

*The Nature of Discourse Templates**

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Abstract

The so-called cartographic approach to discourse-related word-order variation is based on the idea that particular interpretations – say contrastive focus – are licensed in the specifier of particular functional projections – say a focus phrase. In this paper we present arguments against this view based on scrambling in Dutch. We discuss a range of implementations of the cartographic approach and show that they are either too weak, in that they cannot generate all the word orders found in Dutch, or too strong, in that they fail to capture restrictions on scrambling. The alternative we present dispenses with discourse-related functional projections and instead relies on mapping rules that associate syntactic representations with representations in information structure. On this view, scrambling operations derive a syntactic configuration that matches the structural description of a mapping rule that could otherwise not apply. We suggest that it is this interface effect that licenses the marked structures created by scrambling.

1 Interpretive effects of scrambling

This article is concerned with the interpretive effects of scrambling and, more specifically, with the question of whether such effects should be attributed to the existence of functional projections that encode the discourse status of scrambled DPs. We will argue that a proposal along these lines cannot achieve empirical adequacy and will suggest an alternative based on mapping principles that associate representations in syntax with representations in information structure.

There is general agreement that, in Germanic and beyond, there are two types of scrambling. A-scrambling feeds and bleeds binding and secondary predication, does not give rise to weak crossover effects, is clause-bound, and does not give rise to scope-reconstruction. We cannot illustrate all these properties here, but for relevant discussion, see Vanden Wyngaerd 1989, Mahajan 1990, Zwart 1993,

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Neeleman 1994, and Neeleman & Van de Koot 2006. In contrast, A'-scrambling does not affect binding or secondary predication, gives rise to weak crossover effects, is not clause-bound, and reconstructs (obligatorily) for scope. Again, we will not demonstrate these properties here, but refer the reader to Neeleman 1994, Jacobs 1997, Haider and Rosengren 1998, and Neeleman & Van de Koot 2006 for discussion.

In Dutch, the language we will concentrate on in this paper, the two types of scrambling can be easily told apart, because only A'-scrambling can alter the basic order of arguments (subject – indirect object – direct object). A-scrambling is restricted to the reordering of and adjuncts.¹ We demonstrate this contrast using binding as a test. Reordering of arguments and adjuncts can feed binding, as in (1b), indicating that the scrambled DP occupies an A-position. As shown in (2), reordering of arguments does not have the same effect, indicating that it must result from A'-movement. We will not attempt an explanation of the syntactic restrictions on A-scrambling in Dutch, as opposed to languages that show greater word order freedom (but see Neeleman & Van de Koot 2006).

- (1) a. *Jan heeft namens elkaar de acteurs gefeliciteerd.
John has on-behalf-of each other the actors congratulated
 b. Jan heeft de acteurs namens elkaar gefeliciteerd.
John has the actors on-behalf-of each other congratulated
 'John has congratulated the actors on behalf of each other.'
- (2) a. *dat ik elkaars fans deze acteurs voorstel
that I each other's fans these actors introduce
 'that I introduce these actors to each other's fans'
 b. ??dat zulke acteurs zelfs ik elkaars fans t_{DP} niet voorstel
that such actors even I each other's fans not introduce
 'that even I do not introduce these actors to each other's fans'
 c. ??dat ik zulke acteurs zelfs elkaars fans t_{DP} niet voorstel
that I such actors even each other's fans not introduce
 'that I do not introduce these actors even to each other's fans'

The two types of scrambling are also associated with different interpretive effects. A-scrambling operations typically mark the scrambled DP as discourse-anaphoric (marked throughout by wavy underlining); see Reinhart 1995, Neeleman & Reinhart 1997, Choi 1999, among others, for discussion. In (3), for example,

¹ Some speakers of Dutch marginally allow A-scrambling of a direct object across an indirect object, a possibility more generally available in German. All judgments reported here are from speakers who reject such scrambling.

Haegeman's book is mentioned in the initial question, and consequently scrambling of the coreferential DP in the answer is favored.

- (3) Hoe zit het met je review van dat boek van Haegeman?
 'How are you progressing with your review of that book by Haegeman?'
 a. #Nou, ik denk dat ik morgen het boek van Haegeman ga lezen.
Well, I think that I tomorrow the book by Haegeman go read
 b. Nou, ik denk dat ik het boek van Haegeman morgen ga lezen.
Well, I think that I the book by Haegeman tomorrow go read
 'Well, I think that I will read Haegeman's book tomorrow.'

By contrast, Haegeman's book is not mentioned in the question in (4), so that scrambling of this DP is disfavored in the answer. It is important to point out that (4b) would be an acceptable answer if speaker and hearer share knowledge of the reading list for the exam. In that case, Haegeman's book counts as given, licensing scrambling across the adverb. Here and below, we abstract away from such non-linguistically expressed given information and from the possibility of accommodation of elements as discourse-anaphoric on the basis of assumed shared knowledge (see Wagner 2005 for recent discussion).

- (4) Hoe zit het met de voorbereidingen van je examen?
 'How are you progressing with your exam preparations?'
 a. Nou, ik denk dat ik morgen het boek van Haegeman ga lezen.
Well, I think that I tomorrow the book by Haegeman go read
 'Well, I think that I will read Haegeman's book tomorrow.'
 b. #Nou, ik denk dat ik het boek van Haegeman morgen ga lezen.
Well, I think that I the book by Haegeman tomorrow go read

Neeleman (1994), Frey (2001), and others observe that A'-scrambling operations typically require an interpretation of the scrambled DP as either FOCUS (marked throughout by small caps) or topic (marked throughout by double underlining); as shown in (5c), DPs that are neither topic nor focus cannot be scrambled across arguments:

- (5) a. dat [_{DP} alleen DIT boek] Jan Marie *t*_{DP} geeft.
that only this book John Mary gives
 'that John gives Mary only this book'
 b. dat [_{DP} zo'n boek] alleen JAN Marie *t*_{DP} geeft.
that such-a book only John Mary gives
 'that only John gives Mary such a book'

- c. *dat [_{DP} het boek] Jan Marie _{t_{DP}} geeft.
that the book John Mary gives

In order to avoid terminological confusion, we should clarify our usage of the terms topic and focus. Unless indicated otherwise, we reserve the term focus for syntactic constituents expressing contrastive focus (only JOHN) or scalar focus (even JOHN). What unites these two types of focus is that they both involve selection from a contextually defined set of alternatives. In the case of contrastive focus, a subset is selected, often to the exclusion of other members of the original set. In the case of scalar focus, the set of alternatives is organized as an ordered set whose members vary in the degree to which some property is expected to hold of them. The selected subset is identified through its ‘weakest’ member. Our notion of focus thus excludes constituents expressing mere new information focus, which does not involve selection from a set (see Kiss 1998).

We reserve the term topic for syntactic constituents that introduce a new discourse topic, narrow down the current discourse topic, or maintain it by re-introducing it (this comes close to Büring’s 1997 notion of S-Topic). We thus exclude constituents that are merely discourse-anaphoric. Of course, such constituents often refer to the current discourse topic (see Ariel 1990, 1991, 1994). However, they cannot normally introduce a new discourse topic.

As we have shown, the two types of scrambling are licensed by their interpretive effect. A’-scrambling is ruled out in the absence of a topic or focus interpretation of the moved constituent, while A-scrambling is typically blocked if the scrambled category is not discourse-anaphoric (we return to other interpretive effects below). On any theory, these observations must be captured using interpretive templates of some sort. That is, one must adopt rules that associate a particular syntactic configuration with a particular information-structural effect. There appear to be two ways in which a theory could accommodate such templates.

One possibility is to conceptualize interpretive templates as part of the syntactic representation, that is as functional projections. On this view, the topic and focus reading of A’-scrambled DPs would be attributed to their occupying the specifier of particular functional projections, which we may call TopP and FocP, respectively. Similarly, discourse anaphoricity would be encoded through a functional projection that we may label AnaP. Proposals along these lines belong to the cartographic research program (see Rizzi 1997, 2004, Cinque 1999, 2002, and Belletti 2002). Cartography strives for a one-to-one relation between structure and interpretation. It links interpretive effects to specific regions of the tree, while each region is associated with a single interpretive effect.

The alternative we will argue for is one in which interpretive templates are conceptualized as mapping rules that relate certain structural configurations with certain aspects of information structure. For example, one could propose a rule that

assigns a focus interpretation to constituents that have undergone A'-movement in the absence of a morphological trigger, such as a WH-feature. (To be sure, this is an illustration of the idea and not the actual rule we will defend.) Indeed, a number of authors have put forward proposals that treat topic, focus, and discourse anaphoricity as interface phenomena, among them Vallduví (1992), Wagner (2005), and Reinhart (2006). Such proposals are inherently more flexible, in that mapping rules may have a structural description that can be met in various locations in the tree, while a single location in the tree might fit the structural description of more than one mapping rule. In other words, such proposals allow a double dissociation between structure and interpretation.

In comparing these alternatives, it is important to note that each theory can imitate the other, provided its core claims are sufficiently diluted. Thus, the mapping theory can imitate the theory that templates are functional projections by restricting the structural description of each mapping rule to a single functional projection. Similarly, the theory based on functional projection can imitate the theory that templates are mapping rules by allowing optional realization of the functional projections in question and flexibility in their locus of realization. We take such imitation to be tantamount to an admission of defeat. What we should be doing, then, is consider whether the empirical state of affairs in this domain mirrors what is expected under an optimal implementation of the two theories.

One might think that the flexible theory is inherently less restrictive than its cartographic competitor and is therefore likely to overgenerate. Perhaps surprisingly, it can be demonstrated that the opposite is true. If we consider versions of the two theories that are capable of capturing all attested patterns, it turns out that the restrictions necessary to rule out the unattested patterns can be expressed in the flexible theory but remain beyond the grasp of the cartographic approach.

The rest of this paper consists of three sections concerned with A'-scrambling, A-scrambling, and some speculative extensions of our proposal, respectively.

2 A'-Scrambling

2.1 Templates as Mapping Rules

In order to maximally distinguish the proposal we develop here from cartographic alternatives, we will not assume any restrictions on the landing site of A'-scrambling. We treat this movement as an adjunction operation that can in principle target any node in the extended verbal projection (although it will of course have to meet general well-formedness conditions that apply in Dutch, such as the verb-second constraint). The notion of economy that underpins the minimalist program implies that movement must be triggered. Since adjunction operations cannot have a structural or morphological trigger, they can only be

licensed by having an effect at one of the interfaces. Indeed, it can be argued that A'-scrambling has an effect at the interface between syntax and information structure: it feeds a mapping rule that can otherwise not apply.

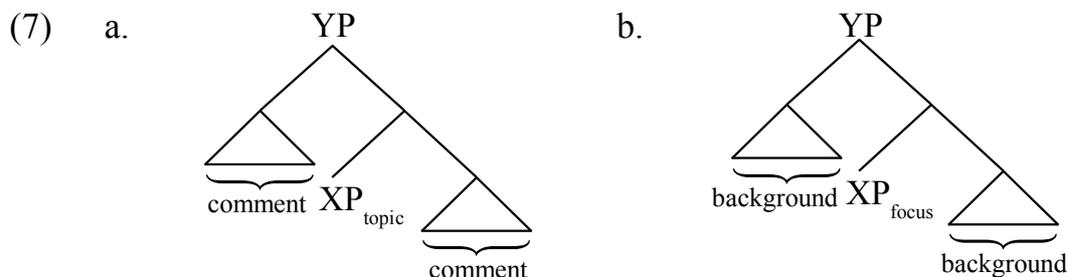
The core of our proposal concerns the exact nature of the relevant mapping rules. At first sight, one might conjecture that A'-scrambling marks a constituent as topic or focus. The drawback of this suggestion is that constituents can also be interpreted as topic or focus in situ. This being so, it is difficult to see what interpretive effect the movement would contribute to the displaced category. Our proposal is therefore that A'-scrambling does not affect the status of the moved category itself, but rather that of the constituent to which that category adjoins.

As is widely assumed, contrastive and scalar foci are associated with a background that identifies the set against which the focus is evaluated (see Büring 2003 and references cited there). In an example like *Mary bought a RED hat* the speaker contrasts *red* with other adjectives that are alternatives for the value of x in *Mary bought a x hat*. As this example makes clear, the background is not necessarily a syntactic constituent, but may be composed of different constituents.

In the same vein, a topic is often assumed to be associated with a comment. Like a background, a comment is not necessarily a syntactic constituent, but may be composed of different constituents. It is generally assumed that in the following discourse *the record* in speaker B's reply is a contrastive topic (see below for further discussion of how this test works). If so, the comment made about this topic is λx . (*he gave x to Susan*).

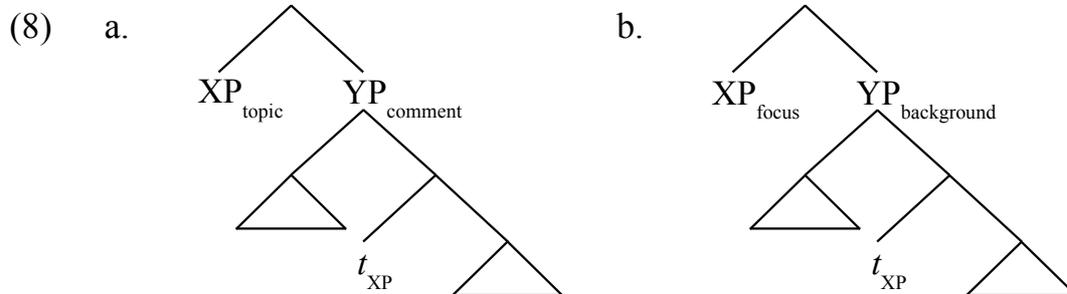
- (6) Do you know who John gave the book to?
I'm not sure, but he gave the record to Susan.

The reason that the background in *Mary bought a red hat* and the comment in (6) cannot be constituents is that the smallest structural units that contain the material making up the background and the comment also contain the focus and the topic. The situation is depicted in (7).



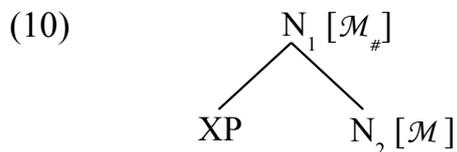
It will be clear that there is no trivial mapping procedure that can link syntax and information structure in cases where topic and focus interrupt a comment and a background, respectively. This is different if the constituents labeled XP in (7) are

moved out of YP. In other words, what movement of topic and focus achieve is to turn otherwise discontinuous comments and backgrounds into constituents:



We therefore propose that movements of topics and foci do not mark the discourse functions of these elements themselves, but rather their comments and backgrounds. Thus, topic and focus will have a trigger if the structures they create match the structural description of one of the mapping rules in (9).²

- (9) a. *Comment Mapping Rule*
 If XP in (10) is interpreted as topic, then interpret N₂ as comment.
- b. *Background Mapping Rule*
 If XP in (10) is interpreted as focus, then interpret N₂ as background.



These mapping rules refer to the structure in (10), in which XP has undergone A'-movement. We assume that this property of XP is recoverable from the selectional requirement \mathcal{M} , which is introduced by A'-trace and satisfied under direct domination by the head of a movement chain. (This selectional requirement is therefore comparable to the slash feature in HPSG; for a full discussion of this way of encoding movement, see Neeleman and Van de Koot 2002, 2006.) From our current perspective, there are two advantages to formalizing movement in this way. First, the presence of \mathcal{M} makes it possible to locally determine the status of XP as the head of an A'-chain, eliminating the need to scrutinize arbitrarily large

² The mapping rule that drives topic movement relies on the existence of comments. If Valduví (1992) and others are correct in rejecting this notion, then an alternative formulation of the mapping rule is required, presumably one that links topic marking to movement across a focus or out of the background of a focus. The choice is an empirical one and our initial survey of the data suggests that the mapping rule as it stands is preferable. As far as we can tell, the required adjustment of (9a) would not affect the argumentation elsewhere in the paper.

structures. Second, this encoding does not rely on stipulations about possible landing sites for movement, and consequently it permits a highly underspecified statement of the mapping rules in (9), thus allowing them to apply in a wide variety of structures.

The mapping rules in (9) make several predictions. The first is that only foci associated with a background can be moved, simply because the movement does not identify the focused constituent itself, but rather its background.³ It stands to reason that new-information focus lacks a background, as it does not involve selection of a subset out of a set of alternatives (recall that a set of alternatives for a focus is constructed from the background). Indeed, Kiss (1998) shows that new information focus cannot undergo focus movement.

A second prediction concerns the optionality of topic and focus movement. If these movements served to mark the interpretation of the moved constituent, they should be obligatory on that interpretation. The reason for this lies in the Elsewhere Principle, which we formulate in (11) below.

(11) *Elsewhere Principle*

Let R_1 and R_2 be competing rules with D_1 and D_2 as their respective domains of application. If D_1 is a proper subset of D_2 , R_1 blocks R_2 in D_1 .

In this light, consider the case of focus movement. Suppose the general rule states that any constituent can be interpreted as a contrastive focus, while the specific rule marks focus interpretation through movement and can therefore be stated as “interpret a moved XP as a contrastive focus”. Hence, a constituent to be interpreted as a contrastive focus can either move (applying the specific rule) or remain in situ (applying the general rule). However, the Elsewhere Principle blocks application of the general rule where the specific rule can apply, so that focus movement should be obligatory wherever it is possible. This incorrect prediction suggests that the assumption that focus movement marks the interpretation of the moved constituent is incorrect. The same holds, *mutatis mutandis*, for topic movement.

Perhaps surprisingly, if topic and focus movement mark the sister of their landing sites as comment and background, these movements are predicted to be optional. Consider once again contrastive focus. In general, there are few – if any – restrictions on the procedure that constructs a background for a given focus. Focus movement, however, marks a specific constituent as the background of the

³ Occasionally, the moved constituent may contain material that belongs to the background or the comment. This is because constraints on movement may require pied-piping. Here and in what follows we abstract away from this phenomenon, acknowledging that it will require adjustments in the formulation of the proposed mapping rules.

displaced constituent. These two ways of identifying a background stand in an elsewhere relationship and consequently the constituent marked as background by focus movement (YP in (8b)) should not be interpreted as background in the absence of focus movement. This is in fact true. What is interpreted as background in the in-situ structures is *not* YP, the constituent marked as such when movement takes place. In fact, the background in (7b) is discontinuous. It follows from this simple observation that the Elsewhere Principle will not block the relevant interpretation of the in-situ structure. Put more positively, the optionality of focus movement can be derived from the proposal that it marks the interpretation of the sister of the landing site rather than that of the moved category. This conclusion extends straightforwardly to topic movement.

A third set of predictions follows from the interaction of the mapping rules in (9) with a restriction on information structure. As has been widely acknowledged, topic-comment structures cannot be embedded in a background, but focus-background structures can be part of a comment. Thus, the information structure in (12b) is ruled out, while the information structure in (12a) is well-formed (topic is followed by a Kleene star in order to indicate that there may be multiple topics). (For relevant discussion, see Prince 1981, Reinhart 1981, 1995, Valduví 1992, Lambrecht 1994, and Hajičová et al. 1998.)

- (12) a. topic* [COMMENT FOCUS [BACKGROUND ...]]
 b. *FOCUS [BACKGROUND topic [COMMENT ...]]

It should be emphasized that (12a,b) are information structures, and not syntactic configurations. Given that the mapping between syntax and information structure is often not isomorphic, the ban on the embedding of topic-comment structures in backgrounds will not directly restrict syntactic structure. For instance, it does not follow from (12b) that topics cannot be preceded by foci. Any impact of information-structural constraints on word order can only result from the application of mapping rules.

In particular, the application of the rules in (9) has the consequence that the mapping between syntax and information structure becomes partially isomorphic: a specific syntactic constituent is identified as having a certain information-structural status. This marking implies that conditions on information structure come to have an effect on syntactic structure. To see this, consider a case in which a syntactic constituent is marked as background. It follows that this constituent cannot contain material interpreted as topic, as this would force an information structure of the form in (12b). In contrast, if a constituent is marked as comment, this does not preclude focused material from being part of it, since that would result in the well-formed information structure in (12a).

The full range of range of predictions, then, is as follows. As long as we are dealing with in-situ topics and foci, their relative order is free. However, things are different when movement comes into play. While a topic can move across a focused constituent (whether in situ or not), a focused constituent cannot move across a topic (whether in situ or not). These predictions are borne out.

In order to demonstrate this, we should clarify how we know that something is a topic or a focus. It is well known that in the answer to a WH-question, the constituent that corresponds to the WH-operator is a focus, and if interpreted contrastively, a contrastive focus. In the latter case, it typically carries a so-called A-accent (see Jackendoff 1972). Hence, *de bonen* ‘the beans’ in (13a,b) can be classified as such. A context that singles out topics is one in which the hearer answers a question that differs somewhat from the one being asked. The constituent in which the expected answer and the one actually given vary is a contrastive topic (see Büring 1997 and references mentioned there). It typically carries a so-called B-accent. By this test, *Wim* in (13a,b) is a topic (the original question mentioning *Fred*). What the data in (13) show, then, is that an in-situ focus may follow a topic, but cannot move across it.

- (13) Hoe zit het met FRED? Wat heeft HIJ gegeten?
 ‘What about Fred? What did he eat?’
 Nou, dat weet ik niet, maar...
 ‘Well, I don’t know, but...’
- a. ik geloof dat Wim alleen van de BONEN gegeten heeft.
I believe that Bill only from the beans eaten has
 ‘I believe that Bill has eaten only from the beans.’
- b. #ik geloof dat [_{DP} alleen van de BONEN] Wim _{t_{DP}} gegeten heeft.
I believe that only from the beans Bill eaten has

The data in (14) show that, by contrast, an in-situ topic may follow an in-situ focus or move across it.

- (14) Hoe zit het met de SOEP? Wie heeft DIE gegeten?
 ‘What about the soup? Who ate them?’
 Nou, dat weet ik niet, maar...
 ‘Well, I don’t know, but...’
- a. ik geloof dat alleen W_{IM} van de bonen gegeten heeft.
I believe that only Bill from the beans eaten has
- b. ik geloof dat [_{PP} van de bonen] alleen W_{IM} _{t_{DP}} gegeten heeft.
I believe that from the beans only Bill eaten has
 ‘I believe that only Bill has eaten from the beans.’

Further predictions that follow from the mapping rules in (9) have to do with the fact that not all foci have the same status. It is possible for a focus-background structure to be embedded in the background of another focus. In such cases, the embedded focus is ‘subordinate’ to the unembedded one. Thus, the information structure in (15), FOCUS₂ is subordinate to FOCUS₁.

(15) FOCUS₁ [BACKGROUND-1 FOCUS₂ [BACKGROUND-2 ...]]

As explained before, properties of information-structure do not bear directly on word order. The representation in (15) therefore does imply rigid ordering of subordinate and superordinate foci. Matters are different if A'-movement triggers application of the mapping rule in (9b), so that a constituent is marked as background. When that happens, the constituent in question cannot contain a focus (whether in situ or not) that is superordinate to the moved focus. Consequently, we predict a pattern similar to the one illustrated in (13) and (14), a prediction confirmed by the data below (where the superordinate FOCUS appears in small caps, while the subordinate focus is underlined). In each example, the left conjunct contains a single focus, while the right conjunct contains two foci. The one that corresponds to the single focus of the left conjunct is the superordinate one (as it is linked to the WH-operator in the context question). The second focus in the right conjunct is part of its background. All examples are grammatical, except (16b), in which a subordinate focus moves across a superordinate one.

(16) Wie lezen er heden ten dage eigenlijk nog dichters?

‘Who still read poets these days?’

a. PIET leest veel dichters, maar ik geloof dat FRED alleen Bloem
Peter reads many poets, but I believe that Fred only Bloem
 LEEST.
reads

‘Peter reads many poets, but I believe that Fred reads only Bloem.’

b. #PIET leest veel dichters, maar ik geloof dat [DP alleen Bloem]
Peter reads many poets, but I believe that only Bloem
 FRED *t*_{DP} leest.
Fred reads

(17) Welke dichters worden er heden ten dage eigenlijk nog gelezen?

‘Which poets do people still read these days?’

a. Veel mensen lezen BLOEM, maar ik geloof dat alleen Jan
Many people read Bloem, but I believe that only John
 MARSMAN leest.
Marsman reads

- b. Veel mensen lezen BLOEM, maar ik geloof dat [_{DP} MARSMAN] alleen
Many people read Bloem, but I believe that Marsman only
Jan _{t_{DP}} leest.
John reads
 ‘Many people read Bloem, but I believe that only John reads
 Marsman.’

The argument just presented only strengthens the proposal if a superordinate focus can be distinguished from a contrastive topic. There are several arguments that support this distinction. Apart from the fact that the superordinate foci do not receive the B-accent that identifies contrastive topics, topics and foci also have different syntactic characteristics, as pointed out by Rizzi 1997, amongst others. For example, contrastive topics in Italian can be linked to a clitic, but foci cannot. A very similar argument can be made for Dutch, which has several constructions that are used to mark a constituent as a topic. The one we will consider here involves *wat DP betreft* ‘as for DP’. As the answer in (18) shows, a contrastive topic can replace a DP in this formula, but a superordinate focus cannot, witness the infelicity of the same answer in the context in (19).

- (18) Wie leest er tegenwoordig nog essays? Nou, dat weet ik niet, maar ...
 ‘Who still reads Marsman these days? Well, that I don’t know, but ...’
 wat poëzie betreft, dat leest alleen JAN nog.
what poetry regards, that reads only John still
 ‘as for poetry, only John still reads him.’
- (19) Wat wordt er heden ten dage nog gelezen?
 ‘What do people read these days?’
 #Nou, wat POËZIE betreft, dat leest alleen Jan nog.
Well, what poetry regards, that reads only John still
 ‘Well, as for poetry, only John still reads him.’

Oppositions of this type are sufficient to establish a distinction between superordinate foci and contrastive topics.

The predictions tested so far all concern the effects of topic and focus movement on the constituent marked as comment or background. There is an important additional consequence of the overall proposal. Given that the structural description of the mapping rules in (9) is highly underspecified, one would expect them to be applicable in a wide variety of syntactic environments. In other words, topic and focus movement should be free in their choice of landing site (modulo the interpretive effects of these movements, which do of course differ depending on what constituent is marked as comment or background).

Indeed, A'-scrambling can target a variety of positions. Irrespective of whether the moving phrase is a topic or a focus, it can land in position between the subject and the indirect object, as in (20), a position between the complementizer and the subject, as in (21), or the first position in main clauses, as in (22). Further landing sites are available in structures containing adverbs, as these are freely ordered with respect to moved topics and foci. In fact, we know of no meaningful syntactic restriction on the landing site of A'-scrambling (other than that it must c-command its launching site).

- (20) a. dat Jan [_{DP} alleen _{DIT} boek] Marie _{t_{DP}} zou geven
that John only this book Mary would give
 'that John would give Mary only this book'
- b. dat Jan [_{DP} zo'n boek] alleen _{MARIE} _{t_{DP}} zou geven
that John such-a book only Mary would give
 'that John would give only Mary such a book'
- (21) a. dat [_{DP} alleen _{DIT} boek] Jan Marie _{t_{DP}} zou geven
that only this book John Mary would give
 'that John would give Mary only this book'
- b. dat [_{DP} zo'n boek] alleen _{JAN} Marie _{t_{DP}} zou geven
that such-a book only John Mary would give
 'that only John would give Mary such a book'
- (22) a. [_{DP} Alleen _{DIT} boek] zou Jan Marie _{t_{DP}} _{t_V} geven.
only this book would John Mary give
 'John would give Mary only this book.'
- b. [_{DP} Zo'n boek] zou alleen _{JAN} Marie _{t_{DP}} _{t_V} geven.
such-a book would only John Mary give
 'Only John would give Mary such a book.'

Of course, all A'-scrambling operations should be subject to the empirical generalizations illustrated in examples (13), (14), (16) and (17). Space limitations prevent us from demonstrating this here, but we believe that this expectation is fulfilled. To give just one example, (23) and (24) show that A'-scrambling across an object behaves just like A'-scrambling across a subject as regards the distribution of subordinate and superordinate foci.

- (23) Op wat voor dingen moet jij je medewerkers allemaal wijzen, David?
 ‘What kind of things do you have to remind your employees of, David?’
 Ik moet veel medewerkers op hun WERK wijzen, maar ik geloof
I must many employee to their work point but I believe
 dat ik [PP aan de VAKANTIE] alleen Marie t_{DP} hoef te herinneren
that I of the holdiday only Mary need to remind
 ‘I have to remind many employees of their work, but I believe that I have to
 remind only Mary of her holidays.’
- (24) Welke medewerkers vereisen veel aandacht van jou, David?
 ‘Which employees require a lot of your attention, David?’
 #Ik moet JAN op veel dingen wijzen, maar ik geloof
I must John to many things point but I believe
 dat ik [PP alleen aan de vakantie] MARIE t_{DP} hoef te herinneren
that I only of the holiday Mary need to remind
 ‘I have to remind John of many things, but I believe that I have to remind
 Mary only of her holidays.’

The data reviewed so far establish a double dissociation between position and interpretation: all positions that allow a topic interpretation also allow an interpretation as focus, while both elements interpreted as topic and elements interpreted as focus can surface in a range of positions. This state of affairs is precisely what one should expect if discourse templates are mapping rules.

2.2 Templates as Functional Projections

We now turn to an approach of discourse templates as functional projections. As we have seen in the previous section, the empirical challenge is to reconcile flexibility in the landing site of topic and focus movement with restrictions on material in the constituent that is the sister of that landing site. Our claim will be that a theory based on functional projections can only meet this challenge by sacrificing its distinguishing features and imitating the approach based on mapping rules.

There are three alternatives to consider, which share the assumption that topic and focus movement target designated functional projection in which features are checked that identify categories as topic and focus. The first implementation of this idea assumes that the clause contains one or more topic projections, which dominate a unique focus projection. Given that any suitable constituent can be a topic or a focus, the functional projections that license these interpretations must be located quite high in the extended verbal projection. For example, if they were located below the subject, then this constituent could not function as either topic or

focus. Indeed, Rizzi (1997, 2004) argues that the projections in question are part of an articulated CP domain. (Rizzi assumes an additional set of ‘low’ topic projections dominated by the unique focus projection. However, the specifiers of these projections seem to be reserved for discourse-anaphoric elements rather than contrastive topics. For evidence that ‘low topics’ are not topics in the sense adopted here, see Samek-Lodovici 2006 and references cited there).

To what extent can a proposal along these lines account for the Dutch facts? As it stipulates that topic projections dominate the focus projection, it follows that moved topics precede moved foci. This, however, is not enough to capture the generalizations established in the previous subsection. We showed (i) that the order of topic and focus is free as long as both are in situ, (ii) that a topic can move out of a constituent containing an in-situ focus, and (iii) that a focus cannot move out of a constituent containing an in-situ topic.

A first implementation of the proposal just sketched would require any topic or focus to move to its checking position in overt syntax (in early minimalist terms, the topic and focus features are ‘strong’). If so, an apparent in-situ topic or focus must be reanalyzed as having moved, a fact obscured by subsequent movement of other material (see below for discussion). This hypothesis is too strong, because it incorrectly predicts that any topic will precede any focus.

A second implementation would allow topic and foci to move optionally (in early minimalist terms, the topic and focus heads have ‘strong’ and ‘weak’ variants). This hypothesis is too weak because it fails to derive the generalization that a focus cannot move across an in-situ topic: if the two movements have independent optional triggers, it should be possible for the focus head to be strong while the topic head is weak. We may conclude, then, that ordering restrictions on topic and focus remain unexplained.

The same conclusion can be drawn as regards ordering restrictions on superordinate and subordinate foci. We showed (i) that the ordering of in-situ superordinate and subordinate foci is free, (ii) that a superordinate focus can move out of a constituent containing an in-situ subordinate focus, and (iii) that a subordinate focus cannot move out of a constituent containing an in-situ superordinate focus. If focus movement is optional, then the first of these generalizations can be accounted for. One might think that some notion of superiority could be helpful in explaining the second and third generalization. It would follow from current assumptions about movement that the single focus displaced in sentences featuring multiple foci will be the one closest to the relevant functional head. That, unfortunately, is not enough to explain the data, simply because there is no necessity for the focus in the highest structural position to be superordinate in interpretation to foci in lower structural positions (see (23b)). Worse still, a superordinate focus can move across a subordinate one, showing that

the moving focus is not always the one closest to the attracting functional head. In sum, there is no account of ordering restriction on foci.⁴

The final problem for the theory under discussion concerns the free positioning of moved topics and foci with respect to other material in the sentence. If topic and focus movement are obligatory, we would expect constituents with the relevant interpretation to always occupy a very high position in the clause. If these movements are optional, we would expect topics and foci to be able to occupy their base position as well. Neither view can be correct, given the apparent availability of landing sites in other positions than those in the left periphery.

As far as we can see, the only way around this shortcoming would be reanalyze these lower landing sites as located in the left periphery. In order to derive the relevant word orders, one would then have to allow other constituents to move across the topic and focus positions to yet higher positions in the CP layer. These higher positions cannot be identified with topic phrases, since the material they host need not be interpreted as a topic (in the sense defined in section 1). On this analysis, an example like (20a) would be assigned the representation in (25).

- (25) dat [_{XP} Jan₁ [_{FocP} [_{DP} alleen DIT boek] [_{IP} t₁ Marie t_{DP} zou geven]]]
that John only this book Mary would give
 ‘that John would give Mary only this book’

A first problem with a solution of this type is that there does not seem to be a trigger for movement to the extra landing sites in the CP layer. In (25), for example, the subject *Jan* does not seem to acquire any new properties in virtue of the alleged movement to the specifier of XP. This, of course, casts doubt on the viability of the analysis.

A second problem concerns structures in which more than one element would have to be moved across the left-peripheral topic and focus positions. As it turns out, the order in which these elements surface is subject to exactly the same conditions as would hold of them in their base positions. We have already shown that A-scrambling in Dutch cannot change the order of arguments. This condition can also be observed in positions c-commanding a moved topic or focus. In (26), for instance, the resultative AP *zo bruin* ‘that brown’ has undergone A’-scrambling (we know this to be the case because resultatives must surface in a position adjacent to the verb, unless they are interpreted as topic or focus). Therefore, on the analysis under discussion, both the subject and the object must have moved to additional left-peripheral landing sites. Curiously, their original order must be

⁴ It would not help to adopt a variant of the present proposal allowing recursion of the focus projection. In that case, the difficulties encountered are parallel to those found with structures containing both a topic and a focus. We will not demonstrate this here.

replicated in the derived structure. (This is an instance of the general problem of ‘shape preservation’ faced by standard minimalist analyses. See Williams 2004 for extensive discussion.)

- (26) a. dat [_{XP1} Jan₁ [_{XP2} [_{DP} de broodjes]₂ [_{TopP} [_{AP} zo bruin]₃ alleen tijdens
that John the buns that brown only during
 de VAKANTIE [_{IP} t₁ t₂ t₃ zou bakken]]]]
the holidays would bake
 ‘that John would bake the buns that brown only during the holidays’
- b. *dat [_{XP1} [_{DP} de broodjes]₂ [_{XP2} Jan₁ [_{TopP} [_{AP} zo bruin]₃ alleen tijdens
that the buns John that brown only during
 de VAKANTIE [_{IP} t₁ t₂ t₃ zou bakken]]]]
the holidays would bake

The problem of order presents itself in a second guise. The movement of both the subject and the object in (26a) must be optional, give the grammaticality of the following examples:

- (27) a. dat [_{XP1} Jan₁ [_{TopP} [_{AP} zo bruin]₃ alleen tijdens de VAKANTIE [_{IP} t₁ [_{DP}
that John that brown only during the holidays
 de broodjes] t₃ zou bakken]]]
the buns would bake
- b. dat [_{TopP} [_{AP} zo bruin]₃ alleen tijdens de VAKANTIE [_{IP} Jan [_{DP} de
that that brown only during the holidays John the
 broodjes] t₃ zou bakken]]]
buns would bake
 ‘that John would bake the buns that brown only during the holidays’

In view of this general optionality, one would expect it to be possible for the object to move to a left-peripheral position, while the subject remains in situ. The fact of the matter, however, that if the object precedes the shifted resultative, then the subject must precede it as well:

- (28) *dat [_{XP1} [_{DP} de broodjes]₂ [_{TopP} [_{AP} zo bruin]₃ alleen tijdens de VAKANTIE [_{IP}
that the buns that brown only during the holidays
 Jan t₂ t₃ zou bakken]]]
John would bake

This means that the theory under discussion requires a condition on movement such that the lowest element that moves to a left-peripheral position that does not license a topic or focus reading forces movement of all other material sandwiched

between its trace and the topic and focus positions. This is a very unnatural condition indeed.

In sum, none of the characteristics of Dutch A'-scrambling can be captured satisfactorily by a theory according to which CP contains one or more topic projections dominating a unique focus projection.

Let us now turn to a second implementation of the idea that discourse templates are functional projections. Instead of assuming a single topic/focus domain in the CP layer, one could consider introducing topic and focus projections above the neutral positions of the direct object, the indirect object and the subject, and above the 'second' position in V2 clauses. On such a theory, it is 'virtually conceptually necessary' to assume that all topics and foci move to a position where their interpretation is licensed. Given the number of landing sites assumed, even apparent in-situ topics and foci can be assumed to have undergone string-vacuous movement. This conception of topic and focus projections comes close to that in Grewendorf 2005, except that Grewendorf – like Rizzi (1997) does for the CP layer – assumes 'low' topic positions in each 'field', on a definition of topic that includes discourse-anaphoric elements. Related proposals can be found in Belletti 2001, 2003. To what extent can this variant account for the properties of Dutch A'-scrambling?

The main advantage of having multiple topic and focus phrases is that the free positioning of topic and focus can be accounted for without the complications that result from a proposal closer to Rizzi 1997. For example, the word order in (25) can be derived through a single movement of the focus to an appropriate functional projection between the indirect object and the subject, as in (29). Since only the focus moves, it follows that the properties and order of other constituents is unaffected.

- (29) dat [_{IP} Jan_I [_{FocP} [_{DP} alleen_{DIT} boek] Marie t_{DP} zou geven]]
that John only this book Mary would give
 'that John would give Mary only this book'

Other conditions on A'-scrambling cannot be explained, however. Given that there are various potential landing sites for foci and topics, an account of the ordering restrictions on these elements must remain elusive. As the reader may recall, there are two sets of such ordering restrictions. First, the order of topic and focus is free as long as both are in situ, a topic can move out of a constituent containing an in-situ focus, but a focus cannot move out of a constituent containing an in-situ topic. Second, the ordering of in-situ superordinate and subordinate foci is free, a superordinate focus can move out of a constituent containing an in-situ subordinate focus, but a subordinate focus cannot move out of a constituent containing an in-situ superordinate focus.

Neither set of restrictions can be adequately captured in the present proposal. Any focus projection except the lowest dominates and is dominated by a topic projection. Consequently, it is impossible to rule out structures in which a focus moves to a position c-commanding a topic. Admittedly, the unacceptable example in (13b) is underivable, assuming that between the subject position in IP and the position of the complementizer there is only one topic and one focus projection (in that order). Other examples ruled out by the same ordering restriction turn out to be problematic. For example, a root variant of (13b) should be acceptable on an analysis according to which the object moves to a focus position in the CP layer, while the subject moves to a topic position in the IP layer. But such an answer is as bad as (13b):

- (13) b'. #_{[DP Alleen van de BONEN]₁ heeft Wim t₁ gegeten.}
only from the beans has Bill eaten

Similarly, the deviant example in (30b) should be fully acceptable on a parse in which the topic has moved to an IP-internal topic position, while the focus has moved to an IP-external focus position. (Notice, that the topic-focus structure of the answer can be realized as in (30a) and is fully acceptable in the given context, while focus movement to a position preceding a pronominal subject is generally well-formed.)

- (30) Hoe zit het met de JONGENS? Wat heb je DIE allemaal gegeven?
 ‘What about the boys? What sort of things have you given them?’
 Nou, dat weet ik niet meer, maar...
 ‘Well, I don’t know anymore, but...’
 a. ik geloof dat ik de meisjes alleen een BOEK gegeven heb.
I believe that I the girls only a book given have
 ‘I believe that I have given the girls only a book.’
 b. #ik geloof dat [_{FocP} [_{DP} alleen een BOEK]₂ [_{IP} ik [_{TopP} [_{DP} de meisjes]₁ t₁ t₂
I believe that only a book I the girls
gegeven heb]]].
given have

Essentially the same problems arise with multiple foci. The example in (16b) can be derived on the assumption that there is a single focus projection between the position of the complementizer and spec-IP. However, a root variant of the example should be acceptable as focus projections must be assumed both above and below C. (16b’), however, is as bad as (16b). The problem also presents itself in other contexts, but we will not demonstrate this here.

- (16) b'. #PIET leest veel dichters, maar [_{DP} alleen Bloem] leest FRED *t*_{DP}.
Peter reads many poets, but only Bloem reads Fred

One might explore the possibility that word-order restrictions on sentences containing multiple foci parallel those that hold of multiple *WH*-questions. In our discussion of a Rizzi-style analysis of topic and focus, we have already considered and rejected an attempt to do so, namely one based on superiority. One could instead investigate whether focus movement exhibits the minimality effects found with *WH*-movement. The hope would be that subordinate foci cannot move across superordinate foci because the latter create islands for focus movement in much the same way that *WH*-movement creates *WH*-islands. This hypothesis is too strong, however. It implies that in sentences with more than one focus, the order among them must reflect the order in which they were base-generated (as movements of the same type cannot intersect). As we have already seen, that implication is incorrect: a superordinate focus *can* move across a subordinate one.

There is a way of combining the idea that there are unique topic and focus projections with the flexibility implied by the proposal just evaluated, namely by allowing topic and focus projections to be freely ordered with respect to other functional projections, but not with respect to each other.

For reasons already discussed, this proposal virtually entails that topic and focus movement are obligatory: apparent in-situ topics and foci could have undergone string-vacuous movement. On the assumption that topic and focus movement are indeed obligatory, the proposal inherits properties of both the first and the second attempt to analyze the distribution of topic and focus in terms of functional projections. Just like the second attempt, it succeeds in capturing the free positioning of moved topics and foci with respect to other material in the clause. However, the proposal can neither account for restrictions on the ordering of a topic and a focus nor for restrictions on the ordering of subordinate and superordinate foci. The problems that arise are identical to those identified for the theory that assumes a single topic and focus projection in the left periphery. In a nutshell, these are the following. (i) Obligatory movement of topic and focus predicts that their order is fixed. But as we have seen, apparent in-situ topics may follow apparent in-situ foci. (ii) Obligatory movement of one focus in sentences with multiple foci fails to capture the generalization that a superordinate focus can move out of a constituent containing a subordinate focus but not vice versa, simply because there is no way of guaranteeing that the moving focus is the superordinate one.

Having considered three variants of the theory that discourse templates are functional projections, what conclusions can we draw about their shortcomings? In order to capture the distributional generalizations established in section 2.1, topic and focus movement must be optional and they must constrain what material can

be part of the constituent that is the sister of the landing site. As they stand, the three proposals fail to make at least one of these assumptions. But of course one could modify them so as to incorporate the necessary assumptions.

For example, one could combine the theory that allows topic and focus phrases to be freely ordered with respect to other functional projections with two assumptions that bring it closer to our own proposal: (i) Foc⁰ divides the clause into a focus and a background, and (ii) projection of TopP and FocP is optional, even in clauses that contain a topic or a focus. The second assumption implies that movement of topic and focus is optional, while the first ensures that movement of a focus has consequences for material stranded in the constituent that is the sister of the attracting head.

We have no empirical objections to the theory thus modified, but we submit that its core claims are so far removed from what is usually assumed about functional projections that the proposal is self-defeating. In the empirically adequate version of the theory, projection of FocP and TopP is optional and may take place anywhere in the tree. Moreover, the heads of these projections mark their complements as comment and background. It should be evident that these properties run counter to the spirit of this type of proposal. First, functional projections are not optional in comparable circumstances. Whenever a sentence contains a *WH*-phrase, the licensing head must be present. Second, functional projections cannot be reordered with respect to other functional projections. The head attracting *WH*-operators must be higher in the tree than IP. Third, although functional projections select their complements, they do not determine what material can be contained in them. The head attracting *WH*-phrases does not impose any conditions on material contained in the scope of the *WH*-phrase.

In conclusion, the modified proposal can only be seen as a hidden implementation of the idea that templates are mapping rules.

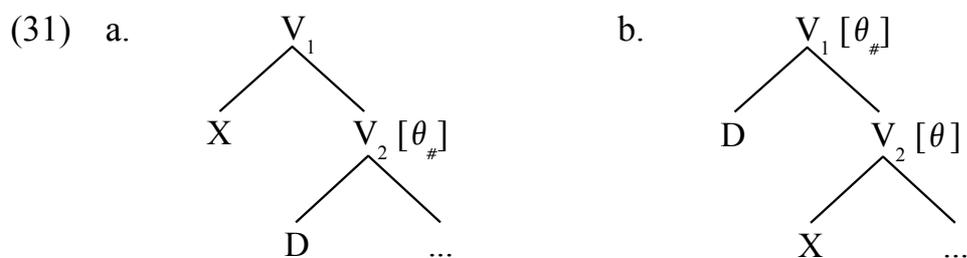
3 A-Scrambling

3.1 Template as mapping rules

While in the case of A'-scrambling it is fairly straightforward that the phenomenon must involve movement, there is some controversy about the nature of A-scrambling: it could either result from A-movement (see Vanden Wyngaerd 1989, Mahajan 1990, and Zwart 1993) or from variation in the base component (see Bayer & Kornfilt 1994, and Neeleman 1994). The two approaches share important characteristics: the reordering of arguments and adjuncts is taken to be the result of freedom in the attachment site of adverbials. If an adverbial is attached higher than the argument, the neutral word order is generated, whereas the scrambled order is generated by low attachment of the adverbial (for related discussion, see Bobaljik 1999, Haider 2000, Ernst 2001, and Nilsen 2003). The debate in the literature is

about whether the argument occupies its base position or has undergone A-movement to a case position. Which of these analyses turns out to be correct is immaterial for our present purposes.

On either analysis, the scrambled structures can be considered marked with respect to the neutral order. In the movement analysis low attachment of the adverb creates a longer chain for the A-moved argument, while in the base-generation analysis it requires θ -assignment to be less local. The base-generation analysis, which we adopt for concreteness' sake, is illustrated in (31b), where the added complexity of long-distance θ -role assignment is represented by an additional copy of the θ -role satisfied by D. θ -role assignment is assumed to apply under direct domination, which forces copying of the θ -role to the first node above an argument (see Neeleman and van de Koot 2002 for extensive discussion of why this view of θ -marking is forced by Chomsky's (1995) Inclusiveness condition).



The core of our proposal regarding A-scrambling is similar to what we have said about A'-scrambling: a more costly structure requires an interpretive licence. In the case of A-scrambling that licence is typically provided by a mapping rule that interprets scrambled DPs as discourse-anaphoric:

(32) *Discourse-Anaphoricity Mapping Rule*

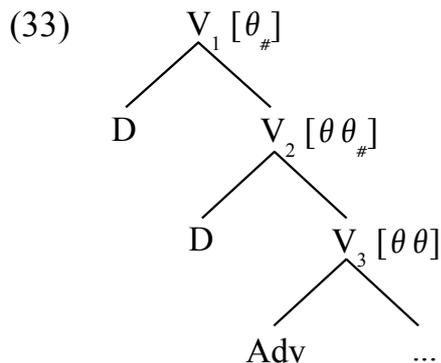
Interpret a D in a marked position as discourse-anaphoric.

What do we mean by 'marked position'? The basic idea is that D in (31b) occupies such a position because the θ -role it satisfies could have been assigned earlier, as happens in the structure in (31a). This formulation suggests that determining what is a marked position requires comparison of two structures that differ in the order of merger of D and X. But this conclusion is incorrect. All we need to know to determine that the θ -role in V_1 in (31b) could have been assigned earlier and hence that D occupies a marked position is that V_2 is not a terminal node and that no θ -role has been satisfied in it. Crucially, these properties can be determined without reference to other structures.

The conceptual basis of the mapping rule in (32) lies in two well-known processing advantage associated with early mention of old information. First, the earlier old information occurs in the sentence, the easier it is to link it to the

previous discourse. Second, new information is easier to integrate if the old information that facilitates contextualization has been processed. Since discourse-anaphoric DPs by definition represent old information, it is advantageous to place them in a position where they precede new information. Therefore, the mapping rule in (32) could be considered a grammaticalization of this processing strategy.

Our proposal makes a number of predictions. First, the information-structural effect of A-scrambling should hold of any argument, as in the presence of an adverb any argument can be generated either in a marked or an unmarked position. We would not expect, for example, that discourse anaphoricity can be marked for objects but not for subjects. Second, since the notion of marked position requires inspection of no more than two nodes in the spine of the tree, the information-structural effects of the mapping rule in (32) are predicted to be extremely local. Hence, scrambling of some argument across an adverb should not affect the interpretation of any arguments merged subsequently, as these arguments do not occupy a marked position according to the algorithm sketched above. Since V_2 in (33) contains a satisfied θ -role, the position occupied by the higher argument does not count as marked.



A third prediction of our proposal follows from the Elsewhere Principle. Recall that this principle accounted for the optionality of A'-scrambling, because the trigger of the movement did not concern the moving element but rather the sister of the landing site (see section 2.1). By contrast, the trigger for A-scrambling has to do with the interpretation of the scrambled DP itself and consequently the operation is predicted to be obligatory when that interpretation is targeted. More concretely, the general rule in the case at hand states that any suitable DP can be interpreted as discourse-anaphoric, while the specific rule states that discourse-anaphoricity is marked by scrambling. It follows from this that the Elsewhere Principle will block application of the general rule wherever scrambling is a possibility. Consequently, the DP in (34b) is interpreted as discourse-anaphoric (or 'old'), while the DP in (34a) is interpreted as non-discourse-anaphoric (or 'new'). The general rule can only be applied in structures like (34c), where scrambling is not possible.

- (34) a.
- b.
- c.
- No relevant X present.

We pointed out earlier that no cross-derivational comparison is required to determine that D occupies a marked position in a structure like (34b) and that it should therefore be interpreted as discourse-anaphoric. Note that, similarly, no cross-derivational comparison is required to decide whether an argument in an unmarked position must be interpreted as new. All we need to know is that its merger is immediately followed by merger of an adverbial, as in (34a).

Let us now explore to what extent the predictions just spelled out provide a fair characterization of the Dutch data. In the first instance, we will concentrate on the generality and obligatoriness of the marking of discourse anaphoricity. We turn to locality effects towards the end of this section.

The marking of discourse-anaphoricity demonstrated for direct objects in (3) and (4) extends to indirect objects. In (35), ‘our old teacher’ is mentioned in the initial question, and consequently it must be construed as discourse-anaphoric in the answers (this targeted interpretation is indicated here and below by wavy underlining). As the examples show, scrambling is strongly favored in this context; the answer in (35a) is decidedly awkward. The context in (36) is different in that ‘our old teacher’ is not mentioned in the initial question. Assuming that the participants in the discourse do not share knowledge of the guest list, ‘our old teacher’ constitutes new information in the answer, and hence scrambling is disfavored.

- (35) Komt onze ouwe leraar nog op het feestje?
 ‘Will our old teacher be coming to the party?’
- a. #Nou, ik heb gisteren onze ouwe leraar een uitnodiging gestuurd.
Well, I have yesterday our old teacher an invitation sent
- b. Nou, ik heb onze ouwe leraar gisteren een uitnodiging gestuurd.
Well, I have our old teacher yesterday an invitation sent
 ‘Well, I invited our old teacher yesterday.’
- (36) Hoe gaat het met de voorbereidingen voor het feest?
 ‘How are the preparations for the party progressing?’
- a. Nou, ik heb gisteren onze ouwe leraar een uitnodiging gestuurd.
Well, I have yesterday our old teacher an invitation sent
 ‘Well, I invited our old teacher yesterday.’

- b. #Nou, ik heb onze ouwe leraar gisteren een uitnodiging gestuurd.
Well, I have our old teacher yesterday an invitation sent

As is the case with the example in (4b), utterance of (36b) can be used to indicate that the speaker expects the hearer to share certain background knowledge – in the case at hand that ‘our old teacher’ is on the guest list – even if the speaker knows that the hearer does not have such knowledge. Except where indicated otherwise, we abstract away from this usage of old-information marking. We also continue to assume lack of shared knowledge in the absence of previous mention.

The pattern found with direct and indirect objects extends to subjects:

- (37) Gaat het echt zo slecht met Jan?
 ‘Is John really in such a bad state?’
- a. #Welnee! Ik geloof dat gisteren Jan nog een huis gekocht heeft.
No! I believe that yesterday John PRT a house bought has
- b. Welnee! Ik geloof dat Jan gisteren nog een huis gekocht heeft.
No! I believe that John yesterday PRT a house bought has
 ‘Not at all! I believe that John bought a house around here only yesterday.’
- (38) Is het moeilijk om in deze buurt een huis te vinden?
 ‘Is it difficult to find a house in this area?’
- a. Welnee! Ik geloof dat gisteren Jan nog een huis gekocht heeft.
No! I believe that yesterday John PRT a house bought has
 ‘Not at all! I believe that John bought a house around here only yesterday.’
- b. #Welnee! Ik geloof dat Jan gisteren nog een huis gekocht heeft.
No! I believe that John yesterday PRT a house bought has

The examples in (3) and (4), and (35) through (38) all involve definite DPs, which can of course easily be used as either discourse-anaphoric or non-discourse-anaphoric. Not all DPs share this property. Pronouns are almost always discourse-anaphoric and indeed, as has been pointed out by many authors, scrambling of pronouns is obligatory (except in some rather special circumstances we abstract away from here). We give a representative example in (39) involving the subject pronoun *ze* ‘they’.

- (39) a. Ik geloof dat ze morgen naar huis gaan.
I believe that they tomorrow to house go
 ‘I believe they are going home tomorrow.’

- b. #Ik geloof dat morgen ze naar huis gaan.
I believe that tomorrow they to house go

At the other end of the spectrum we find indefinite DPs, which typically express new information and are therefore predicted to resist scrambling. As observed by Diesing (1992), Diesing and Jelinek (1995), and de Hoop (1996), among others, this is correct. We illustrate this for direct objects in (40) and for subjects in (41).

- (40) Onze hete-lucht ballon begint te dalen. Wat zal ik doen?
 ‘Our hot-air balloon is beginning to descend. What shall I do?’
 a. Nou, ik denk dat (er) snel een zandzak overboord moet.
Well, I think that there soon a sandbag overboard must
 ‘Well, I think that soon a sandbag will have to go overboard.’
 b. #Nou, ik denk dat (er) een zandzak snel overboord moet.
Well, I think that there a sandbag soon overboard must
- (41) Onze hete-lucht ballon begint te dalen. Wat zal ik doen?
 ‘Our hot-air balloon is beginning to descend. What shall I do?’
 a. Nou, ik denk dat je snel een zandzak overboord moet gooien.
Well, I think that you soon a sandbag overboard must throw
 ‘Well, I think that soon you will have to throw a sandbag overboard.’
 b. #Nou, ik denk dat je een zandzak snel overboord moet gooien
Well, I think that you a sandbag soon overboard must throw

The suggestion that scrambling marks discourse anaphoricity does not only capture the general resistance of indefinites to scrambling, but it also explains some of the special circumstances under which scrambling of indefinites *is* felicitous. In particular, De Hoop (1996) observes that specific and partitive indefinites permit scrambling. This is, we believe, because such indefinites can fairly easily be construed as discourse-anaphoric. We begin by illustrating this for specific indefinites. Consider the following two situations:

- (42) a. A teacher is talking to a parent, while the class is supposed to read quietly but is in fact behaving in a rowdy manner.
 b. A teacher is talking to a parent, while the class is supposed to read quietly. One boy is, however, behaving in a rowdy manner.

The teacher is more likely to utter (43a) in context (42a) than in context (42b), while the reverse is true of (43b). Scrambling, then, indicates that the indefinite refers to an identifiable individual in the common ground (De Hoop calls the relevant reading of the indefinite ‘referential’).

- (43) a. Ik denk dat ik nu iemand de klas uit ga sturen.
I think that I now someone the classroom out go send
 b. Ik denk dat ik iemand nu de klas uit ga sturen.
I think that I someone now the classroom out go send
 ‘I think I’ll send someone out of the classroom now.’

The same observation can be made for scrambling of indefinite subjects. (44a) is more natural in context (42a) than in context (42b), while the reverse is true of (44b):⁵

- (44) a. Ik denk dat (er) nu iemand de klas uit gaat.
I think that there now someone the classroom out goes
 b. Ik denk dat (er) iemand nu de klas uit gaat.
I think that there someone now the classroom out goes
 ‘I think that someone is going out of the classroom now.’

The examples in (43b) and (44b) have are only felicitous in contexts in which speaker and hearer know what individual they are talking about, but want do not want to make this explicit. In other words, they have the flavour of a language game. This effect disappears if a definite description is used instead of an indefinite DP, as that is the normal way in which speakers refer to discourse antecedents.

The claim that scrambling marks discourse anaphoricity implies that specific indefinites that do not pick out an individual in the common ground cannot be scrambled. Suppose John arrives at work and finds the director with a whisky bottle on the table. When he asks her what is the matter, (45a) would be an unacceptable reply if John does not know who will be fired. This is true even if the director knows which employee will be fired and John understands that this is the case. (45b), on the other hand, would be a fully acceptable answer.

- (45) Wat is er aan de hand?
 ‘What’s the matter?’
 a. #Ik moet iemand vandaag ontslaan.
I must someone today fire
 b. Ik moet vandaag iemand ontslaan.
I must today someone fire
 ‘I have to fire someone today.’

In sum, the mapping rule in (32) correctly predicts that the extent to which specific indefinites can undergo scrambling is relatively limited.

⁵ As an aside, notice that scrambling of the indefinite does not preclude insertion of an expletive in (44b).

A very similar point can be made about scrambled indefinites that receive a partitive interpretation. Partitive readings are based on the identification of a set of entities out of which a subset is selected. In the case of indefinite partitives, information about the cardinality of the subset is given, but the members themselves are left unidentified. This need not prevent scrambling, however. If the original set of entities has been made available previously, the subset denoted by the indefinite can be understood as old information. For example, the context in (46) licenses scrambling of *twee krakers* ‘two squatters’. As before, scrambling of an indefinite is not obligatory: such DPs are never obligatorily discourse-anaphoric and consequently a context that excludes a construal of an indefinite as new information through previous mention cannot exist.

- (46) Heb je gehoord dat de politie van plan is deze week zes krakers te arresteren?
 ‘Have you heard that the police are planning to arrest six squatters this week?’
- a. Ja. Volgens mij hebben ze twee krakers gisteren
Yes. According.to me have they two squatters yesterday
 gearresteerd.
arrested
 ‘Yes. I think they have arrested two squatters yesterday.’
- b. Ja. Volgens mij hebben ze gisteren twee krakers
Yes. According.to me have they yesterday two squatters
 gearresteerd.
arrested

The data in (47), which involve scrambling of an indefinite partitive subject, parallel those in (46).

- (47) Heb je gehoord dat de politie van plan is deze week een groep krakers te arresteren?
 ‘Have you heard that the police are planning to arrest a group of squatters this week?’
- a. Ja. Volgens mij hebben twee krakers om die reden net
yes. According.to me have there squatters for that reason just
 een kort geding aangespannen.
a summary procedure started

- b. Ja. Volgens mij hebben om die reden twee krakers net
yes. According to me have for that reason two squatters just
 een kort geding aangespannen.
α summary procedure started
 ‘Yes. I think two squatters have just begun a summary procedure for
 that reason.’

It is easy to demonstrate that scrambling is not licensed by the partitive reading *per se*, but by the fact that it allows a construal of an indefinite as discourse anaphoric. If the set on which the partitive operates is not given but introduced at the same time as the partitive itself, the partitive must constitute new information. As a result scrambling is predicted to be impossible. This is indeed the case. Suppose that John works in a mathematics department and a colleague enters his office at the end of a working day. Although John usually looks tired and worn out at this time of day, he seems to be in particularly high spirits on this occasion. If he is asked the question in (48), he may answer as in (48a), but the answer in (48b) would be distinctly odd. The position of the indefinite implies intimate knowledge of John’s research on the part of his colleague (by the rule in (32)). However, if John’s colleague had such intimate knowledge, John would not have referred to the theorem he is working on as ‘a new theorem’.

- (48) Waarom kijk je zo blij?
 ‘Why are you so happy?’
- a. Ik heb vandaag twee (van de vijf) vergelijkingen voor een nieuw
I have today two of the five equations for a new
 theorema opgelost.
theorem solved
 ‘I have solved two of the five equations for a new theorem today.’
- b. #Ik heb twee (van de vijf) vergelijkingen voor een nieuw theorema
I have two of the five equations for a new theorem
 vandaag opgelost.
today solved

We now turn to another implication of our proposal, namely that the effects of the mapping rule in (32) should be suspended where scrambling is obligatory. A case in point is (49): given that a depictive must be c-commanded by the DP it is associated with, A-scrambling is obligatory for this DP. As a result, the mapping rule in (32) is not triggered, and an interpretation of *een karbonade* ‘a pork chop’ as new information is permissible, despite the fact that it precedes *rauw* ‘raw’.

- (49) *Waarom is die aardige ober ontslagen? Nou, ik geloof ...*
 ‘Why has that nice waiter been fired? Well, I believe ...’
dat hij een lid van het koninklijk huis een karbonade rauw
that he a member of the royal family a pork-chop raw
geserveerd heeft.
served has
 ‘that he served a pork chop raw to a member of the royal family.’

The same pattern can be observed with indefinite subjects:

- (50) *Waarom is dat restaurant gesloten? Nou, ik geloof ...*
 ‘Why has that restaurant been shut down? Well, I believe ...’
dat een ober dronken een klant bedreigd heeft.
that a waiter drunk a customer threatened has
 ‘that a drunk waiter has threatened a customer with a knife.’

Further instances of the same phenomenon are found with adverbs that resist high placement, such as *goed* ‘well’ and *nog* (an untranslatable discourse particle), which must be attached lower than the subject and whose presence consequently does not lead to an interpretation of subjects that precede them as discourse-anaphoric. For reasons of space, we will not demonstrate this here.

Notice that, as before, it is not necessary to compare more than one structure in order to determine whether the scrambled DPs in (49) and (50) occupy marked positions. The θ -role assigned to those DPs is composed of the θ -roles originating in the primary and secondary predicates, as illustrated for object-oriented depictives in (51) below (see Higginbotham 1985 and Neeleman and van de Koot 2002 for discussion). Since the DPs in question are merged immediately after θ -role identification, there is no sense in which θ -assignment of the composed role has been postponed.

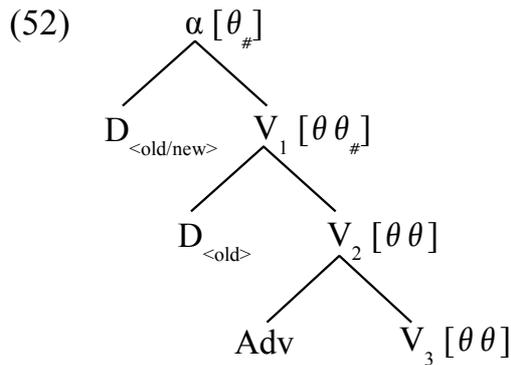
- (51)
-
- ```

graph TD
 V1["V1 [θ#]"] --- D["D"]
 V1 --- V2["V2 [θ]"]
 V2 --- A["A [θ]"]
 V2 --- V3["V3 [θ]"]

```

The effects of the mapping rule in (32) are also suspended for DPs that cannot scramble. Trivially, in structures without an adverbial, a DP cannot occupy a marked position and therefore its discourse status is left open. However, since the mapping rule in (32) only considers two nodes in the spine of an extended verbal

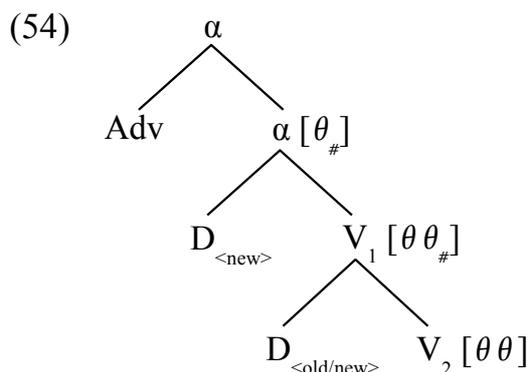
projection, the same is true for any argument that is not adjacent to an adverbial but separated from it by another argument. To begin with, consider (52). In this structure, the highest DP does not occupy a marked position, given that its sister node contains a satisfied  $\theta$ -role. Therefore, the mapping rule will not apply to it, leaving open whether it is to be interpreted as old or new.



An example in which the subject in a configuration like (52) is interpreted as old was given in (3b), where the first person singular subject refers to the speaker, who is part of the shared background in any discourse. In (53), we have an example of the same syntactic configuration, in which the subject introduces new information. We may conclude, then, that low attachment of an adverbial indeed has no effect on the interpretation of the subject, although it does of course affect the interpretation of the object.

- (53) Hoe gaat het met de review van dat artikel?  
 ‘How is the review of that article progressing?’  
 Nou, ik geloof dat (er) iemand het artikel eindelijk gelezen heeft.  
*Well, I believe that there someone the article finally read has*  
 ‘Well, I believe that someone has finally read the article.’

For identical reasons, the interpretation of an object is predicted to be unaffected by attachment of an adverbial above the subject, as in (54).

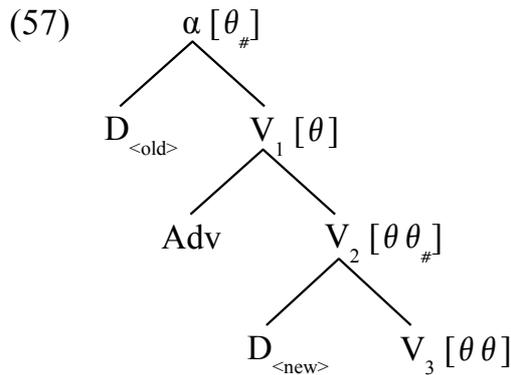


This prediction is borne out as well. The object in the answer in (55) is mentioned in the question and must therefore be discourse-anaphoric. The object *een reviewer* ‘a reviewer’ in (56), by contrast, is not mentioned previously and therefore requires an interpretation as new (assuming, as before, that it is not part of the common ground).

- (55) Hoe gaat het met de review van dat artikel?  
 ‘How is the review of that article progressing?’  
 Nou, ik geloof dat (er) eindelijk iemand het artikel gelezen heeft.  
*Well, I believe that there finally someone the article read has*  
 ‘Well, I believe that someone has finally read the article.’

- (56) Hoe gaat het met je artikel?  
 ‘How is your article progressing?’  
 Nou, ik geloof dat (er) eindelijk iemand een reviewer gevonden heeft.  
*Well, I believe that there finally someone a reviewer found has*  
 ‘Well, I believe that someone has finally found a reviewer.’

The local computation on which the marking of discourse anaphoricity is based has the final consequence that an adverb generated between subject and object does not only trigger an interpretation of the subject as old, but also of the object as new. This is because in (57) the subject’s sister node is a nonterminal that does not contain a satisfied  $\theta$ -role, while merger of the object in an unmarked position has been immediately followed by merger of the adverbial.



In fact, we have already discussed some of the examples that demonstrate that an adverbial between subject and object affects the interpretation of both arguments. In (4a), the adverb follows a subject that is discourse-anaphoric and precedes an object that is not, the predicted pattern. In (38b), the adverb is placed between a subject and object that are both new information and the result is deviant. The subject in this example is a definite DP, but nothing changes if we replace it with an indefinite, as in (59b) below.<sup>6</sup> The example in (3a) shows that an adverbial cannot be placed between two arguments that are both discourse-anaphoric. Finally, the awkwardness of the pattern in (58d) is illustrated by the example in (60).

- (58) a. S<sub><old></sub> Adv O<sub><new></sub> V (4a)  
 b. #S<sub><new></sub> Adv O<sub><new></sub> V (38b)/(59b)  
 c. #S<sub><old></sub> Adv O<sub><old></sub> V (3a)  
 d. #S<sub><new></sub> Adv O<sub><old></sub> V (60)

(59) Is het moeilijk om in deze buurt een huis te vinden?

‘Is it difficult to find a house in this area?’

- a. Welnee! Ik geloof dat (er) gisteren iemand nog een huis  
*No! I believe that there yesterday someone PRT a house*  
 gekocht heeft.  
*bought has*  
 ‘Not at all! I believe that someone bought a house around here only  
 yesterday.’
- b. #Welnee! Ik geloof dat (er) iemand gisteren nog een huis  
*No! I believe that there someone yesterday PRT a house*  
 gekocht heeft.  
*bought has*

<sup>6</sup> As predicted, (59b) is acceptable in a context in which ‘someone’ refers to a specific unnamed individual in the common ground. For example, if we see our common friend John dancing in the street and we know that he was looking for a house, then we can felicitously utter the sentence at hand (with omission of the particle *nog* for independent pragmatic reasons).

- (60) Hoe gaat het met de review van dat artikel?  
 ‘How is the review of that article progressing?’  
 #Nou, ik geloof dat (er) iemand eindelijk het artikel gelezen heeft.  
*Well, I believe that there someone finally the article read has*  
 ‘Well, I believe that someone has finally read the article.’

This completes the overview of the main predictions made by the mapping rule in (32). Before we turn to a comparison with an implementation of the relevant discourse template as a functional projection, we review one further consequence of our proposal. As in the case of topic and focus movement, one would expect there to be a double dissociation between position and interpretation. We have already established one half of this dissociation: the mapping rule in (32) does not mention a specific area in the clausal hierarchy, and can therefore be applied to any argument. Consequently, discourse anaphoricity does not seem to be linked to a specific position. In order to establish the other half of the double dissociation we need to show that scrambling can be motivated by an interpretive effect other than the marking of discourse anaphoricity. In fact, one could interpret the data involving secondary predication in this way. However, even if that turns out to be incorrect, Ruys (2001) argues at length that A-scrambling can be motivated by a wide-scope reading of the scrambled DP.<sup>7</sup> When scrambling is licensed in this way, an indefinite in a marked A-position may introduce new information. Thus, in (61) – adapted from Ruys’s article – scrambling is licensed by the fact that it marks a wide-scope reading of ‘some disease or other’ with respect to ‘usually’. Crucially, the indefinite is not partitive (there is no sense of a pre-established set of diseases) or specific (this is excluded because the indefinite depends on the universally quantified subject).

- (61) Ik denk dat elke arts wel een of andere ziekte meestal met  
*I think that each doctor PRT some or other disease usually with*  
 penicilline behandelt.  
*penicillin treats*  
 ‘I think that every doctor usually treats some disease or other with penicillin.’  
 Intended reading: every doctor > some disease or other > usually

Ruys discusses a large set of examples in which scrambling seems to be licensed by scopal interaction between quantifiers and a wide variety of adverbs. It would take us too far afield to review all these cases here; the main point we want to make

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<sup>7</sup> We believe this also explains why indefinites can scramble when interpreted as generic, but we will not attempt to substantiate this claim here.

is that his data back up the second half of our claim that there is a double dissociation between position and interpretation: the same position that licenses an interpretation as old information may also serve to mark wide scope.

### **3.2 Templates as functional projections**

We now turn to a comparison between the proposals just outlined and an alternative explanation of the position of discourse-anaphoric material in terms of movement to a functional projection, which we will label AnaP. We show that the kind of problems encountered in section 2.2, where we discussed analogous accounts of topic and focus movement, are mirrored in the realm of A-scrambling.

We can put to one side any proposal according to which there is a single AnaP with a single specifier, simply because more than one argument can scramble in the same clause. This leaves us with two viable alternatives. The first of these assumes a unique ‘zone’ for discourse-anaphoric expressions, located above the neutral position of the subject and above any functional projections that host adverbials. This zone could consist of a recursive AnaP, or of a unique AnaP with multiple specifiers.

Such a proposal is reminiscent of Diesing’s (1992) Mapping Hypothesis, according to which the VP-internal and VP-external part of a sentence trigger different interpretations at LF: nuclear scope and restrictive clause, respectively. As presuppositional material obligatorily forms part of the restrictive clause, arguments that are discourse-anaphoric must migrate out of the VP into the old-information zone (although Diesing suggests that in some languages such movement might be suppressed in overt syntax). Indeed, there is some work in the minimalist mould that develops Diesing’s ideas more or less along the lines sketched above (see Adger 1997 and Meinunger 2000).

The problems faced by proposals that assume a single old-information zone originate in a combination of two facts, namely that the order of arguments in Dutch is fixed, and that the discourse-informational status of each argument is independent of that of the others. Let us consider some relevant scenarios.

To begin with, suppose that in a ditransitive structure subject, indirect object and direct object are all discourse-anaphoric and hence move to the AnaP zone. In order to capture the observation that the order among arguments cannot be affected under these circumstances, a condition must be formulated that guarantees shape preservation. That is, the sequence of positions in the AnaP zone must duplicate the sequence of unmarked argument positions lower in the clause. (The problem is analogous to the shape preservation problem associated with low topics and foci in the theory that restricts topic and focus interpretation to the left periphery.)

Another familiar problem arises in a transitive structure in which the object is discourse-anaphoric and has consequently moved to the specifier of an AnaP. If the

subject precedes the object, we would expect it to express old information. As the scrambled object is in the old-information zone, any material to its left should be in this zone as well (abstracting away from A'-scrambling). Conversely, if the subject expresses new information, it should follow the scrambled object, because it should remain in its base position within VP. Neither of these predictions is borne out.

This is demonstrated in (62). Because of previous mention in the question, the object *het artikel* 'the article' in the various answers qualifies as old information. In line with its discourse status, it cannot appear to the right of the adverb in (62b), but must be scrambled, as in (62a). This is the pattern we discussed at length in the previous subsection. However, the subject *iemand* 'someone', should appear within VP, as it is interpreted as new information. But in fact (62c) is ungrammatical: the subject must precede the object, even though it expresses new information.

- (62) Hoe gaat het met de review van dat artikel?  
 'How is the review of that article progressing?'  
 a. Nou, ik geloof dat (er) iemand het artikel eindelijk gelezen  
*Well, I believe that there someone the article finally read*  
 heeft.  
*has*  
 'Well, I believe that some editor or other has finally read the article.'  
 b. #Nou, ik geloof dat (er) iemand eindelijk het artikel gelezen  
*Well, I believe that there someone finally the article read*  
 heeft.  
*has*  
 c. \*Nou ik geloof dat het artikel (er) iemand gelezen heeft.  
*Well, I believe that the article there someone read has*

In order to reconcile the data with the theory, one might adopt the auxiliary hypothesis that the non-discourse-anaphoric subject in (62a) has moved to the specifier of an additional functional projection that dominates the old-information zone and that can host DPs expressing new information. This auxiliary hypothesis on its own is not enough, however. As movement of the subject is obligatory, one would have to argue for a condition that requires movement of all arguments sandwiched between a scrambled DP and its trace. (Again, this a shape preservation problem we encountered in our discussion of cartographic theories of A'-scrambling.)

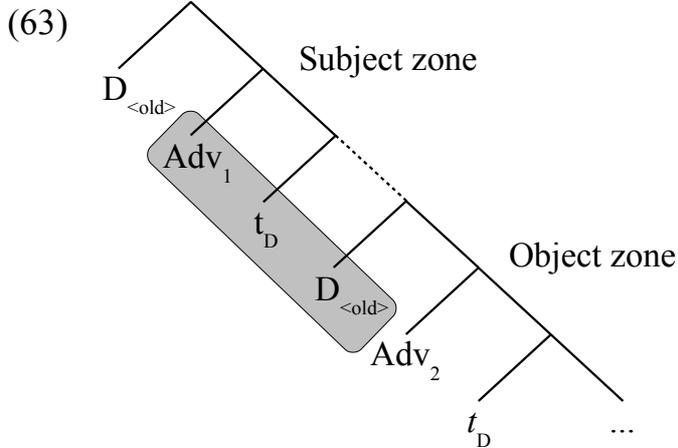
Further reflection reveals that adopting these two auxiliary hypotheses is a self-defeating move. If landing sites are created that allow neutral scrambling of non-

discourse-anaphoric material, then the relation between word order and information-structural status must remain illusive.

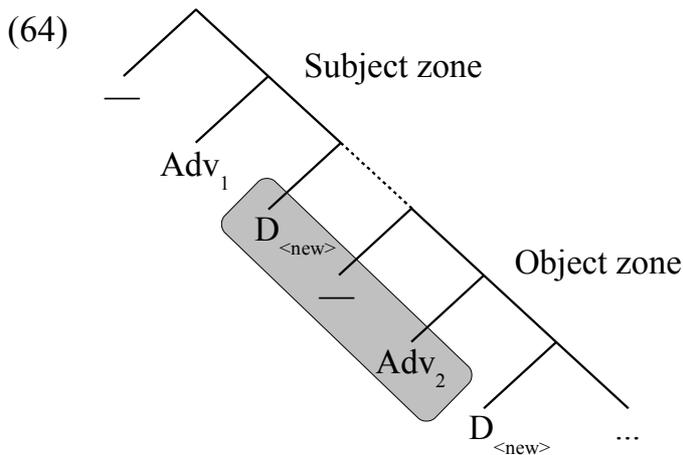
An alternative that could potentially overcome the shortcomings of the proposal just discussed would attempt to capture the independence of the information-structural status of arguments by associating each of them with its own old-information zone. In other words, the clause would contain multiple AnaPs, located above the neutral positions of the direct object, the indirect object and the subject. In addition, there would be different regions that host adverbials between each AnaP and the associated neutral argument position. There are proposals in the recent literature that come close to the suggestion made here (see, for example, Grewendorf 2005), but a confounding factor is that many authors do not make the distinction between topics and discourse-anaphoric material made in this paper.

A theory that postulates multiple AnaPs can probably account for the fact that A-scrambling cannot reorder arguments: each argument will only move to an AnaP local to it, and therefore will not cross other arguments. (Of course, locality conditions on movement must be shown to yield this result, but we assume that this will not be too difficult).

However, the proposed interleaving of AnaPs and adverbial positions has consequences that undermine the viability of the account. In essence, the correlation between word order and the marking of discourse anaphoricity cannot always be captured, because the specifier of each AnaP except the highest is both followed and preceded by adverbial positions. The problem can be illustrated using a transitive structure in which the subject is discourse-anaphoric and has therefore moved to the associated AnaP. It is now predicted that an object DP that is discourse-anaphoric can either precede an adverbial located in the object zone, or follow an adverbial located in the subject zone. The latter option is highlighted in (63). This prediction is of course false. Irrespective of the discourse status of the subject, objects that are discourse-anaphoric must not be immediately preceded by adverbials (as the examples in (3) show). The problem with the object can be avoided by assuming that there is no Adv<sub>1</sub> position, but without this position the discourse status of the subject can no longer be marked.



Conversely, if both the object and the subject express new information, the subject could either follow an adverbial located in the subject zone or precede an adverbial in the object zone, as highlighted in (64). In other words, it is predicted that the position of the subject vis-à-vis adjacent adverbials does no longer determine its discourse status when the object expresses new information.



This prediction is untrue. The examples in (65), where both the subject and the object must be classified as expressing new information, does not permit scrambling of the subject. The problem can be circumvented by removing the Adv<sub>2</sub> position in (64), but this makes it impossible to mark the discourse status of the object.

- (65) Onze hete-lucht ballon begint te dalen. Wat is er aan de hand?  
 ‘Our hot-air balloon is beginning to descend. What’s going on?’
- a. De schipper zegt dat (er) sinds gisteren een brander kuren  
*The skipper says that there since yesterday a burner problems*  
 vertoont.  
*displays*  
 ‘The skipper says that probably a burner is malfunctioning.’
- b. #De schipper zegt dat (er) een brander sinds gisteren kuren  
*The skipper says that there a burner since yesterday problems*  
 vertoont.  
*displays*

The difficulties just outlined extend to indirect objects. When such an argument is present, we must introduce another AnaP and another adverbial zone in order to allow it to scramble. Suppose the subject is discourse-anaphoric and therefore appears in the specifier of its AnaP to the left of the associated adverbial position. Suppose, furthermore, that the direct object expresses new information and therefore remains in situ, to the right of the lowest adverbial position. Then it should be the case that placement of the indirect object with respect to adverbials has no bearing on its discourse status. But as we have already seen in (35) and (36), this is incorrect.

In sum, whether one assume a single old-information zone in the left periphery or multiple distributed AnaPs, the correlation between scrambling and an interpretation of arguments as discourse-anaphoric is beyond the reach of theories that treat discourse templates as functional projections.

## 4 Extensions

With the discussion in the previous section, we have concluded our main argument against an implementation of discourse templates as functional projections and in favour of an implementation in terms of mapping rules. In this section, we will discuss some phenomena that are somewhat less central to the issue, but that nonetheless seem to strengthen the outlook defended here.

### 4.1 Extraction from Scrambled DPs

It is sometimes suggested that scrambled DPs are ‘frozen’, that is, they are claimed not to allow subextraction. This claim seems to be correct for A’-scrambling, which is unsurprising, given that freezing effects are a wide-spread property of A’-moved constituents. However, one would not expect it to be correct for A-scrambling, even on an A-movement analysis, as NP raising does not in general

create islands.  $W_H$ -extraction from exceptionally case-marked subjects is (somewhat) degraded for some speakers (see, for example, Kayne 1984), but fully acceptable for others (see, for example, Chomsky 1986). However, it does not seem to make any difference whether the exceptionally case-marked subject has undergone raising internally to the infinitival complement, suggesting that extraction from a raised DP is possible.

The supposed frozen status of A-scrambled DPs is usually demonstrated using so-called *wat-voor* extraction (or *was-für* extraction in German). To give an example, there is a clear contrast between (66a) and (66b); the latter is decidedly odd.

- (66) a. Wat heb je gisteren voor iets geschreven?  
*what have you yesterday for something written*  
 ‘What sort of thing have you written yesterday?’  
 b. ??Wat heb je voor iets gisteren geschreven?  
*what have you for something yesterday written*

On the other hand, the islandhood of scrambled DPs does not hold across the board, as argued convincingly by De Hoop 1996. This, by itself, is sufficient to undermine any syntactic account of the contrast in (66), including one that assumes that scrambling is a movement targeting a landing site that is an island.

The proposal developed in section 3.1 allows an alternative perspective on these data. In most contexts, scrambling marks discourse anaphoricity, with the consequence that it is harder to scramble indefinites than definites. The remnant of *wat-voor* split is of course an indefinite and one could therefore attribute the deviance of (66b) to the fact that a marked structure is generated in the absence of an interpretive trigger, rather than to any ban on extraction from scrambled DPs.

If this is indeed on the right track, we expect *wat-voor* split to improve considerably precisely in those circumstances that license scrambling of an indefinite. As we have seen, such DPs can scramble if they take wide-scope with respect to a scope-dependent adverbial. They can also scramble if they can be construed as discourse-anaphoric, either because they refer to a specific unnamed individual in the common ground, or because they are partitives based on a contextually given set of individuals. In addition, there are cases in which any DP must scramble, for example in order for it to be associated with a depictive. In these cases, scrambling does not require discourse-anaphoricity, and therefore freely applies to indefinites.

As expected, none of these factors is present in (66b). To begin with, it is hard to see how a indefinite of which a subpart is questioned could be interpreted as specific. Furthermore, *iets* ‘something’ strongly resists a partitive reading, does not scopally interact with *gisteren* ‘yesterday’, and, as (66a) shows, scrambles only

optionally. However, in examples in which one of the relevant factors *is* present, structures analogous to (66b) should be grammatical.

Given that a specific reading is hard to reconcile with WH-movement, we concentrate here on the remaining three circumstances that allow scrambling of indefinites. The first of these involves a partitive reading based on a contextually given set. Suppose two left-radicals from Amsterdam are discussing a raid on squats in various major cities in the west of Holland. In that context, the initial question in (67) can make available as given the set of squatters in Amsterdam known to speaker and hearer. Hence, scrambling in (67b) is licensed on a construal of the question as being about this set. This presupposition is not required for the reply in (67a).

- (67) Heb je al gehoord dat de politie dit weekend in de randstad twintig krakers gearresteerd heeft, waaronder vijf die wij kennen?  
 ‘Have you already heard that the police has arrested twenty squatters in the west of the country this weekend, of whom five are known to us?’
- a. O ja? Wat hebben ze in Amsterdam [*t* voor krakers] gearresteerd, dan?  
*yeah? what have they in Amsterdam for squatters arrested, then?*
- b. O ja? Wat hebben ze [*t* voor krakers] in Amsterdam gearresteerd, dan?  
*yeah? what have they for squatters in Amsterdam arrested, then?*  
 ‘Really? What/which squatters have they arrested in Amsterdam, then?’

That a given set is required to license scrambling in (67b) is corroborated by the discourse in (68). Here the same question is infelicitous because the context fails to make available the required set of squatters. (As in previous examples, we abstract away from the possibility of accommodation of the scrambled order in (68b) as implying that the set is or should be known to the addressee.)

- (68) Ze zeggen dat de politie in de randstad altijd links-radikalen arresteert.  
 ‘They say the police in the west of the country is always arresting leftwing radicals.’  
 Daar geloof ik niks van.  
 ‘I don’t believe a word of that ...’
- a. Wat hebben ze in Amsterdam [*t* voor krakers] gearresteerd, dan?  
*what have they in Amsterdam for squatters arrested, then?*  
 ‘What squatters have they arrested in Amsterdam, then?’

- b. #Wat hebben ze [*t* voor krakers] in Amsterdam gearresteerd, dan?  
*what have they for squatters in Amsterdam arrested, then?*

The second interpretive effect that should license scrambling of the *wat-voor* phrase is scope. In (69), the scrambled constituent cannot be a partitive based on a contextually given set, as the discourse simply does not make such a set available. However, extraction is from a constituent that takes wide scope over the following adverbial, with the consequence that scrambling is felicitous.

- (69) Ik heb gisteren toch zo'n raar verhaal in de krant gelezen ...  
 Wat denk je dat elke student [*t* voor foto] tien keer per dag bekijkt?  
*what think you that every student for photo ten times per day views*  
 'What photo do you think every student views ten times per day?'  
 Kweenie. Een foto van zijn moeder?  
 'Dunno. A picture of his mum?'

Finally, it should be possible to extract from a *wat-voor* phrase scrambled across an associated depictive, and indeed (70) is fully grammatical. (As pointed out before, *iets* 'something' resists a partitive reading, which means that scrambling in this example cannot be licensed through discourse anaphoricity.)

- (70) Ik heb nou toch wat meegemaakt. Ik was gisteren in dat nieuwe restaurant,  
 en ...  
 wat denk je dat ik [*t* voor iets] rauw geserveerd kreeg?  
*what think you that I for something raw served got*  
 'What sort of thing do you think that I got served raw?'

We conclude that the claim that scrambled constituents are islands, to the extent that it is correct, might well be derivable from the interpretive effects required to license scrambling in the first place.

## 4.2 A-scrambling and prosody

As is well-known there is a strong tendency for discourse-anaphoric constituents to be destressed (see Selkirk 1984, 1996; Williams 1997; Schwarzschild 1999; and Reinhart 2003 for discussion). To give an example, the neutral stress pattern in (71) is reversed in (72), where *the newspaper* has been mentioned in the previous discourse. This phenomenon is generally referred to as anaphoric destressing.

- (71) After John returned, what did he do?  
 a. #He réad the newspaper.  
 b. He read the néwspaper.
- (72) After John bought the newspaper, what did he do?  
 a. He réad the newspaper.  
 b. #He read the néwspaper.

As the examples show, anaphoric destressing is independent of scrambling. However, Neeleman and Reinhart (1998) argue that the tendency for discourse-anaphoric material to undergo scrambling in Dutch can be understood from the fact that it facilitates anaphoric destressing. Suppose that the Nuclear Stress Rule assigns main stress in the right periphery of the clause. If so, an object that does not scramble will end up stressed, but an object that does scramble is removed from the domain in which main stress is assigned. Therefore, anaphoric destressing can be brought about by manipulating the order of the sentence rather than its phonology.

In this section we briefly indicate why we think this approach, despite its initial attractions, must be rejected. A first problem for the view that scrambling is prosodically motivated is that it can account for the positioning of direct objects, but not for that of indirect objects and subjects. This is because direct objects that have not scrambled receive main stress, but other arguments do not. In fact, scrambling does not seem to affect the stress levels of the subject in (73) and the indirect object in (74) at all.

- (73) a. Ik geloof dat gisteren een jòngen naar hùis is gegaan.  
*I believe that yesterday a boy to house is gone*  
 b. Ik geloof dat die jòngen gisteren naar hùis is gegaan.  
*I believe that that boy yesterday to house is gone*
- (74) a. ‘k Heb gisteren een mèisje een bóek gegeven.  
*I have yesterday a girl a book given*  
 b. ‘k Heb dat mèisje gisteren een bóek gegeven.  
*I have that girl yesterday a book given*

It is therefore hard to maintain that scrambling of these elements is motivated by prosodic considerations: subjects and indirect objects do not carry main stress and yet their position vis-à-vis adjacent adverbs has the same interpretive effect as in the case of direct objects.

A second observation that casts doubt on the idea that scrambling is triggered by prosody is that the presence or absence of focus does not affect the positioning of discourse-anaphoric DPs. To set the stage, let us first consider an English example

in which a DP expressing old information undergoes focalization. The two participants in the conversation in (75) share the background knowledge that Haruki Murakami's latest novel is called *Kafka on the beach*. Furthermore, the first speaker relies on this shared knowledge when she brings up this novel as a topic of conversation. Hence, the fronted object in the second speaker's utterance represents old information. Nevertheless, it is also focused, because it is contrasted with Murakami's previous work.

- (75) Have read Murakami's latest yet?  
Well, I've read almost everything by Murakami, but KAFKA ON THE BEACH I can't get through.

This example not only demonstrates that discourse-anaphoric DPs can be focused, but also that when this happens, the rule that requires focused elements to bear main stress takes precedence over the rule of anaphoric destressing: the main stress in (75) falls on *beach*.

With this in mind, consider what we would expect to happen in comparable circumstances in a language that allows A-scrambling. On Neeleman and Reinhart's proposal, a contrastively focused DP that represents old information should not scramble. This is because it requires main stress, which implies that economy considerations will block scrambling away from the position targeted by the nuclear stress rule. On the proposal developed here, we do expect the relevant DP to scramble, as the rule in (32) can apply irrespective of stress. This appears to be the correct prediction.

A representative example from Dutch is given in (76). Here, 'my best friend from primary school' is the topic of conversation and hence is old information for the second speaker. However, this speaker chooses to contrast this individual with other people, which requires focus and hence stress. Despite this, scrambling is strongly favoured in the context under discussion.

- (76) Mis je je beste vriendin van de lagere school nog zo?  
'Are you still missing your best friend from primary school so much?'  
Nou, er zijn VEEL MENSEN die ik mis, maar ...  
'Well, there are MANY PEOPLE that I miss, but ...'  
a. ik heb MIJN BESTE VRIENDIN VAN DE LAGERE SCHÓOL gisteren nog  
*I have MY BEST FRIEND FROM THE PRIMARY SCHOOL yesterday yet*  
gezien.  
*seen*  
'I saw MY BEST FRIEND FROM PRIMARY SCHOOL only yesterday.'

- b. #ik heb gisteren MIJN BESTE VRIENDIN VAN DE LAGERE SCHÓOL nog  
*I have yesterday MY BEST FRIEND FROM THE PRIMARY SCHOOL yet*  
 gezien.  
*seen*

The dialogue in (76) can be contrasted with that in (77), where ‘my best friend from primary school’ is focused and expresses new information. As expected, it must be generated below the adverbial ‘yesterday’. (Of course, the scrambled structure can be accommodated as old information if the identity of the first speaker’s friend is part of the background knowledge shared with the second speaker; this is the usual pattern with scrambled definites). Apparently, the fact that focus requires main stress does not interfere with A-scrambling.<sup>8</sup>

(77) Zie je Carla nog wel eens?

‘Do you ever see Carla these days?’

Nou, CARLA is naar Nieuw Zeeland verhuisd, maar ...

‘Well, Carla moved to New Zealand, but ...’

- a. #ik heb MIJN BESTE VRIENDIN VAN DE LAGERE SCHÓOL gisteren nog  
*I have MY BEST FRIEND FROM THE PRIMARY SCHOOL yesterday yet*  
 gezien.  
*seen*

- b. ik heb gisteren MIJN BESTE VRIENDIN VAN DE LAGERE SCHÓOL nog  
*I have yesterday MY BEST FRIEND FROM THE PRIMARY SCHOOL yet*  
 gezien.  
*seen*

‘I saw MY BEST FRIEND FROM PRIMARY SCHOOL only yesterday.’

We conclude that the system of old-information marking applies to all arguments, whether they bear main stress, as in (76) and (77), or not, as in (73) and (74).

## 5 Concluding remarks

There are precedents in the literature to the case presented here against a cartographic analysis of word-order restrictions. It can be observed in various languages that the basic order of arguments must be preserved in structures derived by A-scrambling. (Dutch, as we have seen, is an example.) The fact that adverbs that can be freely interspersed in this argumental sequence is used in our own work to argue that the order of arguments cannot be captured by a fixed set of positions

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<sup>8</sup> Notice that the effects observed here cannot be explained in terms of A'-scrambling, since this process does not mark elements as discourse-anaphoric.

in the extended verbal projections. Similarly, Bobaljik (1999) uses the fact that arguments, verbs and auxiliaries can be freely interspersed in the adverbial sequence described by Cinque (1999) to argue against that author's proposal that the order of adverbs should be captured by means of a fixed set of positions in the extended verbal projection.

Bobaljik's quib is interesting because it attempts to reconcile the data with a theory that states word-order restrictions in terms of phrase structure. He suggests that there is an argumental hierarchy and an adverbial hierarchy and that these are tiers of the syntactic representation, somewhat comparable to tiers in autosegmental phonology. The two tiers are ultimately collapsed into a single structure. Bobaljik draws an analogy to the shuffling together of two decks of cards, which preserves the internal order of each deck while it intersperses the cards of one deck among those of the other.

It will be clear from the previous sections that we are inclined to explain word-order restrictions, not in terms of phrase structure, but in terms of abstract principles (typically rules that map syntactic structures to syntax-external representations). There is some independent evidence for this view in the domain adverb order (see Haider 2000 and Nilsen 2003). Nevertheless, Bobaljik's suggestion allows for a fairly simple and largely empirically adequate description of Dutch grammar.

The data discussed in this paper, however, present a more serious challenge to a phrase-structural treatment of word-order restrictions than those just discussed. There are two crucial aspects to the independence of the tiers in Bobaljik's suggestion. First, the effects of each tier are nonlocal: no matter how much material is interspersed among elements of a tier, the order required by the tier will be maintained. Second, the effects of each tier are independent: no restrictions are imposed on the order of elements belonging to different tiers. Neither property seems conducive to an adequate analysis of the interpretive effects of scrambling.

In the case of A'-scrambling, the order of constituents interpreted as topic and focus is free when they both remain in situ, but rigid as soon as both of them move. This could be captured by having an independent tier of derived positions. However, there are also restrictions on the order of moved foci with respect to in-situ topics (and in-situ superordinate foci). These effects cannot be captured by a simple phrase-structural hierarchy. As explained in section 2.2, they require reference to the notion of a background, which does not fit the concept of a hierarchy of positions.

Comparable, but probably more serious, problems arise in the case of A-scrambling. First, the marking of discourse-anaphoricity is achieved through the ordering of elements that belong to different tiers (namely, adverbs and arguments). But this implies that a statement about word order is required that cannot be phrase-structural in nature (exactly because it must express a relation

between elements in different tiers). Second, the interpretive effects of A-scrambling are local. The marking of discourse anaphoricity does not merely require that an argument precede an adverb, it requires that it immediately precede it. Again this is unexpected if ‘tier conflation’ is essentially free, something that must be assumed to capture the nonlocal ordering restrictions that hold of elements within each tier.

We conclude that at least some word-order restrictions successfully captured by mapping rules remain beyond the reach of a phrase-structural treatment.

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