all other clitic doubling constructions, is not subject to any specifi city restriction – all NPs, quantifi ed or not, can occur with clitic doubling (see Kempson et al 2004 for further discussion):

(9) *A familias de pocos medios (les) ofrecieron queso y leche*
to families of small means to them offer$_{3pl}$ cheese and milk
'To low-income families, they offered cheese and milk .'

There is a further phenomenon that this analysis would lead us to expect. Since we are taking this terminal-node restriction to be defi nitive of a word's contribution to compositionality defi ned on the semantic tree, we would not expect the argument nodes which a verb may induce themselves to be subject to any such terminal-node restriction. And, accordingly, we expect that there will be two different forms of interpretation for subject position in all pro-drop languages, hence in Spanish and Korean alike. This is because the argument node the verb decorates may have its value determined in one of two ways. Either the value of the meta-variable at the argument node may be provided by building a linked structure, taking the term projected from the subject expression to decorate the introduced linked-structure node, and then using it to provide the context for identifying the value of this meta-variable by a process of substitution. Or the value of the meta-variable may be provided by taking the subject expression to provide decorations on an unfi xed node, unifying this unfi xed node with the subject node provided by the verb. And indeed, as is widely observed of such languages, both subject pro-drop and full pro-drop, the subject

expression can either function to serve a focus effect, or more neutrally.[15]

Notice, more generally, what these two strategies immediately provide. We have one anaphorically-based strategy for building paired trees, over which a range of locality restrictions can be defined. And we have a strategy using the building of an unfixed node within a single tree, into which pronouns of a certain category can provide input. There is no problem in positing two such alternative strategies, as the parsing perspective allows a number of alternative ways of constructing a given semantic representation. There is yet a further bonus to be gleaned from this account. These alternatives provide the means of reflecting a number of intervening structures. As we have already seen, on the one hand, the building of linked structures may be associated with a locality restriction more stringent than the mere pairing of anaphorically linked structures, despite being realised by an antecedent-anaphoric pairing. On the other hand, the building of an unfixed node may be associated with unification of a node decorated by a pronoun if that pronoun can be seen to have lost the full lexical status normally associated with words. As we shall see when we approach the right periphery, this corresponds directly to expletive pronouns, an account which in this framework we expect to be applicable not merely when pronouns precede the expression which provides their value. In the meantime, the availability of effects apparently intermediate between anaphoric and regular long-distance dependency is unproblematic here.[16] This is distinct from movement accounts, for which such mixed effects, apparently blurring the dichotomy between movement and base-generation, is problematic. It is notable that in some recent analyses, the absolute nature of this dichotomy is weakened (Boeckx 2003).

1.4 Multiple Scrambling at the Left Periphery

Before turning to the right periphery, a novel advantage emerges from having distinguished the two processes **Adjunction* and *Local*Adjunction*, with both processes introducing an unfixed node from a node requiring type t. We can expect the one rule to feed the other, if we just define **Adjunction* as creating an unfixed node which itself bears the requirement $?Ty(t)$.[17] This assumption

[15] See Belletti 1999 for arguments for the clause-external status of preposed subjects in Spanish, Jang 1998 for Korean, Kitagawa 1986 for Japanese.

[16] Given the omission of discussion of quantification in this paper, we have to leave on one side any detailed account of specificity effects, which are characteristic of clitic-doubled constructions. It should, however, be pointed out that by characterising indefinites as epsilon terms, we expect them, and only them, to be licensed to decorate independent linked structures that require anaphoric copying, since, in virtue of their existential force, they allow indefinite extendability of their scope. This corresponds to the observed restriction of Hanging Topic Left Dislocation Structures to referential expressions, with indefinite expressions having to be construed as specific.

[17] No such freedom can be attributed to *Local*Adjunction* as it is defined to ensure essentially local projection of structure from any individual verb.

immediately yields the multiple long-distance scrambling effects observed in verb-final languages. For example, in Korean, there are examples such as (10), which can have either an object long-scrambled reading or an object-subject pair long-scrambled reading:[18]

(10) *Sakwa-rul* *Mina-ka* *Jina-ka* *mekessta-ko* *malhayss-ta*
apple$_{ACC}$ Mina$_{NOM}$ Jina$_{NOM}$ ate$_{COMP}$ said$_{DECL}$
'An apple, Mina said that Jina ate.' [only object *sakwa* scrambled]
'Jina said that Mina ate an apple.' [object-subject pair scrambled]

Phonological information buttresses the assumption of constituency break that has to be constructed upon this analysis, making the requisite strategy definitively salient. For example, when there is an intonational break between *sakwa-rul* and *Mina-ka*, two lexical elements cannot be interpreted as one constituent or one pair. Yet, when there is a break between the first subject *Min-ka* and the second subject *Jina-ka*, the object *sakwa-rul* and *Mina-ka* forms a constituent and yields a pair-wise reading. Previous approaches to these constructions have somehow to motivate these so-called 'surprising constituents', and this is done by invoking such constructs as vacuous verb-raising, oblique movement, etc. (see Koizumi 2000; Takano 2002). Yet, the motivation for such processes independent of these particular structures is not clear. In LFG (Lexical Functional Grammar), a constituent-forming operation is argued for (Nordlinger 1998) on the basis of one particular morpheme in the case-stacking language of Wambaya. A morpheme which has the function of forming a constituent from multiple elements is subject to the stipulated restriction that all such elements are semantically associated with each other at *f-structure*.[19] However, on such an LFG account, restricted construal of dative NPs in multiple long-distance scrambling cannot be explained properly, because of the lack of any morphological indicator to trigger the requisite process. Notice how any such sequence of left-peripheral constituents that are to be interpreted as in some sense separated from their construal site MUST be interpreted as a constituent. Compared to (12), (11) is not well formed, because the left-dislocated dative NP is not interpretable as an argument of the verb *mek-*'eat' together with the following scrambled pair of object *sakwa-rul* and subject *Mina-ka*:

(11) * *Yuna-ekey* *sakwa-rul* *Mina-ka* *Jina-ka* *mekessta-ko* *malhayssta-ko*
Yuna$_{DAT}$ apple$_{ACC}$ Mina$_{NOM}$ Jina$_{NOM}$ ate$_{COMP}$ said$_{COMP}$
saynggakhayss-ta
thought$_{DEC}$
* 'Jina thought that she *said to Yuna* that Mina ate *an apple*.'

[18] Such surprising constituents are also observed at the left periphery in German, to which we would expect the same arguments to apply.

[19] *C-structure* models the surface syntactic form of language, whereas *f-structure* models grammatical functions and other syntactic relations.

(12) *Yuna-ekey* *sakwa-rul* *Mina-ka* *Jina-ka* *cwuessta-ko*
Yuna$_{DAT}$ apple$_{ACC}$ Mina$_{NOM}$ Jina$_{NOM}$ gave$_{COMP}$
malhayssta-ko *saynggakhayss-ta*
said$_{COMP}$ thought$_{DEC}$
'Mina thought that she said that Jina gave *an apple to Yuna*.'
'Jina thought that she said that Mina gave *an apple to Yuna*.'

Such a constraint is hard to capture in LFG, as functional *unification* is only a two-step process and cannot reflect left-right parsing processes step by step.[20] [21]

On the Dynamic Syntax account, such multiple long-distance scrambling effects follow directly. While the framework disallows the construction of more than one unfixed tree node relation in any partial tree, **Adjunction* can nevertheless feed *Local*Adjunction*. This has the effect of introducing an intervening node requiring $?Ty(t)$, and this introduced node then allows the successive projection of a number of locally unfixed nodes, each updated to a fixed local relation. The result is an incomplete structure decorating an unfixed node, itself to be updated later in the parse, which may be indefinitely far away in the emergent tree. This leads us to expect that such apparent instances of multiple long-distance scrambling are obligatorily interpreted as local to one another. In Korean, within any one sentence, it may be that only one expression is interpreted as long-distant dependent from its source position as long as these form a constituent. But it may also be that two, or indeed more, expressions can be interpreted as long-distant dependent from their source position. Yet, all such cases must be construed locally within the same propositional structure:

(13) *Sakwa-rul* *Mina-ka* *Jina-ka* *mekessta-ko* *malhayssta*
apple$_{ACC}$ Mina$_{NOM}$ Jina$_{NOM}$ ate$_{COMP}$ said
'The apple, Mina said that Jina ate.'
'Jina said that Mina ate an apple.'

The two forms of construal for (13) are displayed in Figures 9 and 10. The first is the regular long-distance dependency using the construction and decoration of an unfixed node of type e unifying subsequently with the subordinate object node.[22] The second is the use of a step of *Adjunction followed by two steps

[20] We are grateful to Mary Dalrymple and Devyani Sharma for discussing this problem with the second author, and for pointing out to us the problem these data pose for LFG.

[21] Of current orthodoxies, categorial grammar accounts (Steedman 2000) are best suited to expressing these data given indefinitely flexible type assignment, but like LFG there is a commitment to symmetry between distributions at the left and right periphery, and any departures from this are problematic.

[22] One property of this tree which is unexplained here is the relation of the embedded propositional structure to the root, here specified as a fixed relation of immediate subordination. The introduction of the subordinate proposition-requiring node (to be developed by the actions of *mekessta* 'ate') is as a radically unfixed node (possibly even part of a linked structure for a relative clause). The step of interpreting this very weak relation as immediate subordination is one of structural enrichment, analogous to the formula enrichment involved in anaphora construal (see Kempson submitted; Kempson et al 2004).

of Local*Adjunction, each node so introduced getting immediately fixed by the actions induced by the case specification of the noun phrase. It is then the incomplete $Ty(t)$-requiring node (with the structure it dominates) which unifies with the subordinate node developed by the actions of *mek*-'eat', in so doing, providing the object and indirect object values.

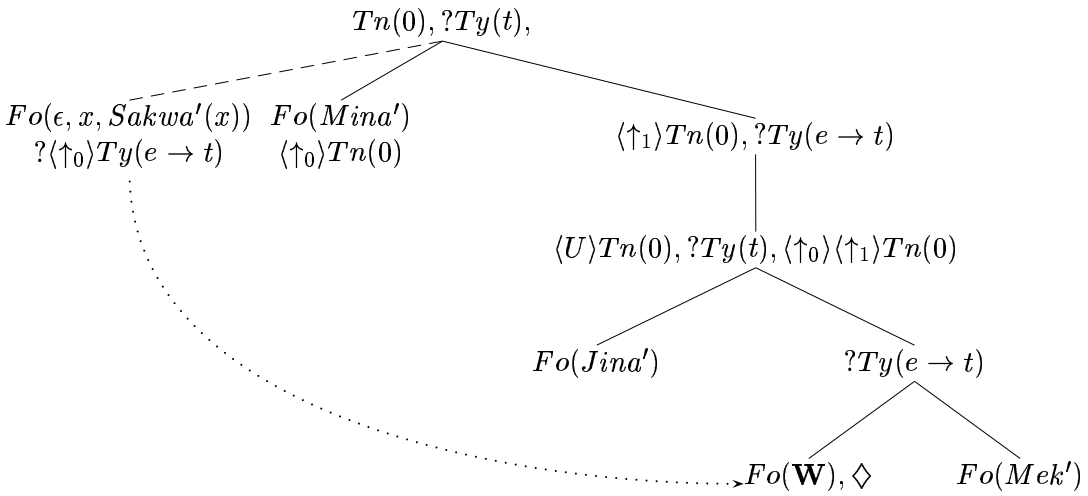


Figure 9: Left dislocation of *sakwa-rul*

In a framework in which concepts of structural underspecification are central, such multiple long-distance scrambling effects, with their particular incomplete-structure formation, are no more surprising than the phenomenon of long-distance dependency itself. In other frameworks, to the contrary, there is no reason a priori to expect that some sequence of argument expressions should function as a constituent, and some device has to be made available to determine why such transparently incomplete sequences can nevertheless function as a constituent.

Confirming this analysis, the flexibility within limits of dative-marked NPs is also expected. In particular we expect that, in circumstances where a pairwise interpretation of two left-peripheral NPs is debarred, as in (14), where the embedded predicate is *mekessta* 'eat', the only possible interpretation of the dative *Jina-ekey* 'to Jina' is as part of the matrix predicate-argument structure:

(14) *Sakwa-rul* *Jina-ekey* *Mina-ka* *Yuna-ka* *mekessta-ko*
apple$_{ACC}$ Jina$_{DAT}$ Mina$_{NOM}$ Yuna$_{NOM}$ ate$_{COMP}$
kiekhayssta-ko *malhayssta*
remembered$_{COMP}$ said
'Mina said to Jina she remembered Yuna ate the apple.'

Moreover, should the relative order of *mekessta* 'remember' and *malhayssta* 'say' be reversed, with the matrix verb now debarring any matrix construal of the dative, we anticipate, correctly, that the sentence is ungrammatical:

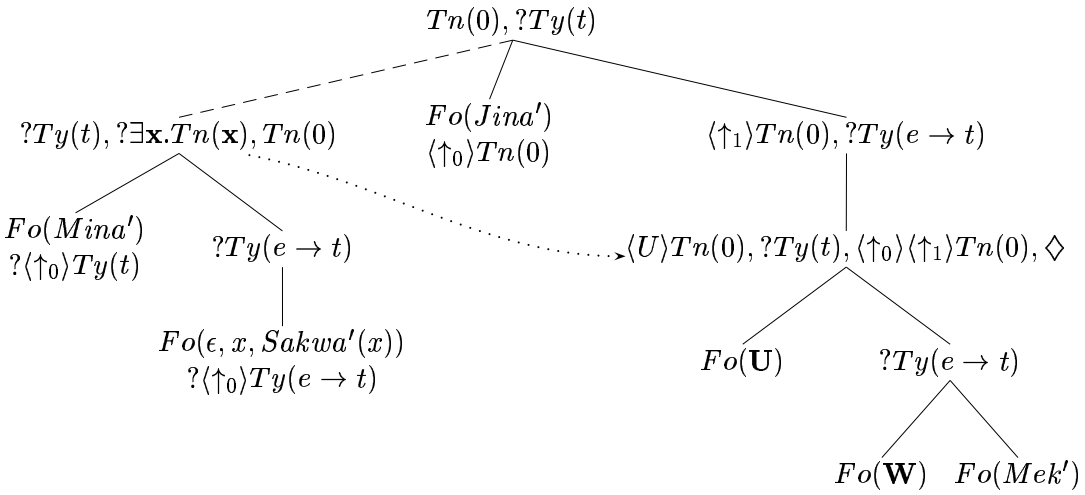


Figure 10: Left dislocation of *sakwa-rul Mina-ka*

(15) * *Sakwa-rul Jina-ekey Mina-ka Yuna-ka mekessta-ko malhayssta-ko*
apple$_{ACC}$ Jina$_{DAT}$ Mina$_{NOM}$ Yuna$_{NOM}$ ate$_{COMP}$ said$_{COMP}$
kiekhayssta
remembered
* 'Mina remembered to Jina she said Yuna ate the apple.'

This result confirms, in addition, the locality of the two long-distance scrambled NPs relative to each other, as there is no possibility of interpreting *sakwa-rul* relative to the most embedded predicate, and *Jina-ekey* relative to the intermediate predicate.

2 At the Right Periphery

In turning to the right periphery, the various constructs we have set up in analysing left-periphery effects come into their own, with minor variations that we can anticipate in virtue of the asymmetry between constructional processes operating at the closing stages of the interpretation process rather than as an opening sequence of actions. In particular, we shall use the building of linked structures, the building of unfixed nodes, and variation between pronouns as to whether or not they decorate a terminal node in the tree under construction.

2.1 Building Linked Structures in the Closing Stages

First, just as at the left periphery, we might expect that a right-occurring expression, placed outside some clausal sequence, can be interpreted by building a LINK transition, with a background-topic form of interpretation, and so

it can. In all languages, it is possible to interpret an expression with a pronoun in canonical position, buttressing its interpretation by some end-placed expression, and with topic-marking languages, we duly expect end-placed topic-marked NPs to occur:

(16) *lo* *conosco,* *Giovanni.* [Italian]
him I know Giovanni
'I know him, Giovanni.'

(17) I think you should realise that it's an impossible topic, right dislocation.

(18) *Tutie* *wa-ss-ta* *Chris-nun* [Korean]
Eventually come$_{PAST,DEC}$ Chris$_{TOPIC}$
'Eventually he came, Chris.'

We refer to this form of backgrounding as *Recapitulation* and analyse it as shown in the schematic transition shown in Figure 11. Though this rule has to be explicitly defined, it is the mirror image of the early topic adjunction rule, and no more than we would expect, given that there is no ordering on the tree as to which of two linked trees is built first. We can now see what sort of interpretation a string whose structure is built up by this strategy is bound to have. Given that the pronoun in canonical position is construed as decorating a fixed node (in the clitic case, initially unfixed but immediately enriched to become fixed), it will, unless expletive, have to be interpreted as indexical, from the larger context. But this means that in order to justify a LINK transition, the move to the linked structure will impose a requirement to identify the term decorating that linked structure in such a way as to yield a term identical to that which is interpreted from the pronoun. It can therefore only be interpreted as buttressing the already indexically fixed construal of the pronoun: hence its reported background-topic effect.[23] [24]

2.2 Building Unfixed Nodes in the Closing Stages

Secondly, we expect there to be instances of **Adjunction*, though, as we now see, this goes hand in hand with the characterisation of some pronouns as not decorating a terminal node in the resulting structure. The concept of defining some pronouns as losing their terminal node restriction provides an immediate

[23] The naturalness of this account is in marked contrast to that of Cecchetto (1999), who comments that such data are problematic for his account, but can safely be left on one side, since they are problematic for all accounts currently available. See also Herring 1994, whose informal account of backgrounding effects in Tamil this analysis matches.

[24] The use of $\uparrow_*$, without angled brackets, indicates that the formula holds at a fixed node.

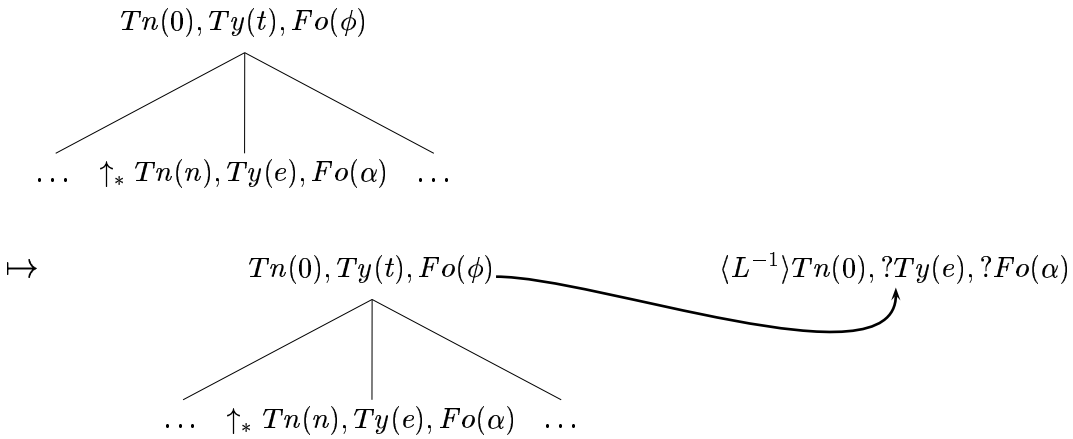


Figure 11: Licensing Linked Structures at the Right Periphery

explanation of expletive pronouns, the other major property of the computational system of natural language:[25]

(19) It's possible that I am wrong.

As we have already seen in developing the left periphery effects, some pronouns, while remaining expressions with full anaphoric potential, may lose one essential property of being regular lexical expressions in that they lose a terminal-node restriction; and this is an attendant and expected property of all argument nodes projected by a verb with pro-drop properties. This property is all we need to characterise expletive pronouns. With such an account, a derivation will be licensed in which the expletive projects a type value and incomplete formula value, a meta-variable like any other anaphoric expression, but one that, in failing to be assigned a contextually provided value, may have that value established later by the subsequent development of structure. Indeed such a process is essential if a formula value is to be provided, for without it the top node's requirement could not be met, and there would be no successful completion of the interpretation process.

The effect is as displayed in Figure 12. In English, this sub-use of the pronoun *it* requires specifi c itemisation, as the pronoun of type e is not associated with any such expletive effect. The action which introduces the node allowing late development of the tree is an atrophied variant of **Adjunction*, which we refer to as *Late *Adjunction*, and which is all we would expect once the entire structure has been constructed. The reason for this is two fold. First, the

[25]See Cann et al. 2004 for earlier versions of the ideas set out here. We are grateful to Lutz Marten, Masayuki Otsuka and David Swinburne for their contribution to the development of these concepts.

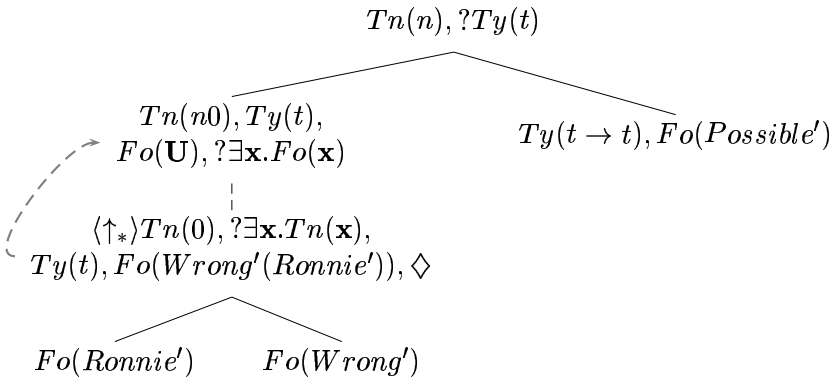


Figure 12: Parsing *It is possible that I am wrong*

process is one of building an unfixed node of the same type as its dominating node. Such a process is a subpart of the steps involved in introducing an unfixed node at the left periphery and progressively evaluating whether it can be unified with a fixed node through a tree. This proceeds step by step, node by node, as the tree is progressively constructed, so that at the point of unification, the properties of the unfixed and fixed node are considered together. It is this configuration which is directly constructed in *Late*Adjunction*. Secondly, in the case of expletives, with the pointer back at the subject node, the tree under development will be complete, apart from this late step of development. This is because in order for the pointer to be moved back to the subject node, the predicate must have been fully developed and compiled with type requirement and formula value fully specified, for this is a necessary prerequisite for movement back up the tree from daughter to mother. It is thus only in seeking to compile a formula value at the top node that the outstanding requirement at the argument daughter emerges as a block on any such top node decoration. Accordingly, the pointer will return from the mother node to that node, licensing the introduction of a node of the very same type which, once developed, can unify with that subject node to satisfy whatever outstanding requirements it has. Hence the only possible application of *Adjunction at this late stage is the introduction of an unfixed node of the same type, exactly preparatory for a step unifying the two nodes.

The bonus of this style of explanation is that it yields the Right Roof Constraint as an immediate consequence. Progressive decoration of nonterminal nodes up the tree is only possible if all requirements on pairs of daughter nodes for each mother are satisfied: the successful decoration of the mother node depends on this. So though the pointer may move away from some daughter node through the use of such devices as expletive pronouns, the compilation of properties at its mother node will need all requirements satisfied. This yields the

Right Roof Constraint immediately. We expect that extraposition effects will be essentially local, and moreover end-placed in some clausal sequence.[26] And so it is that from an embedded sentential subject, as in (20), it is impossible to have a place-holder in that subject position, and its associated clause removed to the right periphery of the matrix predicate, as in (21):

(20) That it is certain that I am wrong is unfortunate.

(21) *That it is certain is unfortunate that I am wrong.

In order for (21) to be wellformed, it would have to be possible to leave the construction of that embedded subject structure altogether, move the pointer from that structure to develop the matrix predicate, and then move back into the embedded subject at some late stage to complete its requirements. Given this restriction on pointer movement, that early movement of the pointer out of the embedded structure is impossible.

This account of expletive pronouns imposes no restriction that it is only lexically realised pronouns that might lack such a terminal node restriction. To the contrary, we expect that in pro-drop languages, no such expletive will be necessary, given the lack of bottom restriction on argument nodes decorated by the verb. The particular provision of a type specification and meta-variable allows the node to be interpreted by either substitution of some contextually provided value or by late provision of a term, as we would expect:

(22) *Compró un coche Maria* [Spanish]
bought a car Maria
'She bought a car, Maria.'

(23) *Tutie wa-ss-ta Chris-ka* [Korean]
Eventually came Chris$_{NOM}$
'Eventually he came, Chris.'

In Korean, we also find the same locality constraint operative. Unlike left-periphery effects, such late adjunction is restricted to matrix arguments – the Right Roof Constraint again in evidence:

(24) *Mina-ka Jina-ka sakwa-rul cwuessta-ko malhayssta Yuna-ekey*
Mina$_{NOM}$ Jina$_{NOM}$ apple$_{ACC}$ gave$_{COMP}$ said Yuna$_{DAT}$
'Mina said to Yuna that Jina gave an apple.'
$\neq$ 'Mina said that Jina gave an apple to Yuna. '

(25) * *Mina-ka Jina-ka sakwa-rul cwuessta-ko kiekhayssta Yuna-ekey*
Mina$_{NOM}$ Jina$_{NOM}$ apple$_{ACC}$ gave$_{COMP}$ remembered Yuna$_{DAT}$
* 'Mina remembered to Yuna that Jina gave an apple.'

[26] In so far as this holds for expletives in the predicate, the same principle will apply.

The reason is, as before, that to compile an interpretation for the matrix predicate, all more subordinate structure must be fully decorated. Argument nodes of that matrix predicate may be returned to for further development, exactly analogous to subject pro-drop effects in the Romance languages, and as though an expletive pronoun were present; but subordinate argument nodes are not accessible.

There is one further prediction, contrary to left-periphery effects, given the dynamics of the update process. Though there only one unfixed node of a type is licensed at a time, this injunction holds only as long as that node is unfixed. Once a node introduced by **Adjunction* has had its position in the tree resolved, application of *Late*Adjunction* will be possible. We therefore correctly predict the co-presence of an expression at the left periphery and an expression at the right periphery, despite the restriction:

(26) *sakwa-rul* *Mina-ka* *Jina-ka* *cwuessta-ko* *malhayssta* *Yuna-ekey*
apple$_{ACC}$ Mina$_{NOM}$ Jina$_{NOM}$ gave$_{COMP}$ said Yuna$_{DAT}$
'An apple, Mina said to Yuna that Jina gave.'

In both instances, use of such peripherally placed expressions is contrastive, a point to which we shall return.

With the two processes of either extending the tree or building a paired linked tree available at the right periphery, we expect, as at the left periphery, a range of mixed effects. In Korean, the combination of these strategies, with the potential provided by choices between no pronoun, case-marked pronouns, and topic-marked pronouns, licenses a rich array of effects. There can be non-suffixed use of names, which arguably matches their introduction into the tree following a step of *Late*Adjunction*:

(27) *Tutie* *wa-ss-ta* *Chris*
Eventually come$_{PAST,DEC}$ Chris
'Eventually he came, Chris.'

There are also both case-marked and topic-marked end-placed names, to be characterised by *Late*Adjunction* and a *LINK* transition, respectively:

(28) *Tutie* *wa-ss-ta* *Chris-ka/-nun*
Eventually come$_{PAST,DEC}$ Chris$_{NOM/TOPIC}$
'Eventually he came, Chris.'

3 Topic and Focus as Consequences of Tree Growth

Throughout the paper so far we have been manipulating analyses involving linked structures and unfixed nodes without any association with particular concepts of topic or focus. With the overall perspective provided by left and right

periphery effects, we can now get a sense of the extent to which the structural account provided matches these informal notions. Some of these will require setting against a dialogue background to receive a full explanation; but, nevertheless, it is of interest to see to what extent these relatively simple formal tools correspond with concepts familiar from the extensive topic and focus literature.

From the perspective of this framework, given that all parsing takes place in a context, we take the context to be some (minimal) sequence of partial trees immediately available to the parser during the parse process. What this suggests is that the topic is simply some (partial) tree which constitutes the point of departure. In dialogue, the speaker may simply take such immediate context as the starting point, but is also able to construct a point of departure, and in this lies the function of building a linked structure at the outset of an utterance. Such initially placed expressions may serve to create the relationship to the larger context (background topic), or they may constitute a departure from it (contrastive topic). The linked tree, created as the construal of the topic expression, is nothing more than a minimal context, relative to which the subsequent interpretive process takes place. This is most obviously displayed as a possible function in topic-marking languages, in which topic-marked expressions have two uses, either as background or as contrastive topic. Contrastive topic effects may also be conveyed by use of a topic-marked expression in the latter stages of an utterance:

(29) *Wa-ss-ta* *Jina-nun*
came Jina$_{TOPIC}$
'She came, Jina.' (contrastive)

In the decision to interpret some expression as projecting a separate structure to be necessarily construed as identical with some term in the propositional structure already constructed, rather than with the more general context, the expression used indicates a departure from what is provided by that more general context.

The other device, focus, which has to be conveyed within the time-linear dynamics of an utterance, is the ability to separate off some expression from the remainder, not because it is the context relative to which the remainder is to be construed, but, to the contrary, because it is to be isolated as the specifi c form of update relative to some proposition to be taken as context. And in this lies the function of building unfi xed nodes by regular application of **Adjunction*, by defi nition a process of building a node, then a propositional frame, and at some relatively late stage of the construction process unifying the two. However, such focus effects, as we might now call them, can be constructed either, by using **Adjunction* or by using the context directly, as with topic effects. And in answers to questions, the canonical focus structures, the question provides the context, relative to which the answer provides the update; and the relationship

may be one of directly taking the very structure provided by the context and updating it to provide a new structure:

(30) Who did John annoy? His mother.

Broadly, focus is some update structure which is provided for a given propositional structure, and in this case too, such structure may be independently provided in context or may be constructed as part of the interpretation process, immediately prior to the point of update which identifies the focussed structure. These concepts express intuitions that are similar to the file metaphor of Vallduvi (1991), Erteschik-Shir (1997) and others; but in the Dynamic Syntax framework, the very dynamics which constitutes the grammar formalism itself provides the basis of what is needed to explain these effects. So though the matter requires exploration in detail (see Kiaer, in preparation), topic and focus effects promise to be epiphenomena, emerging from the general form and growth of natural language structure – the concepts of linked structures and unfixed nodes, constructed both at early and at late stages of the utterance interpretation process, reflecting informal concepts of topic and focus without having to articulate these as primitive terms of the explanation.

4 Summary

In this paper, we have set out two basic concepts of tree growth, using these to sketch an analysis of left and right periphery effects that extends to verb-final languages as a natural part of the overall explanation. Notable new results are the accounts of multiple scrambling at the left periphery and the Right Roof Constraint at the right periphery, both of which are problematic for many other frameworks. This asymmetry between left and right periphery effects is a notable bonus over other frameworks, for which symmetry is expected and asymmetries require special stipulation. Furthermore, concepts of topic and focus promise to emerge as a consequence of the concepts defined. We conclude that properties of natural language syntax are founded directly in the dynamics of the parsing process.

References

Anagnostopoulou, Eleana, Henk van Riemsdijk, Franz Zwarts, eds., 1997. *Leftward Movement*. John Benjamins, Amsterdam.

Belletti, Andrea. 1999. Inversion as Focalization and Related Questions. *Catalan Working Papers in Linguistics* 7: 9-45.

Blackburn, Patrick and Meyer-Viol, Wilfried. 1994. Linguistics, logic, and finite trees. *Bulletin of the Interest Group of Pure and Applied Logics* 2: 2-39.

Boeckx, Cedric. 2003. *Islands and Chains*. Benjamins, Amsterdam.

Büring, Daniel. 1997. *Meaning of Topic and Focus: 59th Street Bridge Accent*. Routledge,

London.
Cann, Ronnie et al. 2004. On the Left and on the Right. In Adger, David et al. eds., *Peripheries*. Kluwer, Dordrecht, pp.19-47.
Cecchetto, Carlo. 1999. A Comparative Analysis of Left and Right dislocation in Romance. *Studia Linguistica* 53: 40-67.
Cinque, Guglielmo. 1990. *Types of A-bar dependencies.* MIT Press, Cambridge, MA.
Erteschik-Shir, Nomi. 1997. *The Dynamics of Focus Structure.* Cambridge University Press, Cambridge.
Herring, Susan. 1994. Afterthoughts, Antitopics, and Emphasis: the Syntactization of Postverbal Position in Tamil. In Butt, Miriam, Tracy H. King and Gillian Ramchand, eds., *Theoretical Perspectives on Word Order in South Asian Languages*, CSLI Stanford, pp. 119-152.
Hoffman, Beryl. 1995. *Computational Analysis of the Syntax and Interpretation of 'Free' Word Order in Turkish.* Ph.D. diss., University of Pennsylvania, Philadelphia.
Jang, Youngjun. 1998. Multiple Subject and Characterization. *Discourse and Cognition* 5.
Kayne, Richard. 1994. *Antisymmmetry in Syntax*. MIT Press, Cambridge, MA.
Kempson, Ruth, Meyer-Viol, Wilfried, and Gabbay, Dov. 2001. *Dynamic Syntax: The Flow of Language Understanding*. Basil Blackwell, Oxford.
Kempson, Ruth. 2003. Nonrestrictives and Growth of Logical Form. *West Coast Conference in Formal Linguistics 22*. Cascadilla Press, Somerville, pp. 110-114.
Kempson, Ruth and Meyer-Viol, Wilfried. 2004. Indefi nites and Scope Choice. In Marga Reimer and Anne Bezuidenhout, eds., *Descriptions and Beyond*. Oxford University Press, Oxford.
Kempson, Ruth; Cann, Ronnie and Kiaer, Jieun. 2004a. Topic, Focus, and the Structural Dynamics of language. *Proceedings of GLOW 2003 Workshop on Topic and Focus* (submitted).
Kempson, Ruth. 2004. Japanese Word Order: Structural Underspecifi cation and Growth of Information. Submitted to *Journal of Applied Logic*.
Kempson, Ruth; Cann, Ronnie and Marten, Lutz. 2004. *The Dynamics of Language*. Submitted to Elsevier.
Kitagawa, Yoshihita. 1986. *Subjects in Japanese and English*. Ph.D. diss., University of Massachusetts, Amherst.
Koizumi, Masatoshi. 2000. String Vacuous Overt Verb Raising. *Journal of East Asian Languages* 9: 227-285.
Nordlinger, Rachel. 1998. *Constructive Case*. CSLI, Stanford.
Rogers, James. 1995. *Studies in the Logic of Trees with Applications to Grammar Formalisms.* Ph.D. diss., University of Pennsylvania, Philadelphia.
Simpson, Andrew and Tanmoy Bhattacharya. 2003. Obligatory Overt *Wh*-Movement in a Wh-in-situ Language. *Linguistic Inquiry* 34(1): 127-142.
Steedman, Mark. 2000. *The Syntactic Process*. MIT Press, Cambridge, MA.
Takano, Yuji. 2002. Surprising Constituents. *Journal of East Asian Languages* 11: 243-301.
Vallduví, Enric. 1991. *The Informational Component.* Ph.D. diss., University of Pennsylvania, Philadelphia.