Interface Economy: Focus and Markedness.[i]

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There is a certain resemblance in the history of the view of quantifier scope, and of focus, in theoretical linguistics. At the earlier stages, e.g. Chomsky (1971), focus was viewed, essentially, as a property defined on PF structures. The basic idea was that sentence stress is assigned independently, by the phonological rules, and the interface systems make use of this available stress in relating a sentence to its context, namely, signalling the focus and presupposition structure. The focus was defined as any constituent containing the intonation center of the sentence. This view rests on the notion of 'normal intonation'. Specifically, a distinction was needed between this type of normal stress, and more marked stress options required by discourse needs.[ii] In Reinhart (1976, 1983) and Keenan and Faltz (1978) and Reinhart (1983), the same was assumed for the scope of universal quantifiers: a rule like QR is viewed there as a marked operation, used only when it is necessary to derive scope construal wider than the overt c-command domain.

However, the concept of markedness was problematic. It appears easy to find examples of non-compositional wide scope which sounds perfectly natural (e.g. Hirschbühler's *An American flag was hanging in front of every building*). If it is as easy to get the marked derivation as the unmarked one, it is not clear what empirical content the concept could have. Similarly, the distinction between marked and neutral stress has been often challenged since, and a common claim in focus studies is that it is impossible to distinguish between 'normal' and 'marked' intonation patterns. Hence, focus intonation cannot be assigned at PF independently of the semantics of the sentence, and it must be the other way around: sentence intonation reflects its independently determined focus structure. This seems to have been the winning hypothesis for years. In fact, in Chomsky (1976), where QR was introduced for the questions of quantifier scope (and its interaction with anaphora), the view is that focus is signalled by QR, and, consequently, any constituent that can be raised by QR can serve as focus.

Nevertheless, the issue of markedness deserves further attention. In Reinhart (1995), I propose a reexamination of markedness, based on developments in the view of economy in current syntax. As far as the computational system is concerned, a marked derivation is, strictly, an economy violation. However, if at the interface, the choice of such a derivation is the only way to satisfy an interpretative need, this is, nevertheless, the optimal option. This pursues the findings of Golan (1993) and Fox (1994) that in various areas, economy is sensitive to interpretative needs. In fact Fox provides the first empirical evidence that QR to a wide scope position applies only when this is needed to derive an interpretation not obtainable otherwise.

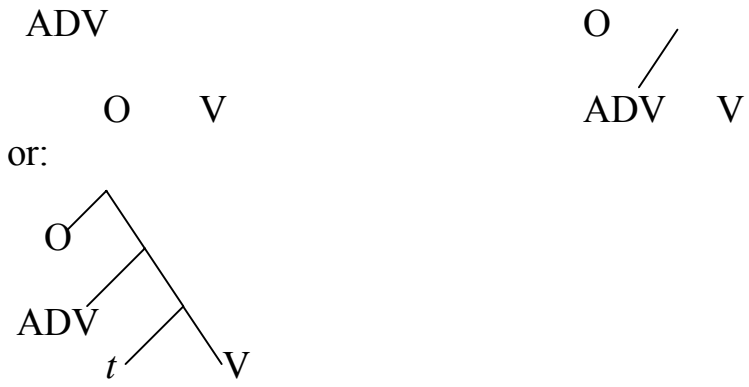
In a pioneering study, Cinque (1993) reopened the markedness issue in the area of focus, and proposed, in essence, returning to the PF view of focus. There are substantial conceptual advantages to this line, which we will see in detail. But, as before, it requires a distinction between normal ('neutral' - in his terms) and marked patterns of sentence stress. It may appear, therefore, that his analysis could face the same problems for which it was abandoned in the previous round. So, my major concern here is, first to provide further support for Cinque's approach, and next to explore further the concept of markedness. As in the case of QR, I view a marked derivation as an economy violation. One of the reasons the notion seemed problematic is that it cannot be directly witnessed by introspection: when the marked option is the only way to reach an interface need, it sounds perfectly normal. It is only when a more economical option is available, that the marked nature of the alternative is visible. In the case of focus, evidence for markedness can come from cross-language examination. Zubizarreta (1994) shows that if a language has the means to get a certain focus structure without applying the marked operation (say, by choosing an alternative permissible derivation), then its application yields visibly bad results in that language.

As a case-study of this concept of focus and markedness, I will examine object scrambling in Dutch.

1. Object Scrambling in Dutch

A VP containing V, O, and ADV (or PP) can be realized in Dutch in the two ways illustrated in (1).

(1) a.  b. 'scrambling' 



Much theoretical debate has been generated around the question of how the scrambling structure (1b) is generated. The two major positions are that it is derived by A- (or A'-) movement (as in the right hand tree), and the alternative, proposed in Neeleman (1994), that it is base generated, just like (1a), the only difference being the adjunction site of the adverb. Although the second seems to me empirically and conceptually advantageous, for the present discussion, it is not necessary to decide between them. In any case, I will keep the familiar the name 'scrambling' for the structure in (1b), just for convenience.

This, apparently minute, structural difference correlates in Dutch (and German) with substantial differences in acceptability, and, consequently, has led to substantial theoretical machinery being devised to explain these differences.

It has been observed that there appear to be definiteness effects associated with scrambling. Compare, e.g. (2) and (3). (Examples and their judgments are from de Hoop (1992, p. 138-139), hereafter dH).

(2) a. dat de politie gisteren taalkundingen opgepakt heeft
that the police yesterday linguists arrested has
b. */? dat de politie taalkundingen gisteren opgepakt heeft

(3) dat de politie de taalkundingen gisteren opgepakt heeft
that the police the linguists yesterday arrested has

The indefinite *linguists* seems fine in the standard order in (2a), but in the scrambled version in (2b) it is worse. On the other hand, the definite *the linguists* in (3) is fine in the scrambled position.

The popular approaches to this problem attempt to derive such facts from the properties of the scrambled NPs, and assume that the relevant properties enabling scrambling are encoded in their syntax. This line is developed in depth by de Hoop (1992). She argues that corresponding to the semantic distinction between weak and strong NPs, there are two

types of case that an object can get: weak case, and strong (partitive) case. To derive the fact that only the strong NPs appear to allow scrambling, de Hoop postulates that weak case can only be licensed in the original Deep Structure position of the object, while strong case is freer.

However, it is not only definite NPs that can scramble. It has also been noted (attributed to Eric Reuland) that indefinites can scramble under their 'specific' use, as in (4b), or under their generic use. In (4a), e.g. the change of the adverb to *always* allows the same *linguists* of (2a) to scramble, since a generic interpretation is available for them.

(4) a. dat de politie taalkundingen altijd opgepakt heeft
that the police linguists always arrested has (dH p. 138-139)

b. dat de politie een kraker gisteren opgepakt heeft
that the police asquatter yesterday arrested has(dH p.50)

Under the syntactic (e.g. case-) approach to the problem, there should be, again, something in the indefinite NP itself that explains why it can scramble here. The line taken by this approach is, consequently, that familiarity, d-linking, specificity, etc, are somehow encoded syntactically. Diesing (1992) and de Hoop (1992) argue that all indefinites are always ambiguous between what they call the 'weak' and the 'strong' reading of indefinites. For Diesing, 'strong' means 'presuppositional'. For de Hoop, an indefinite is 'strong' iff it is either a. specific- referential, b. generic, or c. partitive. (She assumes that cardinals like *two cats* are always ambiguous between the existential reading, and a reading like the partitive *two of the cats*.) Both introduce syntactic machinery that distinguishes the two cases. In de Hoop's analysis, the two types of indefinites get different types of case, so only her 'weak' indefinites get the weak case, and hence, cannot scramble.

With this assumed, it appears possible to state the generalization governing scrambling as in (5) (which covers both the cases of definite NPs, and de Hoops 'strong' indefinites.)

5) *de Hoop's generalization*: Only strong NPs can 'scramble'.

We should note that despite the heavy syntactic machinery introduced to derive this generalization, in fact, it tells us only little about the actual availability of scrambling. As far as (5) is concerned, definite (or strong) NPs are allowed to either scramble or not. I.e. scrambling is a fully

optional operation, in their case. When we look at actual contexts, however, we find cases where scrambling is obligatory, and others where it is impossible. E.g. in the context (6), the unscrambled version (6a) is very bad, and the definite NP must scramble. In (7) it is the other way around: the scrambled version (7a) is bad, and only the unscrambled (7b) is allowed.

(6) a. *Ik heb gisteren het boek gelezen en niet verscheurd.
I have yesterday the book read and not torn up.
b. Ik heb het boek gisteren gelezen en niet verscheurd.

(7) a. *Ik heb de krant nog niet gelezen, maar ik heb het boek
I have the newspaper not yet read, but I have the book
al wel gelezen.
already indeed read.
b. Ik heb nog niet de krant gelezen, maar ik heb al wel het boek gelezen.

There is also an important difference between these cases and the standard examples used to illustrate the definiteness effects such as (2) - (4). The judgments on the latter are known to be subtle. But the judgments in (6)-(8) are solid and clear. So far, then, the 'strength' generalization (5) explains the less clear cases, while leaving out the clear ones.

De Hoop herself notes another case where the generalization seems too permissive. In (8a,b) (attributed to an observation by Kratzer), the indefinite is generic, still it does not scramble and only the unscrambled version is allowed. The same point is illustrated with definite NPs in (8c,d), from Ad Neeleman. In these cases scrambling is bad without any particular context.

(8) a. omdat ik altijd een kat heb
because I always a cat have
b. *omdat ik een kat altijd heb (dH 72, p. 163)
c. dat ik altijd de bus neem
that I always the bus take
d. *dat ik de bus altijd neem

Attempting an account for (8), de Hoop discovered the important descriptive generalization (9), which has not been noted before.

(9) *A descriptive generalization*:
"In Dutch, scrambling of the object yields the same semantic effect" as the contrastive predicates with stressed verbs in English. (dH, p. 165)

For illustration, take a sentence like (4b), repeated in (10). Its unscrambled version corresponds to (11a), with normal sentence intonation, but the scrambled version in (10), is best translated into English as (11b), with bold letters standing for heavy stress.

(10) dat de politie een kraker gisteren opgepakt heeft
that the police asquatter yesterday arrestedhas

(11) a. The police arrested a squatter yesterday. (unscrambled)
b. The police **arrested** a squatter yesterday. (scrambled)

This means that the appropriate English translation of (8b) is as given in (12). Indeed, (12) is weird in English, as its Dutch counterpart with scrambling.

(12) #because I always **have** a cat

(13) I have **read** the book yesterday, and did not tear it up.

(14) #I have not yet **read** the paper, but I have already **read** the book.

The generalization (9) turns out to be consistent also with the cases of (6) and (7). The scrambled version of (6) is best translated as (13), which is an appropriate stress pattern for this sentence in English. But the translation of the bad scrambling case in (7), would be (14), which is, indeed, odd.

So, the basic idea is that when contrastiveness of the verb is impossible, we should also not be able to get scrambling. Although, as we shall see, (9) is not precisely the correct generalization, it gets very close to describing the facts. But there is still a question of why this should be so.[iii]

Now, let us review the new theoretical machinery which we have accumulated, apart from (9), to handle this apparently minute structural variation in Dutch. The assumptions are: (a) there are two kinds of case an indefinite object can get: weak and strong (partitive); (b) weak case can be assigned only in DS position, and does not allow A-movement; (c) indefinites are always syntactically and semantically ambiguous.

These three assumptions combined, still only capture the judgments regarding indefiniteness cases like (2)-(4). The stronger judgments are captured only by the contrastivness generalization (9). An obvious hope we could entertain now is that, perhaps, something like (9) should be sufficient, alone, to explain all cases, and next that (9) could, indeed, be derived from independently established principles.

The point of departure which the approaches discussed here share, is that whatever it is that determines scrambling options of NPs should be sought inside these NPs. Namely, that if scrambling is movement, this operation is motivated by properties of the moved NP. If this is so, it is surprising to discover that the verb must also have some special properties, like contrastiveness. The next move is to check, instead, the effects of scrambling on the downstairs context, e.g. on the verb.

A fact that we will soon see in more detail is that in the unscrambled version, main sentence stress falls on the object, while in the scrambled version it falls on the verb. A growing attention is paid recently to the option that certain types of movement (or other structural choices, like adjunction) are motivated by PF (phonological or prosodic) reasons. These PF considerations, on their part, may interact with the focus structure of the sentence. This was proposed in depth by Zubizarreta (1994), who shows this for a variety of structures in Romance.[iv] Zubizarreta's line is based on and develops the pioneering research of Cinque on sentence stress, to which we turn now.

2. Cinque's Theory of Stress and Focus

2.1 Sentence Stress

The broader issue Cinque (1993) is concerned with is phrase and compound stress, but the instance of this problem which is relevant for us here is sentence-stress. Previous analyses, which followed, in various ways, the nuclear stress rule of Chomsky and Halle (1968), assumed that this rule is parameterized, to capture the stress patterns across languages. Halle and Vergnaud (1987) developed a metrical approach to this rule (following the metrical-lines analysis of word stress, as first proposed by Liberman). The basic idea is that the nuclear stress rule (NSR) applies cyclically, where the cycles are determined by syntactic constituency. The input of the procedure is the sequence of (non-compound) word-stresses, marked by asterisks, and represented as a line. A new line is introduced for each new cycle. The NSR, then, locates the prominent stress of this line. My summary of how this works will be simplified. A more detailed summary can be found in Cinque (1993). For illustration,

let us check how we derive the fact that main stress in the simple sentence (15a), falls on *book*. Throughout, I will represent the word carrying the main stress of a sentence with bold-face (for reasons of typographic visibility).

(15) a. I read the **book**.
b. (Dat) ik het **boek** las (Dutch)

(16)

		[I [read [the book]]]
a.	Line 1 (=word line 3):	[* [* [*]]]
b.	line 2 (VP cycle):	[[*]]
c.	line 3 (IP cycle):	[*]

The output of word-stress for (15a) is (16a) (which is assumed to be metrical line 3). NSR then selects one of the word-stresses of line 1, and places it in line 2. The same holds for line 3. Of course, the question is how the rule knows which asterisk to place on the next line. (A simple idea such as 'take the rightmost asterisks' won't do, e.g. for the Dutch equivalent (15b).)

Halle and Vergnaud (H&V) first define the cycle as a syntactic constituent containing at least two asterisks (stressed words). In this case, one is defined as the *head* of the constituent line. Once the head is identified, the NSR proceeds to project the head of each line into the next line. The gist of this procedure is, then, stated in (17).

(17) *Nuclear stress rule*
Locate the heads of line N constituents on line N+1.

(18) Parameter setting for English (on line N(N≥3): [..+HT, right]

But the crucial question, now, is how we identify the relevant head for (17). This is why (17) has to be parameterized. For English, as the parameter is set in (18), the head must be in terminal position of its constituent, and this position is to the right, thus *book* is selected as the relevant VP asterisk. Given all these assumptions, the derivation in (16) goes through, giving the right result for English. It is not a trivial matter to define the parameters for a "mixed" language like Dutch. If we define it as left-headed, we will get correctly the stress of (15b), since the VP leftmost stress (*boek*) will be projected. But with an intransitive sentence, the leftmost stress will be the subject, which may then get the main stress, incorrectly.

Cinque's insight is that, in fact, no parametrization of the stress rule is needed. Apart from the empirical problems of such parametrization, it is doing nothing more than an unneeded duplication of the mechanism which governs, independently, word order variations in syntax. Assuming that we need independently to know what is the direction of recursion in a language, the same (and better) results will be obtained with applying the one universal stress rule, starting with the most embedded constituent of the sentence.

The basic idea is as follows: let us assume that the first cycle of the stress rule is the most deeply embedded stress, i.e. a category containing only one (word-level) stress. The stress rule now needs no mention of heads or their order, and it can be stated with a slight simplification in (19). As far as I can see, the rest follows with no further assumptions. I should mention that I am not fully loyal to Cinque's actual execution. He assumes a greater machinery than I do here, though I think I capture correctly his intuition. Nothing here hinges on this being the case, and if my presentation is mistaken, one can go back to Cinque's precise formulation.[v] Let us see how the derivation of the stress of (15a) follows.

(19) *Generalized stress rule*
Locate the stress (asterisk) of line N on line N+1.

(20)

		[Max [read [the book]]]
a.	line 1 (=word line 3):	[* [* [*]]]
b.	line 2 (NP cycle):	[[[*]]]
d.	line 3 (VP cycle):	[[*]]
c.	line 4 (IP cycle):	[*]

Let us assume that the most deeply embedded constituent is the object (a point I return to directly). The first cycle-line, (20b), is then the NP (or N). Since there is only one stress for this cycle in the previous line, it is this stress which projects to the present line. From then on, there are no more options, and each cycle projects this same stress.

Thus, the gist of the analysis is that the main stress of the sentence will always be on its most embedded constituent, namely, on the node we started stress-processing with. Of course, everything depends now on the correct identification of the most embedded node. Specifically, the problem arises in the case of sisters (both carrying stress). Cinque argues that the answer lies in the order of recursion. Given two sisters, the most embedded one is that occurring on the recursive side of the tree. At first sight, this may seem like begging the question, but Cinque's point is that the order of recursion, or whatever determines word order, is a problem independent of stress, the answer to which is the goal of current syntax.

Once the answer is found, the stress pattern should follow. Thus, in a right branching language like English, in the VO structure, in (21), the most embedded node is the object. In a left-branching language, like Dutch (in this relevant structure), it is again the object.

(21) *Asymmetry of sisters*:

English	Dutch
V'	V'
V O	O V
*	*

Zubizarreta (1994) argues that, in fact, it is not correct to talk about just order of recursion here, and depth of embedding is determined by head-complement relations.

With this assumed, the Dutch (15b), repeated in (22) is derived as in (23).

(22) (Dat) ik het **boek** las /I the book read.

(23)

		[ik [[het boek] las]]
a.	Word stress:	[* [[*] *]]
b	NP cycle:	[[[*]]]
c.	VP cycle:	[[*]]
d.	IP cycle:	[*]

The intransitive case appears non-problematic, at this stage: Given a sentence like *(dat) ik **las**/ I **read*** , the first cycle assigns stress to V (or to VP - nothing hinges on this, in this case). Since the VP and the subject are not sisters, the issue of embedding does not arise, and it is clear where the stress-processing starts. Hence, the main stress will fall on the verb.

More problematic are structures where the subject (or another adjunct or specifier) is a complex constituent, containing more embedding than the VP. The main stress still falls in this case on the deepest constituent of the VP, and the question is how this happens. Cinque assumes that the subject constitutes a cycle of its own. In this, he follows Halle and Vergnaud, who noted, independently of this problem, that the subject always gets secondary stress (higher than non-stressed nodes in the VP). The issue, then, becomes that of how to merge two cycles, each carrying its own main stress. Cinque defines, for that, the notions of major and minor paths of embedding. The main stress always falls on the major path, but when a minor path joins it, it gets a secondary stress (one asterisk). Zubizarreta (1994) offers a different formulation of this

merging, sensitive to the complement/adjunct distinction, but for our purpose here these details are not crucial.

Cinque argues that his stress rule applies directly to syntactic constituents and no notions like a phonological or prosodic phrase are needed. The question of what the relevant constituents for phrasal stress are, has been a subject of much debate. Cinque's line contrasts with the view developed by Selkirk (1984), where it applies to phonological phrases, related, but not isomorphic to syntactic constituents. If Cinque's analysis can be maintained, it is clearly advantageous, being the more minimal one. In any case, Zubizarreta (1994) points out that Cinque's analysis can also be stated to apply to phonological constituents.[vi]

2.2 Main Stress and Focus

2.2.1. The analysis of sentence stress outlined so far is independent of any discourse considerations: it is impossible to utter a sentence with no prominent stress, so the PF rule we examined -(19) - determines where this stress will fall. The main stress of the sentence, which is assigned by this rule, is just a particular instance of stress assignment which is needed independently (e.g. for units smaller than a sentence). However, sentence accent interfaces with the theory of discourse, via the notion of focus. Focus, which is roughly viewed as the most informative part of an utterance, is usually identified by prominent stress. The gist of Cinque's proposal is that the set of possible (neutral) foci in a sentence is determined by its main stress, i.e. by the same rule of phrasal stress. I return directly to how precisely this works. On this issue of the relations between main sentence-stress and focus, there exist two conflicting positions: the one that Cinque returns to is that possible focus selections are restricted by an independent PF stress rule, and the other is that there is no such thing as a (neutral) PF stress, and the main stress of the sentence is determined solely by its relations to discourse, i.e. by focus. Cinque surveys common counter-arguments to the position he defends and concludes that discourse considerations may at times interfere with the results of the phrase-stress rule, assigning a different stress-prominence. But he assumes that the two types of prominence can be distinguished. For him, the relevant distinction is that between sentence grammar and discourse grammar. The latter can change the output of the computational system: if in a given context, it is appropriate to use as a focus a constituent which was not assigned the main stress by 'sentence grammar', 'discourse grammar' assigns an additional stress to this constituent, or destresses the original prominent stress.

Zubizarreta (1994) develops this line, and argues that the relevant distinction is that between a neutral focus and a marked one. Neutral

focus intonation is often characterized as that intonation under which a sentence could be uttered 'out of the blue', namely, the whole sentence is asserted (as "new") and none of its constituents need to be pre-assumed in the context (no "presupposition"). Zubizarreta argues, then, that what Cinque's stress rule determines is the neutral focus intonation of a sentence. When a sentence with this intonation is uttered 'out of the blue', the full sentence can be viewed as the focus phrase[vii]. But the central point of Cinque's and Zubizarreta's analysis is that, under the same neutral-focus intonation, a sentence can be used also with only one of its constituents as the focus (and the rest pre-assumed). Crucially, the full set of the possible (neutral) focus constituents of the sentence is determined by the same rule of phrasal stress. Cinque's generalization is given in (24).

(24) The focus of IP is a(ny) constituent containing the main stress of IP, as determined by the stress-rule. (This is Cinque's 'sentence grammar' focus, and Zubizarreta's 'neutral focus'.)

To see what is the set of possible foci allowed by (24), let us look at the sentence (25), whose main (neutral) stress falls, as predicted on the object, *a desk*. This stress is determined, as we saw, cyclically, by assigning each new cycle the main stress of the previous one. There are three cycles: the NP, the VP, and IP, and each of them has the same main stress. Each of them, then, can be said to carry the main stress of the sentence.

(25) [My neighbor [is building [a desk]]]
* * *

a. NP cycle: [*]
b. VP cycle: [*]
c. IP cycle: [*]

The focus generalization (24) now determines that each of these constituents can serve as the focus. This means that with this main stress, the sentence can be uttered in contexts in which it is appropriate for any of these three constituents to serve as focus. This is illustrated in (26). The notation I will use throughout is **bold-face** to mark the word which carries the main stress, and underlining for the constituent which is the focus selected in the given context.

(26) a. -What's this noise?
-My neighbor is building a desk.

b. -What's your neighbor doing?
-My neighbor <u>is building a **desk**</u>.
c. -What's your neighbor building?
-My neighbor is building <u>a **desk**</u>.
d. -Has your neighbor bought a desk already?
#-My neighbor is <u>building</u> a **desk**.
e. -Who is building a desk?
#-<u>My neighbor</u> is building a **desk**.

In (26a) we have an instance of 'out of the blue' context. Here the option (25c) is selected in the answer, with the whole IP as focus. (26b,c) illustrate contexts for the selection of (25b,a), respectively. The crucial point is that in all three contexts precisely the same main stress is used. But the same main stress cannot be used in (26d,e). In (26d), the context determines that the relevant focus should be only the verb. But the verb is not one of the constituents that (24) selects as possible foci for this structure, since it does not, itself carry the main stress. The same is true for (25e), where the context forces the selection of the subject <u>*my neighbor*</u> as the focus.

As Cinque notes, his analysis goes back, in its essence, to the view of focus in Chomsky (1971). Another way to check the prediction that any of the constituents dominating the main (neutral) stress can serve as focus, is checking the set of possible substitutions. E.g. in the context of a yes/no question in (27), modelled after Chomsky's example, the different answers correspond to different selections of focus in the question. The focus constituent in each answer, which is underlined, substitutes one of the possible foci in the question, namely one of the constituents dominating the main stress of the question.

(27) Are you [looking for [a passenger with [a red [**shirt**]]]]?
a. No, I am looking for a passenger with a red <u>**tie**</u>
b. No, I am looking for a passenger with <u>a **coat**</u>
c. No, I am looking for <u>a member of the **crew**</u>
d. No, I am <u>just wandering **around**</u>

2.2.2. Although Cinque may not have stated it precisely in the same way, I would like to elaborate a bit on the picture which, I think, underlies this line of analysis. At the interface, sentences must be fit to context and purpose of use. One of the means relating sentences to discourse is focus. The computational system should provide us with sufficient means to identify the focus. This need has been often addressed by syntacticians with the idea of encoding focus syntactically: either by movement (QR), or by attaching a focus feature to nodes in the syntax, or both: attaching a focus feature to allow movement (which, interestingly, is viewed by some as more minimal than doing just one of these two). While certainly possible, this does not take us very far in addressing any of the problems discussed here, since we still need to know first, what the restrictions are on possible focus selections, and next, which focus selection is appropriate for which discourse.[viii]

I will pursue, instead, a line suggested in Reinhart (1981), for the analysis of topics.[ix] Each derivation is associated not with an actual focus, but with a set of possible foci, namely, a set of constituents that can serve as the focus of the derivation in a given context. This set is determined by the computational system at the stage where both the syntactic tree and stress are visible, namely, the focus selection applies either to a PF structure, or to a pair <PF,LF>, of sound and configurational structure.[x] The focus generalization (24) can, then, be stated as the definition of the focus set associated with each derivation, as in (28a). (This is the first approximation of the focus-set definition. More details are discussed in Reinhart (1995), part 3.) Sticking to the basic structure SVO in English, or SOV in Dutch or German, the focus set defined by (28a) is (28b).

(28) a. *Focus set*:
The focus set of a derivation D comprises all and only subtrees (constituents) which contain the main stress of D.

b. [IP S [VP V **O**]] / [IP S [VP **O** V]]
Focus set: {IP, VP, O}

At the interface, one member of the focus set is selected as the actual focus of the sentence. At this stage, it is up to discourse conditions, rather than syntax, to determine whether a derivation with a given focus is appropriate for a given context. If no member of the focus set can be used as focus in the given context, this derivation is unusable in that context.

The basic idea, then, is that the main stress assigned by PF enables a sentence to be used in a variety of contexts, since it permits a large set of

possible foci, from which the context can select the appropriate one. Nevertheless, there may be contexts requiring a constituent not in this set to serve as the focus. E.g. constituents not included in the focus set in both structures of (28b) are V and S. This means that sentences leaving PF with the standard main stress cannot be used with their subject or verb as the (only) focus. That this is indeed so, was witnessed by the inappropriateness of (26d,e), repeated in (30a) and (31a). For such contexts, stress-relocation operations have to apply (which is what Cinque labelled 'discourse-rule'). apply. We may state this, for the moment, as the stress- shift procedure (29), and I will return to some more details in section 3.2.

(29) *Stress shift:*
Relocate the main stress on a constituent you want to focus.

With stress shift applied, the sentence can be used in the context of (30, 31), as illustrated in their (30b),(31b): answers.

(30) -Has your neighbor bought a desk already?
a. #-My neighbor is <u>building</u> a **desk**.
b. -My neighbor is **<u>building</u>** a desk.

(31) -Who is building a desk?
a. #-<u>My neighbor</u> is building a **desk**.
b. -<u>My **neighbor**</u> is building a desk.

Under this analysis, then, the focus use in (30b),(31b) is viewed as marked, since it is obtained by a special operation undoing the results of sentence stress. This, in a way, is the heart of the analysis, and the center of the debate concerning focus and sentence stress. The idea that a systematic distinction can be drawn between marked and neutral stress at the sentence level has been often challenged (with the alternative view being that stress at this level is determined by focus, and not conversely.) The crucial question is whether an appropriate definition, and further supporting evidence, can be found for this distinction. This issue is addressed in Reinhart (1995). Let us assume, for now, that this distinction can be maintained, and look at some of its consequences.

On this view, using marked stress is costly and uneconomical, involving an additional operation. We would expect that this would be done only for a good reason, namely, when there is no other way to express the intended focus relations. English, with a rather restricted word order, does not have too many choices here. But languages with

more word order options, may find ways to express more focus-structures with neutral stress. Cinque compared the following sentences in English and Italian:

(32) a. Johnson **died**.
b. **Johnson** died.

(33) a. Johnson e' **morto**.
b. E' morto **Johnson**.
c. #**Johnson** e' morto.

In English, to create a focus structure with focus on the subject, one must use the marked stress rule, to yield (32b). In Italian, there is an option of raising the subject, as in (33a), or not, as in (33b). In the first case, neutral stress will fall on the verb, as the most embedded constituent. In the second, it will fall on the subject. Thus, Italian allows expression of both focus structures of the English (32) with no appeal to marked stress. Next, Cinque observes that the use of marked stress on the subject, as in (33c), is inappropriate (even in the right context, which he provides, following Schmerling). This is so, since there is no reason for this option-it does not give us any option that could not be obtained with an alternative derivation with a neutral stress. Another way to describe the inappropriateness of (33c) is that the function of subject raising is precisely to exempt the subject from the focus role which the main stress forces on it, in embedded position. (This is consistent with the observation, analyzed in depth in Pinto (1994), that when the subject is D-linked, its movement is strongly preferred - D-linked constituents are not particularly happy foci.) Hence it appears self-defeating to then apply a special marked operation to give this stress back to the subject. I will return to the type of economy calculation which underlies this informal description in section 4.

This idea is taken much further in Zubizarreta's pioneering research on the relation of focus and movement. Her generalization, based on an extensive study of Romance, is that movement out of VP may be due to phonological reasons - namely, to change the stress pattern, hence the focus structure of a sentence.

With this assumed, let us go back to the analysis of object-scrambling in Dutch.

3. A Focus Account for Object-Scrambling

3.1. The Focus Set of Scrambled Structures

As we saw already, in the discussion of (22), when V' in Dutch contains V and O (or another complement), the main sentence stress falls on O (in the standard SOV order). When it contains only V, it falls on V. We may note that the predictions of Cinque's analysis were confirmed, independently in Gussenhoven's (1984) study of Dutch stress. Let us see one further illustration, originally noted by Gussenhoven.[xi]

(34) dat ik [V'op een bankje [V'**wacht**]]
that I on a bench wait
'that I am waiting on a bench'

(35) dat ik [V'op een **bankje** wacht]
that I on a bench wait
'that I am waiting for a bench'

When the stress falls on the verb, as in (34), the PP has only the locative adjunct reading. This follows, since it is only if the PP is an adjunct, that the verb becomes the most embedded constituent, so it can get the neutral stress. In (35), where the stress falls on the PP, the most available interpretation is that in which it is a complement. This is so, since under this interpretation, it is the most deeply embedded constituent, so it gets neutral stress.[xii]

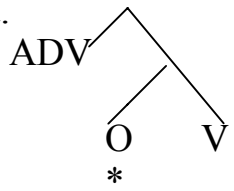
Turning now to scrambling structures, the scrambled object is not in a complement position, but it is higher than V'. Hence, the most embedded node in this structure is the verb, just like in (35b), or in sentences with intransitive verbs. Indeed, we see below that the scrambled sentences in (36b),(37b) have a different stress pattern than their non-scrambled counterparts in (36a),(37a), with neutral sentence stress shifting to the verb. It does not matter, in this regard, whether the object is definite, as in (36), or indefinite. What determines the stress pattern is the fact that the object is not a sister of V in the scrambled version.[xiii]

(36) a. dat ik gisteren het **boek** las
b. dat ik het boek gisteren **las**
'that I read the book yesterday'

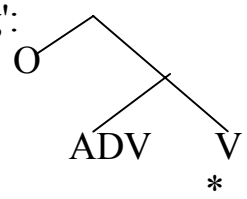
(37) a. dat ik altijd een **brief** verscheur
b. dat ik een brief altijd **verscheur**
'that I always tear up a book'

Let us see, now, what difference in focus options is entailed by this stress system, given the Cinque-line on focus analysis. The stress in both structures, summarized in (38), is neutral stress. Hence, it determines the focus set in the way we observed in the previous section.

(38) a.



b.'scrambling':



Focus set: {IP, VP, O} {IP, VP, V}

The difference is that in the 'base' structure (38a), the object is included in the focus set, but the verb alone is not. In (38b), on the other hand, the verb is in the set, but the object is not. It follows, then, that a major reason to prefer a scrambling structure over the non-scrambled one could be to allow the V as the focus, which it cannot be otherwise. As we saw, in English, the only way to obtain this result is to apply the marked stress rule, which shifts the stress to V. Let us examine this again in (39).

(39) Editor: Any progress on the book we sent you for review?
Reviewer: I **read** the book yesterday, and I will **review** the book (/it) tomorrow.

In the given context, the appropriate focus of the reviewer's answer is the verb. But the verb is not in the focus set obtained by neutral stress. Hence stress-shift applies, giving extra stress to the verb.

In Dutch, the same result can be obtained with scrambling, as seen in the translation of the reviewer's reply in (40a).

(40) -Hoe gaat het met de review van Jan's boek?
How goes it with the review of Jan's book?

a. -Ik heb het boek gisteren gelezen.
b. -#Ik heb gisteren het boek gelezen.

In the unscrambled version of this sentence, in (40b), stress falls on the object, hence the verb alone is not in the focus set, and the sentence cannot be used in this context. But in the scrambled version (40a), neutral stress falls on the verb. Hence, the focus set includes also the option of

the verb alone being the focus, and the sentence can be used in this context with no appeal to the marked stress rule. As we shall see, the option of applying stress shift rather than scrambling is strongly dispreferred in this case (i.e. using the word order (40b), with the stress shifted to the verb as in English).

With this, we may return to the contrastiveness generalization observed by de Hoop (1992), repeated here:

(9) *A descriptive generalization:*
"In Dutch, scrambling of the object yields the same semantic effect" as the predicates with stressed verbs in English. (dH, p. 165)

This descriptive generalization now follows from the analysis of stress and focus, and it is what we have just seen: scrambling in Dutch does a similar job to that which the marked stress rule does in English. Contrastiveness is not necessarily involved here, hence I omitted here the reference to it in the original formulation of (9). We will see directly that even as stated here, the generalization is not fully precise, and, in fact, scrambling and the stressing of the verb via the marked-stress rule do not always have the same semantic effects. However, it is correct for cases of the type we have examined so far. Let us see how these follow from the different focus sets defined for scrambled and non-scrambled structures in (38).

We saw in section 1 that there are cases where scrambling of a definite NP seems obligatory, and others where it is not allowed. (6), repeated in (41) is an example of the first. Under its neutral, unmarked intonation, the main stress of the unscrambled version (41a) falls on the object, hence its focus set is (38a). However the context here signals the verb as the focus. Since this focus construal is not in the focus set, we get a mismatch between the stress and the focus needed in this context. In the scrambled version (41b), main stress falls on the verb, hence the focus set is (38b), and the verb can be the focus, as required.

(41) a. *Ik heb gisteren het **boek** gelezen en niet verscheurd.
I have yesterday the book read and not torn up.
b. Ik heb het boek gisteren **gelezen** en niet **verscheurd**.

(42) a. *Ik heb de krant nog niet **gelezen**, maar ik heb het boek
I have the newspaper not yet read, but I have the book

al wel **gelezen**.
already indeed read.

b. Ik heb nog niet <u>de **krant**</u> gelezen, maar ik heb al wel <u>het **boek**</u> gelezen.

In (7), repeated in (42), by contrast, the context selects the object as the focus. Opting for the scrambled version here, as in (42a), the option of the object alone construed as focus is not in the focus set, as we saw in (38b). Hence scrambling is disallowed in this context. In the non-scrambled version (42b), neutral sentence stress falls on the object. Hence, among the focus options in the focus set (38a), we find the one with the object alone as focus, which is appropriate here.

Generally, we then expect scrambling not to be possible, when the verb is an unlikely candidate to be stressed or serve as the focus. While in (42) this was precluded by the context (which happens to be contrastive in this specific example), there may be other, context independent, reasons to avoid stressed verbs. Recall de Hoop's (8a,b), repeated in (43), which motivated her generalization (9).

(43) a. omdat ik altijd een kat heb
because I always a cat have

b. *omdat ik een kat altijd heb (dH 72, p. 163)

The verb *have* is a light verb that will require a very special context to serve as focus. The scrambling in (41b) puts the main stress on it. With no special context, the sentence is as weird as its English counterpart (12) with stress on the verb (*Because I always **have** a cat*).

Though I focused so far on the contrast between the verb and the object as foci, it does not entail that scrambling in Dutch is allowed only when we want the verb alone to serve as focus. As we saw in (38), the focus set of scrambled structures is not restricted to the verb as focus. In fact, the same is true for stress-shifts in English VPs. To see more precisely what motivates scrambling in Dutch, let us examine in more detail the operation of stress shift. This will reveal that, in fact, scrambling only intersects, but is not identical, with the (full range of) the output of English stress shifts, and will also enable us to return to the issue of definiteness effects in scrambling.

3.2. Stress Shifts

Cinque (1993) and Zubizarreta (1994) argue that, in fact, stress-shift involves two distinct operations, which can operate independently of each other (i.e. they can either both apply to a given derivation, or only

one of them.) The one is destressing of a stressed element, and the other is strengthening the stress of a given element which does not bear the main stress. In the case of stress shift in the VP (from the object to the verb), it may be difficult to the untrained ear to distinguish the two, since in both one hears a stronger stress on the verb than would be assigned by the nuclear stress rule. But Zubizarreta surveys in detail actual phonetic analyses of the two patterns.

The most obvious instance of the first procedure is the case of anaphoric destressing, which applies when an NP (or another constituent) denotes an entity previously mentioned in the discourse.[xiv] This is often the case with definite NPs, but it is most noticeable with pronouns. In the case of definite NPs, whether the NP is anaphoric depends on previous context, but pronouns are mainly used anaphorically, hence, they are almost obligatorily destressed. Consequently, the stress of the verb becomes the prominent stress in the VP, as illustrated in (44). In the case of *it*, it is virtually impossible to find contexts where it is not destressed.

(44) a. *Max saw **her/ it**
b. Max **saw** her / it.

The other stress-shift procedure assigns an extra stress to the verb, without a direct destressing of the object. The result is that the object carries less stress than the verb, but some secondary stress can still be traced on it. It is easiest to note it in cases like the following.

(45) a. I am **waiting** for someone.
b. I have to **eat** something.

The object here is certainly not anaphoric. But it is devoid of any specific content, so it is an unlikely focus, alone. Although I am not aware of any discussion of such cases, they appear related to the contrast Bolinger (1972) found between the sentences in (46) (quoted by Zubizarreta and Cinque). In (46a), the candidate for neutral stress does not merit a focus-status because it is semantically 'light', or uninformative.

(46) a. I have a **point** to make
b. I have a point to **emphasize**.

In such cases, the verb's stress is strengthened, but the object still carries traces of the stress assigned to it by the sentence stress- rule, i.e. it carries secondary stress. Most of the examples of stressed verbs with indefinite objects cited in focus studies fall under this type.

A systematic explication of the effects each of these have on the focus structure is provided in Williams (1995). He argues (based on a detailed analysis of more elaborate examples) that the second type creates a new focus, but does not eliminate the previous focus structure. Typically, in such cases, the 'presupposition' part itself contains a focus and presupposition, namely, there is a subordinate focus.

Anaphoric destressing, on the other hand can be viewed as independent of the focus requirements of the context.[xv] This is a procedure necessary to enable anaphora resolution. By destressing constituents whose antecedents are accessible in discourse, the speaker enables the hearer to relate new expressions to existing discourse entities. But obviously, the anaphoric status of expressions may have an effect on their focus structure.

I should mention that destressing is not restricted to anaphoric expressions. Another function of destressing is to signal the scope of adverbs of quantification (like ***always***, ***often***, or ***sometimes***.) Typically, only destressed elements can serve as the restrictive term of such operator. But I will not discuss these cases here.

3.3. Scrambling and Definiteness

In English, both stress-shift procedures have, inside the VP, the effect of stronger stress on the verb. Hence, it is easy to confuse them.[xvi] But in Dutch, which allows the scrambling option, the two are distinguishable. The scrambled object is not in a position to be assigned any stress by the nuclear stress rule. Hence, it can be used only if it is appropriate for the object to be fully destressed. Notably, a pronoun object must scramble in Dutch, as in (47). (I will return to the question why the stress shift option of English is not available for (47a) in section 4.)

(47) a. *Ik heb gisteren het **gelezen**
b. Ik heb het gisteren **gelezen**
I have it yesterday read

But those cases of English where stress strengthening still leaves traces of the original stress on the object, cannot be captured by scrambling in Dutch, because the scrambled object does not get any stress. Thus, in cases like (45), Dutch too has to resort to a stress-strengthening operation, as in (48) rather than scrambling.

(48) a. Have you **eaten** anything already?
Heb je al iets **gegeten**?
*Heb je iets al **gegeten**?

b. Have you **seen** anybody here?
Heb je hier iemand **gezien**?

As a further example of the difference between the option of scrambling and of verb strengthening, we can look at the case of (30), repeated here. As we saw, the focus set provided by the neutral stress in (30a) does not contain the focus construal appropriate for the context. Hence, some stress shift operation must apply. *desk* is not anaphoric in this context. (The context does not establish a desk-entity that we keep referring to. Had it been the case, a pronoun or a definite NP would have been used.) Hence, anaphoric destressing cannot apply, but stress-strengthening of the verb, to allow it to be the focus, can apply, as in (30b).

(30) -Has your neighbor bought a desk already?
a. #-My neighbor is building a **desk**.
b. -My neighbor is **buildin**g a desk.

(49) -Heeft je buurman al een buro gekocht?
(Has your neighbor already a desk bought?)

a. #-No, hij heeft in de tussentijd een **buro** getimmerd
b. -No, hij heeft in de tussentijd een buro **getimmerd**
c. #-No, hij heeft een buro in de tussentijd **getimmerd**
(No, he has a desk in the meanwhile built)

In Dutch, in the same context, the neutral stress (49a) is also inappropriate, for the same reason as in (30a). The scrambling option (49c) requires a full destressing of the object, which, just as in English, is impossible. Hence, the option left is using the same verb-strengthening in (49b), as in English.[xvii]

We may turn now to the definiteness issue that motivated the study of scrambling. de Hoop's generalization (5), repeated here, captures the fact that it is much easier for definite (or d-linked) NPs to scramble than for indefinite ones.

(5) *de Hoop's generalization*: Only strong NPs can 'scramble'.

But to derive this result, a heavy syntactic machinery had to be assumed. Our question was whether the same could not follow without assuming this machinery. Given what we just saw, scrambling is appropriate only in a context which enables full destressing of the object. The most typical

context allowing that is that of anaphoric NPs, and most typically, definite, but not indefinite NPs can be anaphoric.[xviii]

4.The Concept of Markedness: Focus and Economy

Cinque's view of focus is striking in its simplicity and elegance. If it can be maintained, then focus is, essentially, a PF issue. Independent considerations of the computational system determine that stress must be assigned to a sentence. At the interface, this property of sentences is used to facilitate communication, using stress as focus. As we saw, this was, essentially, the view of focus in Chomsky (1971).

We should note, however, that the analysis is based on a revival of the concept of markedness, i.e. the idea that a distinction can be drawn between the neutral procedure of sentence stress, and other procedures which are marked. This distinction has been challenged extensively. It was repeatedly argued against the nuclear stress rule, or Chomsky's (1971) focus analysis, that in the appropriate context, main stress can fall anywhere, with effects hardly distinguishable from that of the neutral stress. This was particularly emphasized by Selkirk (1984).

The crucial problem here is the same as has been observed in the case of QR and quantifier scope, namely, whether any content can be given to the concept of markedness. If it is just as easy to construct examples with 'marked' stress, as with neutral stress, and there is no obvious way to distinguish them, we run into the danger of vacuity - having a theory which excludes nothing. The facts that follow from its rules are labelled 'neutral', and everything else -'marked'. (This type of theory is always true, regardless of what its rules are.) A more realistic conclusion appears to be that there is no sentence-level generalization governing the selection of possible foci, and any expression can be a focus, subject only to discourse appropriateness. This, in fact, seems to have been the winning hypothesis for years, until Cinque reopened the issue. Possibly, this is also the reason why Chomsky (1976) departed from his earlier view, and took the position that focus-scope is determined just by QR. Any constituent permitted to raise by QR can, thus, serve as focus.

However, I argue in Reinhart (1995) that it is a mistake to hunt the evidence for it in the realm of direct intuitions. A marked derivation is a derivation violating economy. When this is done with no reason, the result is visibly awkward. But if using the uneconomical derivation is, decisively, the only way to satisfy a certain interface need, the result sounds perfectly fine, and it is only indirectly that we can see that it is nevertheless marked, or uneconomical. (In the case of QR, Fox (1994)

provides ellipsis evidence for QR not taking place when not needed for interpretation.)

In the case of focus, we have already at our disposal some way to test the markedness hypothesis, when we look across languages. One of the findings of Cinque, and, mainly, Zubizarreta, is that if a language has the means to get a certain focus structure without applying the marked stress rule (say, by choosing an alternative permissible derivation), then its application yields visibly bad results in that language. The parallel case in a language like English, with very limited word-order options, may sound perfectly fine, with no visible evidence for markedness. One example was mentioned already in (32) and (33), repeated.

(32) a. Johnson **died**
b. **Johnson** died

(33) a. Johnson e' **morto**
b. E' morto **Johnson**
c. #**Johnson** e' morto.

As observed by Cinque, the Italian (33) sounds incomparably more awkward than its English counterpart (32b), although in both the marked stress rule has equally applied. This is so, since in Italian, the same focus needs could be satisfied with the structure (33b), with no application of the uneconomical operation, but in English, there is no other way to turn the subject into focus.

We may note now that the same is true also for the structures we examined in Dutch. Whenever scrambling can apply, deriving the same focus set using the marked stress-shift instead is visibly marked -namely, it sounds ungrammatical. This can be witnessed, first, in the case of pronouns.

(51) a. I have **seen** him yesterday. (marked stress)
b. #Ik heb gisteren hem **gezien**. (marked stress)
c. Ik heb hem gisteren **gezien** (neutral stress)

While destressing of the pronoun in the English (51) is completely natural, the same is hardly possible in Dutch, as in (51b). Scrambling should be used instead, as in (51c). With *het* ('it'), scrambling is strictly the only option.

But this is more generally true whenever the object is anaphoric, hence should be destressed. Obviously, the mechanism for destressing a definite NP, as well as that for destressing pronouns, exists in Dutch, and it applies, e.g. when there is no intervening adverb or PP, hence no

scrambling option. But if the derivation enables a scrambling choice, then opting for destressing instead is noticeably odd. This, in fact is true for all the examples I discussed in section 3. Let us examine this with the case of (39) and (40), repeated.

(39) Editor: Any progress on the book we sent you for review?
Reviewer: I **read** the book yesterday, and I will **review** the book (/it) tomorrow.

(40) -Hoe gaat het met de review van Jan's boek?
how goes it with the review of Jan's book

a. -Ik heb het boek gisteren gelezen.
b. -#Ik heb gisteren het boek gelezen.

(52) -#Ik heb gisteren het boek **gelezen.**

In this context, *the book* is clearly anaphoric. English has here only the option of stress shifting, as in (39). As we saw already, Dutch has also the option of scrambling, in (40a). (The neutral stress pattern in the unscrambled version (40b), is inappropriate in Dutch, as in English, because its focus set does not contain the focus relevant for this context. See the discussion in section 3.) But we may note now that this is not just an option, but an obligatory choice. Applying the same stress-shift as in English, yields here the highly marked result in (52).

The case of Dutch is particularly interesting for the economy view, since, following Neeleman (1994), scrambling cannot be viewed as a costly choice. Scrambled structures differ from non-scrambled ones only in the adjunction-site of the adverb, and adjunction is a free operation in the derivation. There can be no economy difference related to where we choose to place the adverb. Hence, the choice here is between stress shift, which is an optional, hence uneconomical operation, or not applying it. Given that applying it does not satisfy any interface need that we could not have met also without it (by adjoining the adverb differently), it is ruled out.

Notes:

i The analysis of the Dutch scrambling in this part is based on work together with Ad Neeleman. I would also like to thank Hubert Haider, Helen de Hoop and Eric Reuland for many helpful comments.

ii "Special... processes of a poorly understood sort may apply in the generation of sentences, marking certain items... as bearing specific expressive or contrastive features that will shift the intonation center..." (Chomsky, 1971 p. 199)

iii de Hoop attempts to derive the descriptive generalization (9) from a broader principle. For this she introduces the following theoretical account, and a new principle, the POC.

i) The theoretical account:
"If an object receives a strong reading, predication needs to be contrastive." "This principle holds more generally for all NPs of type <<e,t>,t>" (i.e. generalized quantifiers) (dH p. 165)

Principle of contrastiveness (POC):
A strong NP needs a contrastive predicate. (dH p. 168, stated formally in (80), p. 166).

While the descriptive generalization in (9) is important and correct, it is not easy to understand the intuition underlying the POC, from which it is supposed to be derived. As stated, it appears to wrongly entail that, universally, we cannot find a strong NP with a non-contrastive verb or predicate; e.g. that (iia,c) are ill formed, and only (iib) is allowed in English.

ii a) Max read every book. (normal stress on book)
b) Max READ every book.
c) Max has already read every book.

However, de Hoop is using the term 'contrastive' here not in the familiar sense of contrastive stress. The notion is taken to be semantic, rather than phonological. Hence, a contrastive predicate need not be realized by contrastive stress. Rather, the relevant notion is having a set of alternatives. Capturing this idea in a precise way may be tricky, but since I will offer an alternative account for (9), there is no need to examine the details here.

iv That Zubizarreta's approach may be useful for the analysis of scrambling in Dutch was proposed also, briefly, in Delfitto and D'hulst (1994).

v Cinque's stress rule (10), p. 244) still includes the formulation in (3) (p.241), which assumes heads. It includes also an additional requirement that an asterisk on line N must correspond to an asterisk on line N-1. In his actual analysis, he starts with the

next XP cycle (e.g. VP), just like H&V. But curiously, he omits the requirement that the cycle contains at least two asterisks, and he adds that "this simplification is crucial to obtain the correct results" (footnote 7, p. 244). Indeed, this omission enables the analysis to work also without the previous assumptions, which is why I think this is what he actually intended. In any case, I do not think that there is anything at stake here apart from whether the machinery can be reduced. And I assume that the way I present Cinque's analysis is precisely equivalent, empirically, to his.

[vi] Zubizarreta points out (footnote 14) that the question whether the prosodic phrase is determined semantically or syntactically does not have much empirical content. Selkirk argues that the intonational phrase must form a sense unit, where two constituents constitute a sense unit if they stand in a modifier-of-head or an argument-of-head relation. But the notions assumed in this definition: *modifier argument* and *head* are, anyway, syntactic notions.

[vii] This is assumed under different wordings since Chomsky (1971) and Jackendoff (1972), but has recently gained more attention in work by Vallduvi, Engdahl, and Herman Hendricks.

[viii] Once these questions are answered, the line of encoding a focus feature in the syntax is a possible implementation. This, e.g. is the specific implementation chosen by Zubizarreta, who states the focus rule as a restriction on nodes marked +F(ocus). To deal with the problems I address here, this is unnecessary. I leave open here the question whether there are other reasons to assume that +/-F is a syntactically encoded feature, as Zubizarreta argues.

[ix] I argued there that each sentence is associated with a set of possible pragmatic assertions (PPA-set). The set is determined within the syntax, but discourse selection procedures determine which of these options, if any, is appropriate to a given context. I proposed there an algorithm only for determining the set of possible topic-predicate relations, but obviously, the full set of PPAs should contain also the possible foci of a derivation.

[x] To get more precise about this description, we need to know more about the product of spell-out (namely on the nature of PF, in the pair <LF,PF>). Recall that Cinque assumes that at least as far as stress is concerned, it can be determined directly on syntactic structures, with no need to construct additional phonological structure. This is clearly the most minimal approach, and thus, the starting hypothesis that we would like to maintain, unless confronted with massive empirical evidence to the contrary. Still, this leaves us with two possible views of what PF is - one that this is just a sound string, the product of all spell-out procedures. The other is that just like LF, this is the full syntactic tree, derived up to the stage of spell-out, representing also further steps in the derivation required by spell-out operations like stress, erasure of features, and other phonological processes. If the second is the correct view, then we may say that the focus rule applies solely at PF, namely, it associates a set of possible foci with each PF.

[xi] This was pointed out to me by Ad Neeleman.

[xii] The analysis of adjuncts stress in Cinque's framework is still incomplete. It has noted (also by him) that often an adjunct PP appears to be carrying main stress. (So, for many speakers, (35) can easily be understood also under the adjunct construal). This issue is discussed also in Zubizarreta (1994).

[xiii] Zubizarreta (1994) surveys an unpublished paper of Truckenbrodt (1993), who found, essentially the same pattern in German, including contrasts like (35).

[xiv] In fact, anaphoricity, or previous mention, are not a sufficient condition for this type of destressing. Rather, stress here is governed by the accessibility of the antecedent, as defined in Ariel's (1990) analysis of anaphora resolution.

[xv] Williams would not state it this way. For him, the whole issue of focus is an instance of anaphora. But this is nevertheless a possible way to construe his findings.

[xvi] For this reason, I argued, mistakenly, in Reinhart (1995) that these are, in fact instances of the same stress shift procedure.

[xvii] In Reinhart (1995) my argument was based on a wrong judgment of these sentences. I thank Helen de Hoop for correcting me on that.

[xviii] The only residue is the case of generics, which de Hoop defines as 'strong'. Although I did not discuss these here, I believe that the issue is not genericity, but the scope of adverbs of quantification. As I mentioned, allowing an NP to be in the restrictive term of such an operator is another motivation for destressing.

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