FOCUS AND THE SYNTAX-PHONOLOGY INTERFACE

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“Hát te, Őrangyal, most mit teszel, sose volt ilyen nagy szükség rád, amiőta csak ide kineveztek, itt vannak ezek, hamarosan a levegőbe emelkednek, oda, ahol sosem járt ember, és szükségük lesz egy oltamazóra, ők már megtekintették, ami tőlük tellett, összeszedték az anyagot és az akartokat, egyesítették a szilárdat a tűnekennyel, mindehhez még merészségük is volt, ők már elkészülethetek, csak még ezt a tetőrészt kell levenni, összecsukni a vitorlákat, beengedni a napfényt, és Isten veled, már megyünk is....

“And now, Guardian Angel, what will you do, your presence has never been so necessary since you were first entrusted with this role, here you have these people who will shortly go up into the sky, where man has never ventured, and they need your protection, they have done as much as they can on their own, they have collected the necessary materials and wills, they have combined the solid with the evanescent, they have linked everything to their own audaciousness, and they are ready, all that remains to be done is to demolish the rest of the roof, close the sails and expose the machine to the sun, and farewell, we’re off,...
... ha pedig te, Ó angyal, most nem segítesz legalább egy kicsikét, nem vagy se angyal se más, persze bőven akad szent, akit segítségül hívhatunk....”

José Saramago  A kolostor regénye

... but if you, Guardian Angel, don’t give us at least a little help, you are neither an angel nor anything else, there are of course lots of saints whom one can invoke.... ”

José Saramago  Baltasar and Blimunda
Abstract

The aim of this work is to describe the different ways languages express focus and to explain why languages use exactly these ways. I give a detailed account of focus in three languages: Hungarian, English and Italian.

The work is based on the assumption that the following principle operates at the interface between the grammar and the conceptual-intentional system of the mind.

(1) Focus Interpretation:
The focus of a clause is any syntactic constituent that contains the main stress of the intonational phrase corresponding to the clause.

(Following Reinhart 1995:62)

It is widely believed that languages may mark focus by a special word order only. I argue against this view in my discussion about Hungarian. In Hungarian, a special word order is used when a particular element is in focus. I argue that this special word order is intimately related to the way main stress is assigned in the language. Thus I establish a crucial link between two types of focus marking: one which uses a phonological marker, e.g. English, and one which marks focus by special word order, e.g. Hungarian, reducing the latter ultimately to phonology.

Subsequently I describe the architecture of the grammar from the perspective of focus marking. I show that languages that mark focus by main stress may realise marked focus patterns in three different ways. Furthermore, I show that these three ways are the only possible ways to express focus by main stress. There is no other possibility available.

From a theoretical perspective this work intends to investigate the role of the different modules of the grammar, in particular of syntax and
phonology and the mapping between the two, in the representation of certain pragmatic notions such as focus.
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Anyunak legjobban azt köszönöm, hogy mindig hitt bennem, Apunak azt, hogy mindig büszke volt rám.

Baláznak azért vagyok a leghálásabb, hogy mellette volt elég hitem elkezdeni és befejezni ezt a tézist.
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CHAPTER 1

INTRODUCTION

1 Focus, stress and word order

Focus is understood here to be that part of an utterance that carries the new or highlighted information. It is a standard claim in the literature that focus in English is marked by heavy stress or pitch accent. (cf. Chomsky 1971, Rochemont 1986 and many others)

In English, it is possible to put prominence on a particular word by putting heavy stress or pitch accent on it. For example, the following question-answer pair forms a felicitous discourse. Small capitals indicate that main stress falls on the subject DP, John; underlining marks pragmatic focus.

(1) a. Who ate the pizza?
    b. **John** ate the pizza.

The question-answer pair indicates that the focus of the answer is on the subject DP.

In Hungarian, it is widely believed that focus is marked by a special word order: the Hungarian focus construction (cf. 2). In (2) the focused constituent appears in the left periphery of the clause. It is immediately adjacent to the finite V.

(2) a.
    b.

(2) (1) a. Who ate the pizza?
    b. **John** ate the pizza.

The question-answer pair indicates that the focus of the answer is on the subject DP.

In Hungarian, it is widely believed that focus is marked by a special word order: the Hungarian focus construction (cf. 2). In (2) the focused constituent appears in the left periphery of the clause. It is immediately adjacent to the finite V.
If so, there appears to be a parameter in natural language with respect to focus marking. English focus is marked by prosodic means, by main stress, whereas Hungarian focus is marked syntactically, by a special word order. The aim of this thesis is to show that there is no such parameter. Rather, both languages mark focus prosodically.

Note in particular, that as the small capitals indicate, main stress in (2) falls on the focused constituent *Marit* ‘Mary-acc’. As (3) shows, if the focus does not receive main stress, the utterance becomes ungrammatical.

(3) *Marit ISMERTE meg Józsi.

Mary-acc got-to-know prt Joseph

Following Reinhart (1995), I assume that the following principle operates at the interface between the grammar and the conceptual-intentional system of the mind.

(4) Stress-focus correspondence principle:
The focus of a clause is any syntactic constituent that contains the main stress of the intonational phrase corresponding to the clause.

(Following Reinhart 1995:62)

In other words, focus is always marked by prosodic means, by main stress. Languages do not mark focus by only a special word order. I argue

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1 This is of course not true for languages that have a tonal system, rather than a stress system. It is also unlikely that the generalisation would hold
that the Hungarian focus construction is closely related to the way main stress is assigned in the language. Thus I establish a crucial link between two types of focus marking: one which uses a phonological marker, e.g. English, and one which marks focus by special word order, e.g. Hungarian — reducing the latter ultimately to phonology.

If Hungarian focus movement is indeed triggered by the necessity to satisfy the Stress-focus correspondence principle, then one may seriously question the existence of a syntactic [+Focus]-feature in the grammar. I provide an in-depth comparison between the stress-based and the feature-driven approach to focus from a theoretical perspective. Not only does the existence of the [+Focus]-feature violate Chomsky’s (1995) Inclusiveness principle, we also witness its redundancy in the grammar.

Although the hypothesis in (4) states that grammars of languages always encode focus by prosodic means, this is not to say that there is no language variation with respect to how the Stress-focus correspondence principle (4) is satisfied. In this work, I show that in languages that mark focus by main stress, marked focus patterns may be realised in three different ways. Furthermore, I show that these three ways are the only possible ways to express focus by main stress. There is no other possibility available.

In addition, I argue that the language variation attested in the different constructions of English, Hungarian and Italian is not parametric. It is not the case that whereas English only makes use of a prosodic operation, Hungarian marked focus is always derived by syntactic movement. Rather, Hungarian prefers syntactic movement; however, it also employs a prosodic operation, if movement is unavailable for reasons independent of this phenomenon. For this reason, the account of English, Hungarian and Italian focus and discourse linking employs the framework of Optimality Theory (cf. Prince & Smolensky 1993).

true for languages with morphological focus markers. A thorough study of these languages is left for future research.
The three different ways of expressing focus in those languages that obey the principle in (4) are the following. First, a language may apply a phonological operation, stress strengthening, to ensure that a particular element is in focus. Neeleman & Reinhart (1998) argued that this is the case in English. As I illustrated at the beginning of this chapter in (1b), stress strengthening is applied and therefore main stress is placed on the subject. As a result, (1b) becomes appropriate in the context of (1a). Had main stress not been placed on the subject, the utterance would be infelicitous in the context of (1a).

Second, a special word order may be used to bring an element into the main stress position, and thus into focus. For example, this option is available in Hungarian and Italian. In Hungarian, the focused element appears at the left-periphery of the sentence, whereas in Italian, it appears at the right-periphery. In both languages, these positions correspond to the positions of main stress.

Third, and last, a so-called misaligned mapping operation may be applied at the interface between syntactic structure and prosodic structure to ensure that the element in question receives main stress. I argue that this last option is available in the Italian left-peripheral focus construction, described by Rizzi (1997).

An in-depth study of the Italian left-peripheral focus construction necessitates the investigation of other discourse roles than with focus. In this study, I concentrate on the study of discourse linking. Discourse-linked material is understood here as material already present in the universe of discourse at the time of the utterance and accessible in Ariel’s (1990) sense.

Neeleman & Reinhart (1998) argued that in English, discourse-linked material is destressed. Following their work, but also taking into account both Hungarian and Italian, I propose that the following principle regulates the marking of discourse-linked elements in the grammar.
Chapter 1: Introduction

(5) **Anaphoric interpretation principle:**

Material is discourse-linked if it is unstressed.

(cf. Neeleman & Reinhart 1998: 338)

Parallel to the three different ways available for the realisation of marked focus, there are also three different ways to mark discourse-linked status. First, a prosodic operation, destressing, may be used to mark material as discourse-linked. Neeleman & Reinhart (1998) showed that this appears in English. Second, a stress-avoiding movement operation may occur to ensure that an element does not occupy a stressed position. I argue that this applies in Hungarian. Finally, the left-peripheral focus construction in Italian provides evidence that there is a third way of marking discourse-linked status, which I call misaligned mapping. On the whole, it is demonstrated that the same ‘repair-mechanisms’ are mobilised for focus marking and discourse linking.

The aim of this thesis is to provide a unified account for focus marking in English, Hungarian and Italian. I argue that the *Stress-focus correspondence principle* (4) and the *Anaphoric interpretation principle* (5) hold in all three languages. This is not to deny the presence of any variation in the way these principles are satisfied. On the contrary, an extensive study of the three different strategies to derive marked focus or discourse-linked status is an essential part of the thesis. I further argue that these strategies do not represent parametric choices, but correspond to ranked constraints in the sense of Optimality Theory (cf. Prince & Smolensky 1993). The thesis provides a case against the widely-held assumption that pragmatic notions such as focus are encoded in the syntactic computation by a [+Focus]-feature and a corresponding functional Focus head.

In the following section I summarise Neeleman & Reinhart’s (1998) account of focus and discourse linking in English. Section 3 provides some
background by comparing this account with other approaches to focus marking in the literature. Next, I describe the architecture of the grammar from the perspective of focus and discourse linking as assumed in this thesis (Section 4). It will be apparent that this architecture is the underlying reason for the three-way typology of marked focus and discourse linking patterns (Section 5). Section 6 provides the reader with a summary of the thesis.

2 Stress-focus correspondence: Neeleman & Reinhart (1998)

Reinhart (1995) and Neeleman & Reinhart (1998) follow Chomsky (1971), Cinque (1993) and Williams (1997) in viewing focus as a property defined on PF. In particular they argue that the focus of an utterance is determined by its intonation in the following way. A particular utterance may have more than one focus interpretations. They define the set of possible foci for a given utterance as follows.

\[(6) \text{The focus set of IP consists of the constituents containing the main stress of IP.}\]

(Neeleman & Reinhart 1998: 333, Ex.51)

Thus the utterance in (7), where main stress falls on the object, has the focus set given in (8).
(7)  

a.  A: What’s this noise?  
   B: My neighbour is building a desk.  

b.  A: What’s your neighbour doing?  
   B: My neighbour is building a desk.  

c.  A: What’s your neighbour building?  
   B: My neighbour is building a desk.  

(Neeleman & Reinhart 1998: 333, Ex.53)

(8)  Focus set: {IP, VP, DP, DO}

Thus the output of the grammar is an ambiguous utterance with more than one possible focus interpretations. Depending on the discourse conditions, one interpretation is chosen as the actual focus. However, discourse may only select a member of the focus set. Thus the utterance in (7) is inappropriate in the context of (9), as that context requires DP_{SU} focus, which is not in the focus set of the utterance. It is equally inappropriate in the context of (10), as that requires focus on the V, which is also not in the focus set of the utterance.

(9)  

A: Who’s building a desk?  
B: #My neighbour is building a desk.

(10)  

A: Has your neighbour bought a desk already?  
B: #No, my neighbour is building a desk.  

(Neeleman & Reinhart 1998: 334, Ex.54)

Neeleman & Reinhart (1998) argue that every language has a neutral, unmarked stress pattern, assigned by the nuclear stress rule (NSR). If the focus set defined by the NSR does not contain the intended focus of the utterance, a special operation may apply to place stress on the constituent in question.
(11) Relocate main stress.

(Neeleman & Reinhart 1998: 333, Ex.55)

In the context of (12a) an extra, marked stress (not the one assigned by NSR) is assigned to the DP_{SU} and in (12b) to the V. As a result the focus set of the utterance, defined by the main stress, contains the relevant constituents, and the utterances are appropriate in their given contexts. In fact, in their contexts, the utterances do not seem marked\(^2\); they are perfectly natural.

(12)

a. A: Who’s building a desk?
   B: **MY NEIGHBOUR** is building a desk.

b. A: Has your neighbour bought a desk already?
   B: No, my neighbour is **BUILDING** a desk.

(Neeleman & Reinhart 1998: 334, Ex.56)

In fact, (12a) and (12b) contain two different prosodic operations: stress strengthening and destressing. These have different prosodic properties and different discourse functions. The former adds stress to an element that otherwise does not bear main stress, in order to derive a focus that is not available in the focus set of the original utterance. The latter destresses an element that bears stress in order to express the fact that the element is already available in the context set, i.e. it has previously been mentioned in the discourse, or is available in the discourse situation (e.g. speaker, hearer etc.). For instance, pronouns are most often used anaphorically, so their

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\(^2\) Reinhart (1998) argues that there is a very precise sense in which an operation can be viewed as marked. She makes the hypothesis that an operation is marked if and only if there is evidence for processing cost.
unmarked pronunciation is destressed\(^3\), as in (13).

\[(13) \quad \begin{array}{ll}
\text{a.} & \#\text{Max saw } \text{HER/ IT}.
\text{b.} & \text{Max SAW her/ it}.
\end{array}\]

(Neeleman & Reinhart 1998: 335, Ex.58)

On the basis of (13) and similar data studied for example by Nooteboom & Kruyt (1987) (but contra for example Williams 1997), Neeleman & Reinhart (1998) state the generalisation that destressing is independent of focusing. Rather, it applies if and only if the entity is discourse-linked to an accessible entity in the previous discourse in Ariel’s (1990) sense.

\[(14) \quad \text{A DP is destressed if and only if it is D-linked to an accessible discourse entity.}\]

(Neeleman & Reinhart 1998: 338, Ex.64)

Given that destressing affects the stress pattern of the utterance, it is inevitable that it also affects the focus set of the utterance. Nevertheless, it is crucial that (14) is a separate condition from (6).

The other prosodic operation, stress strengthening, assigns extra stress to an element without removing the stress assigned by the nuclear stress rule (henceforth NSR). As a result the original main stress will become secondary,\(^4\) and the entity it denotes does not have to be discourse-linked. In (15) stress strengthening places an extra stress on the DP\(_{SU}\), while the stress assigned by the NSR to the object is secondary.

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\(^3\) Throughout this work, elements that are discourse-linked are marked by \textit{italics}.

\(^4\) Throughout this work, secondary stress (or phrasal stress) is largely ignored as it does not play an important role in defining focus patterns. In those few cases where it appears, it is marked by a single quote: ‘."
(15) Only MAX can afford buying ‘cars.

(Neeleman & Reinhart 1998: 335, Ex.60a)

As expected, (15) can be uttered in the context of (16a). However, quite unexpectedly, given the definition of the focus set as above, (15) is not appropriate in the context of (16b) even though the IP contains the main stress.

(16) a. Who can afford buying cars?
   b. #What’s the situation?

Why should this be so? Neeleman & Reinhart (1998) argue following Reinhart (1995) that this is due to interface economy. The stress pattern in (15) is the result of an optional stress strengthening operation. Reinhart (1995) argues that the application of an optional operation is always an economy violation. Thus, unless the uneconomical operation is the only way to satisfy a certain interface condition, it is ruled out as ungrammatical. Thus a marked utterance, which sounds perfectly natural in its own context, must be the only way to achieve the required interpretation. In the case of (17a), the focus set of the utterance contains the IP, the VP and the DP<sub>DO</sub>. Given that stress on the object is assigned by the NSR, the utterance does not violate economy, as it contains no optional operations. In contrast, in (17b), where the stress on the DP<sub>SU</sub> is marked, the utterance is ungrammatical under IP focus even though IP is in the focus set in (17b'). This is so, as the utterance contains an optional and therefore marked operation that failed to derive a new focus, as IP is available in the focus set of the original (17a).

(17) a. Lucie passed the EXAM.
   a’. Focus set: {IP, VP, DP<sub>DO</sub>
b. LUCIE passed the ‘exam.
b’. Focus set: [IP, DP_{SU}]

Neeleman & Reinhart (1998) make the following generalisation.

(18) Economy entails that stress strengthening applies only to derive foci not already in the focus set.

(Neeleman & Reinhart 1998: 340, Ex. 70)

To summarise, Neeleman & Reinhart (1998) argue that the focus of an utterance is determined (although not necessarily uniquely, in a one-to-one fashion) by the main stress of the utterance. If focus is required on an element that is not in the focus set of the unmarked utterance, where stress is assigned by the NSR, then an optional stress strengthening operation may assign stress to the element, to make it available in the focus set of the marked utterance. However, this operation is subject to economy, and therefore stress strengthening only ever happens to derive a focus that is not originally available in the focus set.

There is another prosodic operation in the grammar, which Neeleman & Reinhart (1998) argue is separate from stress strengthening, namely destressing. Destressing applies to an element that is discourse-linked to an accessible entity in the discourse; vice versa, all such elements are destressed. Although they take destressing to be an optional operation, which is subject to economy, they do not take it into consideration in the reference set computation at the interface. In other words, utterances are compared under an interpretation, which includes their focus but not whether they contain any discourse-linked elements. Given that the function of destressing is similar to the function of stress strengthening in the sense that they both apply to satisfy an interface need, in this thesis I make the hypothesis that they are both subject to economy and both taken into account at the
computation at the interface.\textsuperscript{5}

3 Encoding focus

From a theoretical perspective this work intends to investigate the role of the different modules of the grammar, in particular of syntax and phonology, in the representation of certain pragmatic notions such as focus and discourse linking.\textsuperscript{6} Let us take a brief look at other approaches in the literature from this perspective. My attention will be restricted to the following two questions: Does the grammar (in its wide sense; i.e. including phonology but not pragmatics) determine the focus of an utterance? If so, does the grammar encode focus unambiguously?

The literature presents a wide range of views on the issue of the grammatical representation of focus from a primarily syntactic perspective.\textsuperscript{7}

\textsuperscript{5} This is in some sense contra Reinhart (1998), who argues that operations that are subject to economy always increase the processing cost. Experimental results in acquisition do not support a view that anaphoric destressing increases the processing cost, while there appears to be some evidence for increased processing cost with respect to stress strengthening Halbert et al. (1995). This, however, may be caused by independent factors, for example to differences in default patterns in the two cases. More experimental work is needed to settle the issue.

\textsuperscript{6} I use focus in the widest possible sense. Semantico-pragmatic distinctions such as contrastive focus, identificational focus (É.Kiss 1998b) etc. are all understood to be part of the notion focus. See Appendix B to Chapter 2 for more discussion of these distinctions.

\textsuperscript{7} Works that deal with focus and other discourse roles from a semantic perspective include Szabolcsi (1981), Krifka (1991), Diesing (1992), Rooth (1992) and Büring (1995). The prosodic aspect of focus is investigated by
The spectrum ranges from the functionalist sentence perspective (i.e. the Prague School) through the discourse theoretically motivated works (e.g. Gundel 1974; Prince 1979, 1981; Reinhart 1981, 1995; Lambrecht 1994; Vallduví & Engdahl 1996 and Erteschik-Shir 1997) to the strict ‘encoding’-view of the GB — Minimalist literature.

The Prague School view, at least in its original form (e.g. Dezső 1974; Haji ová & Sgall 1988, Haji ová, Partee & Sgall 1998 and others), did not perceive representing focus in the grammar as an issue, as for them, discourse notions such as focus and topic were readily available in the grammar itself. Their functionalist and to a large extent descriptivist point of view enabled them to make certain far-reaching generalisations, and they intended to go no further.

The pragmatic approaches to focus, in particular the different works based on Relevance Theory (Sperber & Wilson 1982, 1995; Kempson et al. 1999; Breheny 1998), advocate a certain under-determinacy of the grammar with respect to focus. They argue that the focus of an utterance is not fully determined by the syntactic, prosodic etc. make-up of the utterance, although no doubt these contribute to the actual focus. Pragmatic principles, knowledge of previous discourse and any other kind of world knowledge may be required to determine the focus of an utterance.

The GB and Minimalist approaches are the strictest in the sense that they advocate a direct and unambiguous mapping between the grammatical representation of an utterance and its focus. In the generative literature the standard view of the late eighties and early nineties was and to a large extent

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8 Outside the GB framework works on focus include King 1993, 1997b; Butt & King (1996), Butt (1997), Kempson et al. (1999), and Steedman (2000) among many others.

It is generally assumed that the element that bears focus has a [+Focus]-feature, and that a functional head, Focus, projects in the left-periphery of the clause. The focused element moves to the Focus head to check features. This was proposed for many languages with the only difference being the location of the FocusP with respect to other heads, its possible amalgamation with functional heads bearing other features (e.g. I or C), and whether the movement of the focused constituent (and of the V) is overt or covert (cf. Bródy 1990, 1995a on Hungarian; Tsimpli 1995 on Greek; Laka 1990, Ortiz de Urbina 1999 on Basque; Ouhalla 1994 on Standard Arabic; Tuller 1996 on Chadic languages; Vilkuna 1995 on Finnish and many works in É.Kiss 1995a and Rebuschi & Tuller 1999).

These approaches share an important property. They all assume that prosodic and intonational effects of focus are secondary, and are derivative of the syntactic (and lexical) representation. In particular, many assume that the [+Focus]-feature is identified by the PF component as well as the LF component. In the former, [+F] ensures the prosodic effects of focus; in the latter, the semantico-pragmatic ones. I shall term this the *feature-driven approach*.

In the feature-driven approach, the overall generalisation, known at least since Dezső (1974), Selkirk (1984) and Harlig & Bardovi-Harlig (1988), that the focus of the utterance is *always* marked by main stress or pitch accent is not stated directly. As it stands, the feature-driven approach makes few correct predictions for the interaction between focus and stress. As I will show below, a possible extension of it that is empirically comparable to the stress-based approach presented in Neeleman & Reinhart (1998) and Chapter 2 makes use of a superset of the assumptions employed in the stress-based
approach. Thus, it will be concluded that a syntactic [+Focus]-feature is redundant in the grammar.

The main claim of this work follows Reinhart (1995, 1996) and Neeleman & Reinhart (1998) in arguing that the focus set, the possible foci of an utterance, is determined by the grammatical properties of the utterance, albeit not directly and unambiguously by its syntactic representation. Focus is encoded prosodically, in terms of main stress or pitch accent. The representation of focus in the grammar is indirectly related to the syntactic representation, in as much as prosodic structure is aligned with syntactic structure. The representation of focus in the grammar is also not one-to-one but ambiguous in the sense that it is one-to-many. A particular utterance, with a given intonation, may have more than one interpretation, with more than one possible focus,– the focus set of the utterance.

According to the Stress-focus correspondence principle (4), however, the possible foci all contain the main stress of the utterance. So, the grammar in its wide sense (involving phonology, but not pragmatics) determines the focus set of each utterance. Pragmatic principles, discourse effects and world knowledge may only play a role in determining the actual focus of an utterance within the set of possible foci provided by the grammar.

4 The architecture of the grammar

The architecture of the grammar from the perspective of focus and discourse-linked status marking is given in Figure 1.
Following Nespor & Vogel (1986), Jackendoff (1997) and many others, I assume that the grammar has (at least) two distinct levels of representation, one prosodic and the other syntactic. The representations are connected by the principles of the syntax-prosody mapping. The prosodic representation is not derived from the syntactic one. Rather it is formed by and is subject to

9 Both syntax and prosody are taken to be single representations, rather than series of representations connected by a derivation (cf. Brödy 1995, 1997a, b, 2000). I abstract away from morphology, so I omitted it from Figure 1.
independent prosodic principles. In particular, the phonological feature-sets of the lexical items are grouped into prosodic structure: forming prosodic words ($\omega$), which in turn form phonological phrases ($\phi$), which are grouped into an intonational phrase (IntP) (cf. Nespor & Vogel 1986). Following Selkirk (1984, 1986), Nespor & Vogel (1986), Chen (1987) and many others (but contra Cinque 1993), I assume that stress is assigned to the prosodic representation. The prosodic representation is where the phonological and phonetic module(s) operate(s), deriving a linear string of sounds that is submitted to the interface between the grammar and the sensori-motoric apparatus.

Following Bródy (1995b), Reinhart (1995) and Jackendoff (1997) I assume that the conceptual-intentional interface can access both PF and LF. In other words principles of the grammar may make reference to prosodic and (semantico-) pragmatic information. Thus, the Stress-focus correspondence principle (4) and the Anaphoric interpretation principle (5) can be stated directly in the grammar at the interface with the conceptual-intentional system. There is no need to encode pragmatic and/ or prosodic information in the syntactic representation.

5 The three-way typology

In Section 1 I made the hypothesis that the Stress-focus correspondence principle (4) and the Anaphoric interpretation principle (5) hold in English, Hungarian and Italian. As I also mentioned in Section 1, languages differ as to how they realise marked focus patterns and discourse-linked status. In particular, I claimed that English makes use of a prosodic operation, Hungarian allows for stress-driven or stress-avoiding movement, while in certain Italian constructions a misaligned syntax-prosody mapping is responsible for the pragmatic information status of the material in the utterance. In this section I
would like to examine the different possibilities that the architecture of the grammar proposed in the previous section provides for marked focus in more detail. I will come back to different possibilities to mark an element as discourse-linked later.

Let me refer to the proposed architecture of the grammar in Figure 1. As it is indicated there, and as I described in detail in the previous section, an utterance is a pair of representations, where the syntactic structure is aligned with the prosodic structure. The nuclear stress rule assigns stress to the prosodic representation. As a result there is enough information present for the *Stress-focus correspondence principle* (4) to apply and derive the focus set of the utterance. In this section, I would like to argue for the following claims.

First, there are three different ways of bringing an element into focus that does not otherwise appear in the main stress position of the neutral utterance or of marking an element as discourse linked. Second, there is no other way, or in other words, the typology of focus and discourse linked patterns put forward below is full. Third, the three different ways do not represent three parametric choices available in different languages or different constructions. Rather they are best represented as three ranked constraints in the sense of Optimality Theory (cf. Prince & Smolensky 1993). As is standard practice in Optimality Theory (henceforth OT), language variation is the result of different ranking of the constraints. Note that this model does not imply that the separate modules, e.g. the syntactic module, would themselves be a set of violable ranked constraints in the Optimality Theoretic sense.

Let me illustrate the three different ways of focusing. Let us take an abstract case where an element which is to be focused is not in the nuclear stress position. Unless some operation is performed to bring that element into focus, the expression does not achieve the intended interpretation. This is so, because the *Stress-focus correspondence principle* (4) defines the focus set of the utterance on the basis of the element that bears main stress.

The following ways are available in grammar to “repair” the focus of the utterance. First, prosody may be invoked. Neeleman & Reinhart (1998)
argued that the operation of stress strengthening applies in English, and places main stress on a constituent which is not in the main stress position otherwise. Second, a syntactic operation, movement, may apply to ensure that the element is in focus. Third, and last, the mapping between the syntactic and prosodic structure can be altered in such a way that the element in question appears at the relevant edge of the phonological domain to receive main stress. I argue that the marked mapping is responsible for the left-peripheral focus construction in Italian. As it is obvious from Figure 1, there are no other operations in the grammar that could be invoked to alter the unmarked focus pattern. Thus in this framework, we obtained a full typology of three different marked focus patterns.

Let me describe in more detail the marked patterns (syntactic, mapping and prosodic) that derive the marked focus interpretations. Let us assume that the representation of some abstract unmarked utterance at the conceptual-intentional interface is as in (19).

(19)

The ‘aa..a’; ‘bb..b’; etc. sequences indicate lexical items. The one that bears main stress is in small capitals. In (19) this is the final lexical item (i.e.
HHHHH), as I assume that in this language main stress is right-peripheral. As I will show below, stress is right-peripheral in English and Italian, while it is left-peripheral in Hungarian.

The upper part of the diagram shows the prosodic structure of the utterance. ω stands for phonological word, φ for phonological phrase, and IntP for intonational phrase. The application of the nuclear stress rule (NSR) is notated in a tree-based metrical system (cf. Liberman 1979 and Liberman & Prince 1977) system, so the subscript S stands for ‘Strong’, W stands for ‘Weak’. The main stress is on the node that bears S and that is only dominated by S-s.

The lower part of the diagram shows the syntactic representation. A, B, C etc. stand for syntactic heads, AP, BP, CP etc. for syntactic phrases. Note that the phrases BP, FP and HP are single heads for ease of exposition. Also note that syntactic heads usually correspond to prosodic words, but there are exceptions, such as C, which cliticises onto D.

The first possibility to relocate the focus of the utterance, the one attested in English, is to apply stress strengthening in the sense of Neeleman & Reinhart (1998). This is illustrated in (20).
Here the original, right-peripheral, main stress becomes secondary, and the main stress appears on the element which is intended to be focused, in this case on FP. The marked operation is encircled on the diagram.

The second possibility, stress-driven movement, is shown in bold in (21). As I will argue, this kind of movement can be found in Italian. What happens here is that the constituent which is intended to be focused is moved to the right-edge of the utterance, and will thus be in the position where main stress is assigned.

(21)

The ”third way” is neither phonological nor syntactic. It is the result of a misaligned mapping between the syntactic representation and the phonological one. In the unmarked case, the right-edge of the intonational phrase is aligned with the right-edge of the clause. In a marked case, it is aligned with the right-edge of a phonological phrase other than the one that
is final in the clause. The rest of the phonological phrases remain free in the sense of not being integrated into the intonational phrase.

In (22) an intonational phrase is closed at the right-edge of a phonological phrase which does not correspond to the right edge of the clause. No new intonational phrase is opened; there is a ‘stray’ phonological phrase at the edge of the intonational phrase. In other words, a phonological phrase at the edge of the intonational domain remains extrametrical\(^{10}\). As a result of the misaligned mapping main stress will now fall on FP.

It is now apparent how a marked syntax-phonology mapping provides a third way of focusing a constituent which is not at the right-edge of the

\(^{10}\)Given that extrametricality is a result of misalignment of different levels of prosodic structure, by definition, the occurrence of extrametrical material is restricted to the edges of phonological domains. This derives the Peripherality condition of Harris (1983). (See also Inkelas 1989; McCarthy & Prince 1993 for the same result in smaller prosodic domains.)
utterance: we have to align the right-edge of the intonational phrase with the right-edge of the phonological phrase which contains the constituent which is intended to be focused (cf. 22). Given that nuclear, main stress is assigned to the rightmost element in the prosodic structure, main stress will fall on the focused constituent. It does not matter for the prosodic operation of stress assignment that this element is not rightmost within the syntactic structure, as the grammar has two distinct prosodic and syntactic representations.

Note in addition that any material that follows the focused phrase will be prosodically extrametrical on the intonational phrase level (cf. 22). This will have consequences for the interpretation of this material. Material that is not integrated into the intonational phrase is by definition unstressed, because the domain of the clausal stress rule is the intonational phrase. As a result, prosodically extrametrical material is discourse-linked by the Anaphoric interpretation principle (5).

The assumed existence of marked syntactic, mapping and prosodic operations suggests that the normal operations in the grammar are hardly ever impossible to override. I would like to argue for some notion of economy, optimality, or blocking in Williams’s (1997) terminology. In order to present my results in a well-worked out and more explicit theory, which also provides a straightforward way to account for language variation with respect to marked focus patterns, the account of the different focusing and discourse linking patterns is formulated in the framework of Optimality Theory (henceforth OT) (cf. Prince & Smolensky 1993).

In Chapter 5 I show that the Anaphoric interpretation principle (5) holds in English, Hungarian and Italian. Moreover, I argue that there is language variation with respect to the way it is ensured in a given language (or a given construction of a language) that (5) is satisfied. In particular, I demonstrate that these ways are essentially parallel to the three ‘repair’ mechanisms that are available to derive marked focus patterns. Thus, a prosodic operation, destressing, may ensure that an element is discourse-linked. Neeleman & Reinhart (1998) argue that this is applied in English. A
syntactic, stress-avoiding movement operation is available in Hungarian for the same reason. Finally, some Italian constructions show that a misaligned mapping between the prosodic structure and the syntactic structure may result in marking certain material as discourse-linked (cf. the discussion below 22). As in the case of marked focus, the choice between the different discourse linking mechanisms is not parametric. A strong support for an OT treatment of the interface between the grammar and the conceptual-intentional system is provided by the fact that the constraint ranking proposed in Chapter 4 to account for different marked focus patterns applies without any alterations in Chapter 5 to derive different ways of discourse linking.

6 Summary of the thesis

The main results of this work are the following. First, by reducing the case of the Hungarian focus construction to the assumption that the focus of the utterance always contains the main stress (cf. 4), the scene is set for a unified account of the representation of focus in the grammar. Second, by providing an explicit description of the syntax-phonology interface and of the nuclear stress rule in the different languages, I obtain a full typology of possible realisations of focus (and of discourse linking) in the grammar (cf. Chapter 2 Section 4 and Chapter 4 Section 3). From a theoretical perspective, this work provides strong support for a view that the conceptual-intentional interface has access to both the PF and the LF representations and that pragmatic notions such as focus and discourse linking are not encoded in the syntactic representation by a syntactic [+Focus]-feature or a functional Focus head.

The structure of the work is as follows. In Chapter 2 I argue that Hungarian focus movement is not feature-driven, but triggered by the
Reinhartian assumption that a focused constituent needs to be stressed. The chapter starts with three sections giving a short introduction to the relevant aspects of the syntax of the Hungarian clause, describing Bródy’s (1990, 1995a) analysis of the Hungarian focus construction as well as the Hungarian nuclear stress rule. Section 5 spells out the proposal. Sections 6-9 discuss various predictions made by a stress-based approach, some of which do not easily follow from a feature-driven analysis. Section 10 deals with a technical point, while Section 11 discusses the theoretical consequences. It is concluded that on the basis of the discussion of Chapter 2, the assumption of the presence of a [+Focus]-feature in the grammar seems unnecessary. In addition, the assumed Stress-focus correspondence principle necessitates that prosodic information feeds into the conceptual intentional interface.

Appendix A elaborates on the issue of the interaction between focus and quantifiers in Hungarian. Appendix B discusses É.Kiss’ (1998) classification of identificational vs new information focus.

Chapter 3 evaluates the proposal from a theoretical point of view. The stress-based account makes use of two crucial assumptions. First, the conceptual-intentional interface has access to both PF and LF information; second, the grammar allows cross-derivational comparison (cf. Section 2). In order to see whether it is possible to account for the data without either of these assumptions, an alternative account is developed in Section 3. This account is based on the assumptions that there is a syntactic [+Focus]-feature in the grammar and a functional Focus head, albeit no PF information at the conceptual-intentional interface and no economy. It is shown that this account has to make extra assumptions to maintain the empirical range of the stress-based approach. In particular, in Section 4 I show that the feature-based account has to give up Chomsky’s (1995) Inclusiveness condition. Section 5 is about pied-piping. Although at first sight it appears that the feature-based account provides a straightforward explanation for pied-piping, it turns out that this is not the case unless economy is assumed. Finally, Section 6 shows that a feature-based account is not well suited to
account for the attested language variation, as feature theory is inherently parametric in nature.

Chapter 4 places the result of Chapter 2 in a typological perspective. It provides an Optimality Theoretic account of focus marking in English, Hungarian and Italian. The first three sections introduce the constraints and define the candidate set. Sections 4 and 5 provide an OT analysis of the English and Hungarian data put forward in Neeleman & Reinhart (1998) and Chapter 2. Section 6 introduces Italian data and provides an account in the OT framework.

Chapter 5 shows that the constraint ranking proposed in Chapter 4 immediately accounts for the patterns of discourse-linked status marking found in the languages under consideration (Sections 2-4 deal with English, Hungarian and Italian respectively). Section 5 discusses the pros and cons of two other analysis of Italian focus available in the literature.

Chapter 6 summarises the results. It also describes in some detail how I intend to extend the study in the future, both empirically (Section 3) and theoretically (Section 4).
CHAPTER 2

STRESS-DRIVEN FOCUS MOVEMENT

1 Introduction

It is a well-known claim in the literature that in many languages the pragmatic focus of the sentence contains the main stress assigned to that sentence (Dezső 1974, Selkirk 1984, Harlig & Bardovi-Harlig 1988, Reinhart 1995, Neeleman & Reinhart 1998). My aim is to show here that in Hungarian this prosodic constraint has direct consequences for the syntax of the language in the form of triggering phrasal movement. It is of course an equally well-known claim that phonology cannot influence syntax (Zwicky 1969, Zwicky & Pullum 1986, Vogel & Kenesei 1990, Miller et al. 1997). However, in my view this latter claim is questionable as far as a subset of phonological rules are concerned: the prosodic rules that apply at the clause-level (cf. Chapter 3 and also Inkelas & Zec 1995 for essentially the same claim). Note that stress-driven movement is in fact not unexpected in Minimalism (Chomsky 1995), where it is assumed that operations performed by the computational system are only driven by interface needs (i.e. PF and LF).

The first three preliminary sections contain the following: a short introduction to the relevant characteristics of Hungarian clause-structure; the standard analysis of the Hungarian FocusP due to Bródy (1990, 1995a); and the description of the Hungarian stress rule. In Section 5, I claim that although Bródy’s analysis is in itself correct, the motivation for it is wrong. Instead, I shall argue that the position known as [Spec, FP] is created in order
to provide a position where the neutral, main stress rule assigns stress. In the
case of ‘focus movement’ what really happens is movement of a constituent
to the neutral stress position from a position that otherwise would not get
stress. This is in order to satisfy the Stress-focus correspondence principle (cf.
Reinhart 1995).

The rest of the chapter describes different phenomena that receive a
straightforward analysis under this stress-driven focus movement approach.
We obtain an explanation of the long-standing puzzle that FocusP is not
recursive in Hungarian, although topic positions are. It is argued here that
the second focus and any subsequent foci, but crucially not the first one, get
stress by an extra, marked stress rule (Section 6). Section 7 is about verb
focusing. In this construction a Particle-V complex does not strand its
particle. This fact has been noted by Bródy (1990: 213), who described it
using a syntactic filter. The present approach allows for a more insightful
explanation. In Section 8, I shall argue that the same syntactic position, [Spec,
FP], hosts particles (or other verbal modifiers) in the so-called ‘particle
climbing’ sentences. In this case, the opposite of ‘focusing’ happens: the
position is created to avoid stressing the otherwise clause initial verb. It
follows that climbing and focusing should block each other, which is indeed
the case. In Section 9 I show that the present approach accounts for cases of
focus projection (cf. Selkirk 1984). Section 10 contains a final point
concerning infinitival sentences with a focus, which provides an analysis of
the optionality of V-to-F movement in this case.

The last section briefly discusses the theoretical implications of the
chapter. It is suggested that the [+Focus]-feature is unnecessary to account
for the data presented here. I offer a modification to the Minimalist
architecture of the grammar to accommodate the proposed mapping rule
between PF and LF. A more detailed discussion of the theoretical
consequences of this approach, including a comparison with an analysis
based on the syntactic [+Focus]-feature, is the topic of Chapter 3.
Chapter 2: Stress-driven focus movement

2 Hungarian clause-structure

Hungarian is famous for being a ‘free word order’ language. In (1), it is shown that all the six logically possible word order variations for a three-word sentence are grammatical. However, not with the same meaning. Studies over the past twenty years have revealed that the Hungarian sentence is hierarchically structured. In particular, communication functions, such as topic or focus, are syntactically encoded.

(1)

a. Józsi ismeri Marit.
   Joseph-nom knows Mary-acc

b. Józsi Marit ismeri.
c. Marit Józsi ismeri.
d. Marit ismeri Józsi.
e. Ismeri Marit Józsi.
f. Ismeri Józsi Marit.

‘Joseph knows Mary.’

The structure of the neutral sentence (i.e. one without a contrastive focus) for which I argue in this chapter is in (2). Not all aspects of the phrase marker are addressed in the chapter. For example, the inner structure of the VP is largely ignored. I assume, following É.Kiss (1994:19), that it is V-initial. I analyse topics such as a nó ‘the woman’ and a kalapját ‘her hat’ in (2).

Comment [KS1]: V-initial VP mentioned by both reviewers.

1 On the one hand, É.Kiss (1992, 1994) argues that Hungarian does not have a designated (i.e. specifier of a functional head) subject position. On the other hand, Marácz (1989) argues that there is a designated subject position, which follows the V at the Spellout point. The analysis presented here is compatible with either views, as the crucial point here is that at the Spellout point, in an
as VP-adjoined constituents. These bear phrasal stress if they carry new information, but never clausal stress. Topics do not have to be V adjacent, and more than one of them can appear in one sentence in any order, see (2a) and (2b). Based on these observations I shall assume in what follows that they are adjoined to VP².

Sentences like the one in (2) contain particledverbs. In Hungarian, there is a large class of verbal modifiers (VM)³ that form a lexical unit with the V. unmarked utterance, the V ends up in sentence-initial position, or preceded by topics.

² Note that I assume that the syntactic computation allows for the differentiation of specifiers and adjoined phrases. (See Neeleman & Van de Koot 1999 for a syntactic model that predicts the existence of adjunction.)

³ In this paper most of the examples contain particles, which form a subclass of verbal modifiers. All my claims hold for the other types, too. For a definition of verbal modifiers see Bródy (1990:202).
They can modify the theta-grid or the c-selectional properties of the V. Following Komlósy & Ackerman’s (1983) and Komlósy’s (1992) account, I take the Hungarian particle verb to form a complex verb (cf. Neeleman’s 1994 analysis for similar constructions in Dutch). The particle is assumed to be left-adjointed to the verbal head in syntax.

In (3) it is shown that even the same word order may correspond to different meanings, accompanied by different intonational patterns. The sentence in (3b) means ‘It is Joseph, and not Peter or John that knows Mary.’ It contains a contrastive focus. (4) shows the structure I assume for a sentence with focus. It will be discussed in the next section.

(3)

a. Józsi ismeri Marit.  
Joseph-nom knows Mary-acc  
‘Joseph knows Mary.’

b. JÓZSI ismeri Marit.  
Joseph-nom knows Mary-acc  
‘It is Joseph who knows Mary.’

Note that phonologically speaking the VM-V complex is one phonological word, with one stress falling on the VM, as in Hungarian, stress at the word-level is on the left.

Note that universal quantifiers move between topics and the focus in Hungarian if they are to take wide scope. I will only discuss quantifiers to the extent they interact with foci (cf. Appendix A). The reason for this is that their movement is not triggered by a need to get stressed. They undergo QR. Since this movement is triggered at LF and not at PF, it falls outside the scope of this work.
Bródy (1990, 1995a) argues that Hungarian projects a Focus projection on the left-periphery of the sentence. Contrastively focused constituents, arguments and adjuncts alike, move to [Spec, FP] in order to check their [+Focus]-feature. There they receive focal stress and contrastive interpretation. In a tensed sentence, this is accompanied by V movement to F, thus the focused constituent and the V are adjacent. The data supporting V-movement are sentences that contain verbal modifiers (VM). In Hungarian the default position for VM is preverbal; it is immediately in front of the V. In sentences which have a focused element, the VM follows the V. This, Bródy (1990, 1995a) claims, is an indication of V-movement (cf. also Koster 1975): the particle is stranded by the movement of the verbal head of the complex predicate.

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(5)
a. Mari hívta fel Pétert.
   Mary-nom rang VM Peter-acc.

   Mary-nom VM rang Peter-acc.
   ‘Mary rang up Peter.’

In infinitival sentences Verb-raising seems to be optional. In these sentences, therefore, there is an empty head position by hypothesis.7

(6)
a. Jobb lenne Pétert hívni fel.
   better would-be Peter-acc call-to up

b. Jobb lenne PÉTER fel hívni.
   better would-be Peter-acc up call-to
   ‘It would be better to ring PETER.’

I accept Bródy’s analysis as far as the syntactic positions of the constituents are concerned, but I shall argue against the claim that the motivation for focus movement is the presence of a syntactic [+Focus]-feature. Instead, I claim that the movement is triggered by stress.

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7 I assume that functional heads have to lexicalize at some point in the derivation. See Section 10 for a discussion of the licensing of this empty head.
4 Hungarian prosody

I follow the insight of Selkirk (1984, 1986) (contra Cinque 1993) that main stress is not assigned in the syntactic representation. Rather, each utterance has a prosodic structure alongside its syntactic structure and the two are related via mapping rules. Prosodic structure groups the linear string into phonological words ($\omega$), which themselves form phonological phrases ($\phi$), which in turn form an intonational phrase (IntP). I propose that syntactic structure and prosodic structure are mapped onto each other in Hungarian as well. The Nuclear Stress Rule (henceforth NSR) applies in the prosodic structure.

In particular, I propose that the syntax-phonology mapping on the domain of syntactic and phonological phrases is subject to the principle given in (7). The symmetric counterpart of the mapping rule is operative in, for instance, English and Italian. (cf. Selkirk 1984, 1986; Nespor & Vogel 1986; Chen 1987, Inkelas 1989; Ghini 1993; McCarthy & Prince 1993; Neeleman & Weerman 1999; Truckenbrodt 1999 and to some extent Vogel & Kenesei 1987, 1990)

(7) Syntax-prosody mapping of phrases (Hungarian)
   Align the left edge of a syntactic phrase with the left edge of a phonological phrase.

(8) Syntax-prosody mapping of phrases (English, Italian etc.)
   Align the right edge of a syntactic phrase with the right edge of a phonological phrase.
On the level of the clause and the intonational phrase, I suggest, on the basis of the data considered in this work, that the following four principles are operative in all three languages.\(^8\)

\begin{enumerate}
\item Syntax-prosody mapping of clauses (Hungarian, English and Italian)
\begin{enumerate}
\item Align all the left-edges of the largest extended projection of the V with the left-edge of an intonational phrase.
\item Align all the left-edges of the intonational phrase by the left-edge of the largest extended projection of the V.
\item Align all the right-edges of the largest extended projection of the V with the right-edge of an intonational phrase.
\item Align all the right-edges of the intonational phrase by the right-edge of the largest extended projection of the V.
\end{enumerate}
\end{enumerate}

Nuclear stress in Hungarian is assigned to the leftmost phonological phrase in the intonational phrase. Phrasal stress is assigned to the leftmost phonological word in the phonological phrase. In contrast, I will argue in

\(^8\) In this work I ignore all cases where a clause corresponds to more than one intonational phrases. These do seem to exist. For example, Rochemont (1986: 27-28) argues that this happens in Heavy NP Shift in English (cf. 1).

(i) \([\text{IntP}] \text{Mary invited to the PARTY}, \text{[IntP several of her brother’s best FRIENDS.]}\]

As I discuss briefly in Chapter 6, this might also be the case in constructions involving (some) topics. More work on these and similar phenomenon might shed more light on possible language variation concerning the clausal mapping principles.
Chapter 4 that in English and Italian main stress is assigned to the rightmost phonological phrase in the intonational phrase, while phrasal stress in these languages is assigned to the rightmost phonological word in the phonological phrase.

In the following diagrams I shall use a metrical tree notation (cf. Liberman 1979 and Liberman & Prince 1977). Metrical trees are annotated with Strong (henceforth S) and Weak (henceforth W) labels. By assumption, S is assigned to the top node. The main stress falls on the node that is only dominated by S-s, which is indicated with bold in the diagrams. A formulation of the Hungarian nuclear stress rule in these terms is given in (10). (10a) spells out the rule on the phonological phrase level; (10b) on the intonational phrase level.

(10) Hungarian stress rule:

a. Assign a Strong label to the leftmost phonological word in the phonological phrase. Assign Weak to the other phonological words.

b. Assign a Strong label to the leftmost phonological phrase in the intonational phrase. Assign Weak to the other phonological phrases.

c. Assign a Strong label to the intonational phrase.

Note that secondary (clausal) stress falls on the node(s) that is Weak on the phonological phrase level, but Strong otherwise. In this study I largely ignore the presence of secondary stress as it does not bear directly on the issue of focus. I will return to the discussion of the prosodic characteristics of secondary stress in my discussion about discourse-linking in Chapter 5.
Let me start by illustrating the application of the syntax-prosody mapping principles together with the stress assignment rules on the DP. As it is shown in (11), in a modified DP, stress falls on Spec of NP (cf. Vogel & Kenesei 1990: 360-1). The Hungarian determiner forms a single phonological word with material that follows. In other words it phonologically cliticises onto the following phonological word in Hungarian. This is a cross-linguistically common property of functional elements (cf. e.g. Zubizarreta 1998 for Romance).\footnote{I assume, following Truckenbrodt (1999), that in an adjoined phonological word, such as the one in (11), word level stress falls on the innermost phonological word.}

(11)

\[
\begin{array}{c}
\phi_S \\
\omega_S \\
[DP \ a \ [NP \ [AP \ piros] \ [na\j\text{t\d{o}]}]] \\
\end{array}
\]

the red door

As (12) illustrates, if the specifier of the DP itself is filled, the DP corresponds to two phonological phrases with two phrasal stresses, one falling on [Spec, DP] the other on [Spec, NP].\footnote{Note that the Obligatory Contour Principle does not seem to be observed in Hungarian, except that there is a slight pause between the primary stress and the rest of the DP.}
As I assumed in Section 2, in the unmarked utterance, the Hungarian clause corresponds to the VP. According to the clausal mapping principles in (9), every left and right edge of the VP is aligned with a left and right edge of the an intonational phrase (cf. McCarthy & Prince 1993). So, in case of left-adjunction to VP, the brackets of both VP-segments are mapped onto leftward IntP brackets, as illustrated in (13).

Given that the phrasal mapping principle in (7) is sensitive to the left-hand brackets of each syntactic phrase, the left edge of the subject DP, the left edge of the lower segment of the VP and the left edge of the object DP correspond to the left edges of three phonological phrases (cf. 13).
Following Truckenbrodt’s (1999) proposal for German, I assume that the stress rule in Hungarian (cf. 10) operates as follows. Phonologically adjoined material is treated as extrametrical in the sense that it is skipped by the stress rule.\textsuperscript{12} In effect, in (13) it is the lower segment of the intonational phrase that is the domain of the stress rule. Given these assumptions, topics, which were earlier on argued to be adjoined to VP in the syntactic representation of the unmarked utterance, will be in an adjoined position on the intonational phrase level. This correctly derives that topics in Hungarian bear phrasal stress, if they are not discourse-linked, but never take the main stress of the clause. Rather, given the phrasal and clausal stress rules in (10), in the unmarked Hungarian utterance, main stress falls on the verb. See (14) repeated here from (2).

\textsuperscript{12}See Chapter 4 for more discussion on the realisation of adjoined material in prosodic structure.
5 Stress-driven focus movement

As shown in (14), main stress falls on the V (or on its particle) in a neutral Hungarian sentence. Following Reinhart (1995), I make the following assumption.

(15) **Stress-focus correspondence principle:**
The focus of a clause is a(ny) constituent containing the main stress of the intonational phrase, as determined by the stress rule.

(Following Reinhart 1995: 62)

In English, nuclear stress falls on the object in a transitive construction. If a constituent other than the object is to be focused, this constituent gets stress by a special stress rule, in order to satisfy (15). The main claim of this chapter is that, in Hungarian, the Reinhartian requirement on focus can be satisfied by movement of the focused constituent to a left-peripheral position.\(^\text{13}\)

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\(^{13}\) See also Büring & Gutiérrez-Bravo (2000) and Costa (2000) for similar proposals for stress-driven focus movement in Spanish and Portuguese respectively.

The proposal is similar to Zubizarreta’s (1998) p-movement in the sense that that is also triggered by PF considerations. Zubizarreta (1998) argued that in Spanish a constituent may undergo syntactic movement in order to allow nuclear main stress to fall on another constituent, and thereby allowing it to satisfy the requirement that focused phrases bear main stress. Note that in addition to p-movement and the nuclear stress rule, Zubizarreta assumes the presence of a [+Focus]-feature and a syntactic Focus-position. The present approach does not make either of these assumptions.
Chapter 2: Stress-driven focus movement

(16) Stress-driven movement:
In Hungarian, movement of the focused constituent to the 
left-periphery is triggered by (15), the requirement that a 
focused constituent be stressed.

In a non-neutral sentence, the main stress falls on the focused constituent, 
as it is the leftmost element in the clause (cf. 10). The [Spec, FP] position 
hosts the focused constituent. Topics adjoin to FP in this case. Note that 
under the present proposal F stands for Functional head rather than Focus 
head. The structure is given in (17).

(17)

\[
\begin{array}{c}
\text{IntP}_S \\
\text{φ} \\
\text{ω} \\
 [\text{FP} [\text{DP} \text{ női [FP [DP a \text{ KALAPJÁT] vette [VP [le tv] tDP tDP]]]}]}
\end{array}
\]

\text{the woman} \quad \text{her cap-acc} \quad \text{took} \quad \text{off}

‘It was her hat that the woman took off (not her scarf).’

Let me spell out some immediate consequences of this approach. In the 
standard minimalist feature-based treatment of the Hungarian focus 
construction, the movement of the focused constituent is motivated by the 
need to check the [+Focus]-feature. Three questions come to mind. First, as 
the [+Focus]-feature is only interpreted at LF, why does the movement of the 
focused constituent happen overtly? Second, why is this movement 
accompanied by the movement of the V to F at least in a tensed clause? And 
third, why does the focused constituent move to the left-peripheral position? 
A feature-based analysis gives the following, partial answers to these
questions. The [+Focus]-feature is strong in Hungarian, hence the overt movement of the focused constituent. So is the V-feature of (a tensed) F, hence V-to-F. The movement is to the left-periphery, in order to allow the focused constituent to take scope. These answers are unsatisfactory in several respects. Both the movement of the focused constituent and the verb could be covert and the same interpretation would be derived at LF. The focused constituent could take scope by appearing on the right-periphery, too. Arguably, this possibility is allowed for postverbal universal quantifiers in Hungarian. Whatever the analysis of these turns out to be, movement to the right or movement to the left and remnant movement of the clause above, the question arises why this option is not available for foci.

A stress-based analysis, on the other hand, seems to shed more light on these issues. In order to satisfy (15), the focused constituent needs to get stress. Therefore it moves to the left-periphery, as stress is assigned to the leftmost constituent of the clause in Hungarian. Given that the focused phrase moves to pick up main stress, it cannot move to an adjoined position, since adjoined phrases are ‘skipped’ by the stress rule (cf. 10). The movement of the verb is necessary to licence the functional head position (see Section 10 for further discussion). Finally, as the movement of the focused constituent is driven by stress, it evidently cannot be postponed until the covert syntax.

Note that the prosodic operation of stress strengthening (cf. Neeleman & Reinhart 1998) and the stress-driven movement operation proposed here do not occur freely. Rather, they are subject to economy (cf. 18).

(18)  

\textit{Economy violation:}  
Take fully derived (syntactically and prosodically) structures $D_i$ and their interpretations $I_i$ as ordered pairs. $<D_1, I_1>$ is ruled out as an economy violation if and only if there exists $<D_2, I_1>$, and $D_2$ involves less operations (syntactic or prosodic) than $D_1$.

(Following Reinhart, 1995: 48 and Fox 1994)
Thus, stress strengthening in English and stress-driven movement in Hungarian only apply if they derive an interpretation that was otherwise unavailable.¹⁴

6 Uniqueness of the syntactic focus position

As there is only one main stress in a clause, one might think that only one focused constituent can be present in a clause in languages that have a specific syntactic focus position. As it turns out, this conclusion is much too strong. As the following example illustrates, there are in fact cases where pragmatically there are two contrastively focused constituents in a sentence:

(19)  Csak két lány választott csak egy könyvet.
only two girls chose only one book-acc

‘It was only two girls who chose only one book.’

‘It was only one book which only two girls chose.’

(É.Kiss 1998: 16)

Bródy (1990) argues that in this case the second constituent is an operator in situ. É.Kiss (1998) argues that this cannot be right, as the sentence is not ambiguous between the two readings where one focused constituent takes scope over the other. If this case was comparable to *wh* in situ in English one would expect ambiguity. She proposes that FocusP is recursive in Hungarian, and that the V moves to the higher Focus head via the lower one. The following examples cast some doubt on her reasoning.

¹⁴ See Section 9 and Chapter 3 for more discussion of the relation between focus and economy.
a. CÍRÓ HÁRMAN ettek meg CSÁK KÉT KENYERET.

Only three ate VM only two bread-acc

b. *CÍRÓ HÁRMAN ettek CSÁK KÉT KENYERET meg.

Only three ate only two bread-acc VM

‘It was only three people who ate up only two slices of bread.’

Following Bródy (1990) I assume that a symptomatic property of verb movement in Hungarian is that the particle of a particle verb has to be stranded in the VP. If in (20b) CSÁK KÉT KENYERET ‘two slices of bread’ was indeed a lower [Spec, FP], particles should never precede it. They are independently ruled out from a topic position, because they are not referential.

É.Kiss (1998) suggests that the ungrammaticality of (20b) is due to the fact that the VM is phonologically too light and has a tendency to cliticize onto the verb. This may be so, nevertheless this must be a phonological phenomenon and not as she argues the syntactic incorporation of the Prt into the V from the right, following an excorporation from the complex predicate and subsequent movement to F. Excorporation of the non-head of a complex predicate is not allowed (Ackema 1995, Bródy 1997a, contra Roberts 1991), so the Prt cannot move out of the complex verb by head-movement.¹⁵

Another possibility would be to assume that the whole complex moves and the Prt is stranded in an intermediate position, while the V moves on to the highest F. Stranding in intermediate positions is not otherwise allowed, indicated by (21), as a moved element is an island.

(21) Who do you think [friends of t₁] John likes t₁?

¹⁵ It may undergo phrasal movement (see Bródy 1997a, and Section 8).
Thus, on the basis of (20a) and (20b), I assume that only one focused constituent may undergo overt focus movement in Hungarian; the second one remains in situ until the Spellout point and gets focal stress via a last resort, extra stress rule.

Thus it follows that Hungarian has a unique syntactic ‘focus’-position, because it has a unique position for main stress. Topic positions and quantifier positions do not seem to have a PF-requirement to get stressed, so it is not surprising that they are recursive. The second focus (and any subsequent foci) do not move, at least not triggered by PF, as the main stress position is already occupied by the first focus. The second focus and any subsequent foci get stress and focus interpretation by an extra phonological operation whether they move or not. Therefore they stay in situ, unless LF requires otherwise.

Recall that É.Kiss (1998) argued that the view that is advocated here, which takes the second and subsequent foci to be in situ (at least until Spellout), cannot be right as the scopal order of multiple foci rigidly follows their surface order. In Appendix A I show that this observation does not necessarily entail that all foci have moved to an A-bar position by the Spellout point. I present an analysis based on the notion of economy (cf. 18) and show that in a sentence which involves two foci, only the first one moves, whereas in a sentence with two foci and a universal quantifier, which takes lowest scope, both foci move. But crucially, in this latter case the movement of the second focus is triggered at LF, and not at PF. It is essentially a QR operation.

7 Verb focusing: no particle stranding

Recall the claim about Hungarian clause-structure that, just like in V2 in the Germanic and Scandinavian languages, the V leaves its particle stranded in
the VP in the case of V-to-F movement accompanying the movement of a focused constituent to [Spec, FP]. Interestingly enough, if the verb itself is focused or the proposition is asserted, the neutral VM-V order is not disturbed. As (22) illustrates, the particle appears in front of the verb.\footnote{\textsuperscript{16}}

\begin{enumerate}
\item\textbf{a.} De, \([\text{VP  \ént}  \text{VP  ODA  VITTEM  a  levelet}].\)
\begin{itemize}
\item \textit{But  I  VM  took  the  letter-acc}
\item \textquote{But, I TOOK the letter \textit{there}, (not brought it here.)’}
\end{itemize}

\item\textbf{b.} De, \([\text{VP  \ént}  \text{VP  ODA  VITTEM  a  levelet}].\)
\begin{itemize}
\item \textit{But  I  VM  took  the  letter-acc}
\item \textquote{But, I \textit{DID} take the letter \textit{there}.’}
\end{itemize}
\end{enumerate}

Under the present proposal, this is easily accounted for. The verb is in the position where main stress is assigned, so there is no need for it to move, therefore it stays in situ and the VM-V order is retained.

This restriction has been captured by a kind of ‘doubly-filled COMP-filter’ by Bródy (1990: 212). Bródy (1990) argued that if [Spec, FP] is filled, the strong V feature of the Focus-head only attracts the bare V, in a similar way to V2 languages such as Dutch (cf. Koster 1975). However, if the verbal complex is attracted to the Focus-head by the presence of a [+F], then the whole complex moves.

\footnote{\textsuperscript{16} The V-VM order is marginally possible for some speakers, but even speakers who allow it only accept it if the verbal head itself is contrasted (cf. i). In (i) stress falls on the verbal head. The verb moves to F to get stress by the stress rule (cf.10), and contrastive interpretation, hence the reading that contrasts the simplex, verbal head.

\begin{enumerate}
\item\textbf{?Péter \text{SZALADT}  ki,  nem \text{MENT} ki.}
\item \textquote{Peter \textit{ran} \textit{out} \textit{not walked out}}
\item \textquote{‘Peter didn’t walk out, he \textit{RAN} out.’}
Doubly-filled Focus filter

Either the F head contains a complex head, or [Spec, FP] is overtly filled, but not both.

(cf. Bródy 1990)

This reasoning has the shortcoming that it assumes that under verb focusing, the verbal complex undergoes head-movement as a whole, without stranding the particle. This is not attested in any other construction in Hungarian, or in any of the V2 languages. In these languages, if V moves to C, the particle is stranded.\[^{17}\]

I argued above that the movement of the focused constituent is triggered by the need to get main stress, rather than by the presence of a syntactic [+Focus]-feature. If so, this phenomenon receives a straightforward explanation. In (22) stress falls on the complex verb by the stress rule (cf. 10). This is so, as the verbal complex is the leftmost constituent in the clause. So the focused verbal complex stays in situ, because it is already in the main stress position. There is no trigger for its movement, therefore, the VM-V order is not disturbed.

To conclude, the undisturbed VM-V order attested in verb focusing suggests that the verbal complex is in situ. This follows from the assumptions made earlier that the Hungarian VP is V-initial, Hungarian stress is leftward oriented and that focus-movement is not feature-driven, but triggered by the need of the focused phrase to get main stress.

\[^{17}\] The V takes along its particle in alleged V-to-I movement in V-raising constructions in Dutch, but it might be possible to analyse these as base-generated complexes (cf. Szendrői-Tóth 1999).
8 Particle climbing

So far I have shown that the position known as [Spec, FP] is not there to provide contrastive focal interpretation, but it is licensed by the movement of the V to provide a position where a constituent that otherwise would be unstressed can get the main stress of the intonational phrase. It is only by Reinhart’s (1995) generalization (cf. 15) that the link between stress and focus is established. I proceed to show that the same position can also be created for the opposite reason: to avoid stressing of a constituent that would otherwise be clause-initial. Note that this kind of stress-avoiding operation can only apply to verbs, given the leftward orientation of the Hungarian stress rule and the V-initial nature of the unmarked clause.

In Hungarian, there are several classes of infinitival complement taking verbs. One class involves the so-called climbing verbs. A characteristic of climbing verbs, noted by Komlósy (1992), is that they cannot bear phonetically neutral sentential stress. They can only take main stress if contrastively or emphatically focused (cf. 24). Here they bear phonetically contrastive stress. In fact, these verbs behave as if they were functional heads (or ‘semi-lexical’ as in Van Riemsdijk 1998). As I claimed in Section 4, functional heads do not take neutral stress. However, they do allow contrastive stressing and contrastive interpretation, even if it needs some contextualising (cf. 25).

(24) (Én) AKAROK menni.
    I  want-I  go-to
    ‘I WANT to go.’ = It’s not true that I don’t want to go.
    or = I don’t (only) desire to go.

    this the road Budapest-to There’s no choice.
    ‘This is THE road to Budapest. There’s no choice.’
Note that the fact that climbing verbs may get stress in marked cases suggests that they are similar to pronouns in English. As (26a) and (26b) show, English pronouns are not stressed in the unmarked case, but may get stress in a marked utterance.

\[(26)\]  
\[a. \text{ I saw } \text{her}.\]  
\[b. \text{ I saw } \text{HER}, \text{(not } \text{HIM}).\]

It seems to be a lexical property of climbing verbs that they do not take nuclear stress in the unmarked case. But given that they may bear main stress in the marked case, it is unlikely that the right way to encode their stress-avoiding characteristics in our grammar would be in terms of a [-stress] feature on the lexical item, just as it is unlikely that English pronouns have such a feature. Ultimately, there must be a lexical semantic property of climbing verbs and pronouns that has the indirect effect that they do not bear main stress in the unmarked case. I leave this issue open here.

Although Hungarian stress-avoiding verbs and English pronouns are similar in their stress-avoiding property (i.e. neither takes neutral main stress), they differ as to how they resolve the conflict that arises if they are placed in a position that would normally receive main stress by the nuclear stress rule of the given language\(^{18}\). In English, a prosodic operation, destressing applies and assigns a Weak label to the phonological word containing the pronoun. In Hungarian, in parallel to stress-driven movement, the situation is resolved by a stress-avoiding movement: the stress-avoiding verbs attract something in front of them. This constituent can take neutral stress and thus neutral interpretation, as in the case of climbing (cf. 27), or focal stress and contrastive interpretation (cf. 28). In particular,

\(^{18}\) I will return to the issue of language variation in marking material as discourse-linked in Chapter 5.
climbing involves movement of the most embedded V or its particle in a series of infinitival complement taking climbing verbs to a position immediately in front of the topmost, finite V.

(27)  \textit{SZÉT fogom akarni kezdeni }t_{VM}\textit{ szedni a rádiót.}

\textit{apart will-I want-to begin-to take-to the radio-acc}

‘I will want to begin to take apart the radio.’

(28)  \textit{A RÁDIÓT fogom akarni kezdeni szét szedni }t_{DP}.

\textit{the radio-acc will-I want-to begin-to apart take-to}

‘It is the radio that I will want to begin to take apart.’

Climbing is blocked unless all the Vs involved in the sequence (here \textit{fogom ‘I will’, akarni ‘to want’, kezdeni ‘to begin’) are climbing verbs; an issue not addressed here. Climbing is also blocked if a constituent is contrastively focused, (cf. 29a), either in the main clause or in the infinitival clauses (Koopman & Szabolcsi 1998). Crucially, an intervening quantifier or topic does not block climbing (cf. 29b).

(29)  

a. (*Szét)  \textit{a RÁDIÓT (*szét) fogom akarni kezdeni *(szét) szedni.}

\textit{apart the radio-acc apart will-I want-to begin-to apart take-to}

‘It is the radio that I will want to begin to take apart.’

b. \textit{SZÉT fogom a rádiót akarni kezdeni szedni.}

\textit{apart will-I the radio-acc want-to begin-to take-to}

‘As for the radio, I will want to begin to take it apart.’
Given the blocking effect between climbing and focusing, it is a natural idea to assume that they compete for the same syntactic position, the [Spec, FP]\(^{19}\).

More importantly the blocking effect is due to the fact that once focusing happened, there is no trigger for climbing. Recall that focus-movement happens to ensure that the DP gets stressed, and that climbing happens to ensure that the V does not get stressed. Clearly, focus-movement alone satisfies both its own need to get stressed and the verb’s need not to get stressed. Thus, in sentences with a focused constituent, climbing is ruled out by economy.

To summarise, in (28) [Spec, FP] is licensed by the movement of the V in order to facilitate stressing of constituents that otherwise would not be in a position to get stress. Or, as in the case of climbing (cf. 27), this position can be created to avoid stressing of a constituent that otherwise would get stressed.

\(^{19}\) My analysis takes climbing to be phrasal movement, but note that it is in no way crucial to it whether this is in fact so. If climbing was head movement, blocking could not be a result of the fact that they compete for the same position. However, it would still hold that blocking is due to the fact that there is no trigger for climbing if focusing occurs, as the V is not clause initial anymore. Exactly this view is taken by Dalmy (1999). If climbing was to be analysed as head-movement, it would be crucial that the particle targets a lexical head position, rather than a functional head, as functional heads are assumed not get stress.
9 Focus and economy

9.1 Focus projection

In (28), the focused constituent is the stressed constituent. But the *Stress-focus correspondence principle* (cf. 15) allows for cases where the focused constituent contains the stressed constituent. As Kenesei (1998a) describes extensively, such cases do exist. This phenomenon is known as focus projection (cf. Selkirk 1984). In her discussion of the matter, Reinhart (1995) defines the notion of ‘focus set’ as the set of the possible foci of one particular stress pattern according to the *Stress-focus correspondence principle* in (15).

In (30)-(32) the neutral stress (cf. 10) is assigned to the leftmost constituent of the FP, i.e. to [Spec, FP], and within [Spec, FP] to the leftmost constituent, i.e. to the head N in (30) and to the AP modifier in (31)-(32). As a result, the focus set of (30) is [{Spec, FP}, FP]; of (31) and (32) it is {AP, [Spec, FP], FP}. As the possible continuations of the sentences indicate in each case, these readings are all available in Hungarian.\(^\text{20}\)

\(^{20}\) Note that although a movement operation was performed, the wide reading is not blocked by economy (cf. 20) in (30) and (31), as the focus of these is on FP, and Focus=FP interpretation is not available unless movement is performed.
(30)

(Focus: [Spec, FP])


‘John read the articles, and not the books.’

(Focus: FP)


‘John read the articles, and not sang in the bathroom.’

(31)

[FP A TEGNAPI cikkeket [F olvasta] [VP János]], …

‘It was yesterday’s articles that John read, …’

a. ... nem a maiakat.    (Focus: adjunct in [Spec, FP])

‘… not today’s ones.’

b. ... nem a könyveket.    (Focus: [Spec, FP])

‘… not the books.’

c. ... nem a fürdőszobában énekelt.   (Focus: FP)

‘… not sang in the bathroom.’
(32) \[[FP \text{ Péter [FP egy HASZNÁLT}^{21} \text{ autót [F vett]]}], ...
Peter \ a \ used \ car \ bought
‘Peter bought a used car, ...’

a. \ldots \text{ nem egy újat.} (Focus: adjunct in [Spec, FP])
‘... not a new one.’

b. \ldots \text{ nem egy sorsjegyet.} (Focus: [Spec, FP])
‘... not a lottery ticket.’

c. \ldots \text{ nem a Városligetben sétált.} (Focus: FP)
‘... not walked in the city park.’

But let us consider (33), with main stress on the nominal head of the moved DP. As it is shown by the possible continuations of the clause, the focus of the utterance is obligatorily narrow.

\(\ldots\) but let us consider (33), with main stress on the nominal head of the moved DP. As it is shown by the possible continuations of the clause, the focus of the utterance is obligatorily narrow.

\[^{21}\text{Note that the choice of the adjective is not crucial for the availability of wide focus. In the relevant context, the following is equally grammatical. As the coordinate clause indicates the focus is the whole clause.}\]

(i) Context: Mari 18 éves születésnapjára nagy ajándékot kap Pétertől.
Mary 18 years’ birthday-onto big present-acc gets father-her-from
Péter egy DRÁGA autót vett ’Marinak, nem a KARIB-TENGERRE vitte ’nyaralni.
Peter an expensive car-acc bought Mary-to, not the Caribbeans-to brought-her on-holidays
According to the stress-focus correspondence principle in (15), any constituent that contains the main stress should be a possible focus of the utterance. Why should the wide focal readings be unavailable in (33)? I argue that this is due to economy in the following sense.

Reinhart (1995) shows cases in English where the only option available for satisfying (15) is by means of an extra prosodic operation. She claims that a special prosodic operation, stress shifting, may assign stress to a position which would otherwise not bear the main stress of the utterance. For example, stress may be shifted to the subject in JOHN built a desk. The focus set by (15) would be \{DP_{JOHN}, IP\}. In this case, however, not all foci are actually available as possible interpretations of the sentence. The sentence can be uttered to express focus on the subject, but it cannot be uttered out of the blue (i.e. focus on IP). Reinhart (1995) claims that this is due to a straightforward case of economy (cf. 18) which regulates syntactic (including LF) and prosodic operations. IP was already in the original focus set defined by the neutrally stressed \textit{John built a desk.}, therefore applying the extra stress rule to put stress on the subject under the focus=IP interpretation would involve an extra, unnecessary operation.
Now, compare (32) to (33) under economy (cf. 18). They both involve a movement operation, but in addition, (33) also involves a stress shifting operation, which shifts the nuclear phrasal stress, assigned by (10a), from the modifier to the nominal head of [Spec, FP]. Under wide (i.e. DP, FP) focus, this operation was unnecessary, as the availability of these readings in (32) illustrate.

Note that Hungarian provides an argument in favour of Reinhart (1995) contra the original ‘focus percolation’-idea of Selkirk (1984). Selkirk (1984) claimed that if a head X is marked as focus, the whole XP can be optionally marked as such, and that if a YP which is a complement to X is marked focus, X can be marked as such. Thus focus may eventually ‘percolate’ from a head, or a complement of a head, to the phrase. In contrast, Reinhart (1995) claims that ‘percolation’, i.e. wide interpretation, is possible from a neutral stress position, but not possible from a special stress position. In the case of Hungarian, the neutral stress position is the specifier of XP, thus focus may ‘percolate’ from this position. If Selkirk’s (1984) focus percolation was adopted for Hungarian (cf. Kenesei 1998b), then it would wrongly predict that (32) should have wide focus interpretations, given that it is the head of the DP that is stressed and marked [+F] and feature-percolation from heads onto projecting nodes is allowed by Selkirk (1984).

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22 See Section 9.2 on this point.

23 Note that Kenesei (1998b: Fn 6) (contra Vogel & Kenesei 1990: 360-161; and contra Kenesei & Vogel 1993: 107) takes the ‘last unreduced stress’ in the phrase to be the phrasal stress. Thus, in a DP, a “használt “autót (the “second-hand “car-acc), he interprets the (optional) stress on the noun head as the main one. This is in full accordance with his theory of focus-percolation, which follows Selkirk (1984) in assuming that percolation is possible from heads, but not from modifiers.

According to the stress rule proposed in (10), the stress falling on the modifier is phrasal stress, while stress on the nominal head is predicted to be
9.2 Shortest stress shift

Kenesei (1998a) also describes cases where the moved constituent is in fact larger than the constituent that is taken as focus at both PF and LF. For instance, this is the case in (33a), where the whole DP moved to the left-periphery, while only the N head of the DP received focal interpretation.

Note that (33a) raises a problem in its own right. Here we see, contrary to expectations, that the main stress of the sentence is not assigned by the stress rule in (10), but by a special phonological operation, and still the constituent containing it is moved. At first sight, the application of both movement and stress shift might seem to be an economy violation. This is, however, not a real problem, on the contrary, it actually follows from Neeleman & Reinhart’s (1998) proposal.

In (33a), the stress falls on AUTÓT ‘car’ in the DP egy használt AUTÓT ‘a used CAR’. This is assigned by the universal stress strengthening rule (34) which here targets the phonological word corresponding to the head of the fronted DP, as it aims to ensure focusing of the head rather than the modifier. In a tree-based metrical system marking a constituent Strong inevitably means marking its sister Weak. Therefore the special stress rule can be formulated as in (34).

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word level stress. The crucial fact in favour of this view is that no wide focus reading can be obtained if no stress falls on the modifier and there is stress on the noun head: egy használt “autót (a second-hand “car-acc) (cf. 33). But the wide reading is available once the modifier is stressed. In this case, the noun may also have stress, word level stress, if it is not discourse-linked (On this point see also the discussion in Appendix B to Chapter 2). In Kenesei’s (1998b) analysis nothing accounts for the obligatory stress on the modifier under DP focus.
(34) **Stress strengthening:**
Assign Strong to a node.

Following Reinhart’s (1995) proposal, I assume that this rule aims to minimize the distance between this stress position and the position of the neutral stress (as of 10). Why this should be so can be illustrated in a tree-based notation of sentential stress. (33a) is repeated here under (35a), and a version where *egy használt AUTÓT* ‘the used CAR’ stays in its base position is shown in (36b). For *autót* ‘car’ to be only dominated by S-s in its base position (34) has to apply on more levels of the tree. However, if the DP moves to the left-periphery, only one application of (34) is necessary.

(35)

a.

```
(35a)

IntPₚ

Φₚ

ωₚ

[FP [DP Péter] [FP [DP egy használt AUTÓT]] [F vett]].

Peter bought a second-hand CAR.
```

b.

```
(35b)

IntPₚ

Φₚ

ωₚ

[FP [DP Péter] [VP vett [DP egy használt AUTÓT]].

Peter bought a used CAR.
```
A similar problem was noted by Tanya Reinhart (p.c.) for English. Given that in English the neutral stress falls on the object, focusing of the subject always involves a stress shifting operation. The following examples illustrate that the notion of shortest possible stress shift is also at play here. Although both (36a) and (36b) have stress within the DP_{subj}, (36b) cannot actually have the interpretation answering the question ‘Who committed the murder?’ (i.e. Focus=subject). This is so, because the same interpretation can be obtained, as in (36a), by fewer instances (in fact only one instance) of stress shifting operations. Note that in English syntactic phrases and phonological phrases are mapped by their rightward brackets, and the nuclear stress rule places S label on the rightmost node in any domain.

(36)

a. Focus set: \{ DP_{the gun}, PP_{with the gun}, DP_{subj}, *IP \}

\[
\text{IntP}_{S}
\begin{array}{c}
\Phi_{S} \\
\omega_{W} & \omega_{S} \\
\omega_{S} & \omega_{S} \\
[DP \{ NP \text{ man} [PP \text{ with the GUN}]] [VP \text{ committed} \{ DP \text{ the} \prime \text{murder}]]
\end{array}
\]

b. Focus set: \{ N_{man}, *DP_{subj}, *IP \}

\[
\text{IntP}_{S}
\begin{array}{c}
\Phi_{S} \\
\omega_{W} & \omega_{S} \\
\omega_{S} & \omega_{S} \\
[DP \{ NP \text{ MAN} [PP \text{ with the gun}]] [VP \text{ committed} \{ DP \text{ the} \prime \text{murder}]]
\end{array}
\]
To sum up, I showed above that stress strengthening is subject to economy (cf. 18) in the sense that shortest possible stress shift is preferred both in Hungarian and in English.

10 Infinitivals

Let me now return to the case of infinitival clauses which involve a focus. As I have shown in examples (6a) and (6b) above, repeated here for convenience, if a constituent is preposed, both particledV and V-particle orders are possible. Bródy (1990) argued that in the VM-V order the verb has remained in situ, and in the V-VM order it has moved to F.

(37) = (6)

a. Jobb lenne PÉTERT hívni fel.
   better would-be Peter-acc call-to up

b. Jobb lenne fel hívni. PÉTERT
   better would-be up call-to
   ‘It would be better to ring PETER.’

The position known as [Spec, FP] is licensed by the movement of the V in examples like (37a). However, in examples like (37b) I assume that the head position is created and left empty. Recall that the focused constituent cannot be in a position adjoined to VP, it is rather a Spec of a higher head position, for otherwise it would not receive clausal stress. Let me introduce the following assumption.
Chapter 2: Stress-driven focus movement

(38) An empty head position has to be associated with a categorially matching, overt head at some point in the derivation.

A straightforward way of satisfying (38), also spelt out in Nash & Rouveret (1997: 10-11) is (39). In the case at hand, the V moves to F, as in (37a). An equally straightforward way of satisfying (38) is given in (40).^24

(39) A categorially matching, overt head raises to the empty head.
(40) The empty head raises to a categorially matching, overt head.

According to Zwart’s (1997: 199) analysis of Dutch embedded sentences, in order to satisfy something like (40), AgrS moves to C, as in embedded clauses the V does not move to AgrS. Similarly, in accordance with (42), I claim that the empty F head moves to the higher V in (39b). Of course, (41) is only available here because there is no overt complementizer, which is the case with Hungarian embedded infinitivals in general. Thus the assumption in (40) provides us with a tool to explain the optionality found in (39). In root contexts, or in embedded clauses with a complementizer, only (41) is available, hence the obligatory V-to-F movement. In infinitivals either the V moves to F, as in (39a) or the F head moves to the higher V, as in (39b).

The optionality found in infinitivals does not contradict the view of economy assumed here. Economy rules out unnecessary operations: whether

---

^24 There is in fact a third way of licencing an empty head. Williams (1997) argues that gapping in coordinate structures is the result of the second conjunct having an empty head. This head is both syntactically and semantically dependent on the corresponding head of the first conjunct. Ackema & Szendrői (2001) further argue that the empty head is deleted if the deletion does not result in ungrammaticality.
V moves to F or F moves to V, one movement operation is performed. The choice between the two possibilities is irrelevant for economy.

11 Conclusion and consequences

The aim of this chapter was to show that the one-to-many mapping between stress and pragmatic focus of Reinhart (1995) originally proposed for English and Dutch is a powerful tool in accounting for a range of data in Hungarian, a language with focus-movement (cf. Sections 6 to 9).

In particular, it explains why the focus moves to the left-periphery in Hungarian. This is so, because nuclear stress in Hungarian is leftward oriented. In a language with right-peripheral stress, stress-driven focus movement is expected to be right-peripheral. As I will show in Chapter 4 Section 5, this is indeed the case in Italian.

The approach also accounts for the fact that Hungarian focus movement targets a specifier position. If it was adjunction, the stress rule would treat it as it treats topics. Therefore, main stress would not fall on the left-peripheral focus.

Third, the approach also shows why focus movement is necessarily overt. Given that it is a PF requirement that the focus be left-peripheral in the clause, covert movement has no effect on the focus of an utterance.

Fourth, the approach accounted for the uniqueness of the syntactic focus position, as opposed to the recursive topic and quantifier positions at the left-periphery of the Hungarian clause. This follows from the simple fact that given the nuclear stress rule, there is one single position in the clause where main stress falls.

Fifth, the approach also gives a straightforward explanation for the fact that verb focusing in Hungarian does not involve separation of the verbal modifier from the V. Given that V-movement always strands the modifier, the fact that the VM-V order is undisturbed in this case suggests that the
verbal complex remained in situ. This is not surprising in the present approach, as the verbal complex is in the position where nuclear main stress falls in the utterance by the nuclear stress rule.

Sixth, I also accounted for the blocking effect between focusing and particle climbing observed by Koopman & Szabolcsi (1998).

Finally, I showed that the analysis extends to cases described in Kenesei (1998a) where there is a discrepancy between the moved constituent and the focus of the utterance. In particular, I accounted for the phenomenon of focus projection, as wide focus readings are by definition available, unless ruled out by economy. I also accounted for the fact that the focused constituent is moved to the left-periphery, even if stress is shifted within the constituent itself.

On the basis of the above discussion I conclude that the assumption of a [+Focus]-feature is unnecessary to account for Hungarian focus movement data. Having accepted a stress-based approach to focus-movement one faces two theoretical issues.

First, where in the grammar does the Stress-focus correspondence principle (cf. 15) apply? In order to find at least a tentative answer to this question, one has to establish where in the grammar the notions that (15) refers to are defined. Such notions are stress and focus. As Zubizarreta (1998: 30) points out these notions are intrinsically non-lexical, as they are defined over the structure, which is non-existent in the lexicon. These notions cannot be lexical, or be put together from atomic parts which are themselves lexical. So I conclude that the architecture of the grammar has to be such that it allows for the postulation of these notions, and of principles referring to these notions. (See Chapter 3 for more discussion.)

Stress is normally assumed to be a notion defined over the prosodic structure on the way to PF. No [+stress] lexical feature is generally assumed. If this is indeed the case, then it is even more natural to get rid of its semantico-pragmatic counterpart: the [+Focus]-feature.
As far as the notion focus is concerned, I assume that it is a pragmatic notion. Since, as I argued in this chapter, neither stress nor focus are encoded by syntactic features, the Stress-focus correspondence principle (cf. 15), which refers to both these notions, will have to apply where both stress and focus are available. I would like to propose, following a suggestion by Chomsky (1995: 220) and in line with much recent work (cf. Bródy 1995b, Jackendoff 1997, Williams 1997, 2000), that direct mapping between PF and LF is available, and rules such as (15) apply here. Essentially, I would like to assume that this is where pragmatic considerations operate.

Note that what I have said above does not imply that pragmatic considerations may drive syntactic operations. They may only indirectly do so if they themselves are formally encoded in LF or PF notions present in the core grammar. So, for instance, the utterance ‘It’s cold here.’ uttered by a guest to his hostess may very well have the pragmatics that he wishes her to switch on the heating. But there is no well-defined phonological or syntactic clue in the utterance that would determine (at least in the weak sense) this interpretation. It is largely due to our world knowledge and maybe partially to universal principles operating pragmatics that we conclude that the given interpretation is the one the speaker was most probably intending to communicate. Precisely these kinds of pragmatic considerations do not have an effect on syntactic structure. On the other hand the pragmatic principle spelt out in (15) relies on PF and LF notions, and not on world knowledge, thus it may have an effect on syntax and/or phonology.

The next chapter will discuss theoretical implications of the results of this chapter. It will be argued that an approach which makes use of a syntactic [+Focus]-feature makes use of a superset of the assumptions of the present proposal, therefore the feature appears to be redundant. A tentative modification of the architecture of the grammar will be proposed to allow for direct communication between pragmatics and prosody.
APPENDIX A TO CHAPTER 2

MULTIPLE FOCI, SCOPE AND ECONOMY

1 Introduction

Recall that É.Kiss (1998) observes that the two focused constituents cannot be interpreted in such a way that the one that is lower in the structure at Spellout takes scope over the higher one at LF. (20a) from Section 6 is repeated here as (1).

(1) \text{CSAK HÁRMAN ettek meg CSAK KÉT KENYERET.}  
\text{Only three ate VM only two bread-acc}  
'It was only three people who ate up only two slices of bread.'

She attributes this to a structure where both foci have undergone A-bar movement overtly, thus fixing their scope. Notice that É.Kiss (1998) implicitly makes the assumption that once a constituent has undergone A-bar movement overtly it cannot move any further covertly. Although this assumption is widely accepted, there is no obvious, principled reason why it should be true.

On the other hand, I propose that the second focus is in situ, as shown by the fact that the verbal particle intervenes between the two foci. I have shown above that PF cannot be held responsible for triggering the alleged movement of the second focus. Let me show here that LF does not motivate the movement either.
2 Two foci

The rigid scopal order follows from our notion of economy spelt out in Chapter 2 (cf. Ex. 18). Let us assume that the intended interpretation, I₁, is that F₁, the first focus, CŠAK HÁRMAN (only three people), takes scope over F₂, the second one, CŠAK KÉT KENYERET (only two slices of bread).

(2)

F₁: CŠAK HÁRMAN  F₂: CŠAK KÉT KENYERET
  only three people            only two slices of bread
I₁: F₁ >> F₂   I₂: F₂ >> F₁

a.  <D₁, I₁>: F₁ moves overtly, F₂ stays in situ.

One may derive I₁ with the following derivation, which I shall call D₁. F₁ moves overtly to the main stress position, and thus will acquire focus interpretation overtly at the conceptual-intentional interface by the stress-focus correspondence principle. F₂ remains in situ and acquires stress and thus focus interpretation by an extra phonological operation. Since F₁ asymmetrically c-commands F₂, it takes scope over it. Of course, F₂ may in principle undergo QR targeting a position above F₁, taking scope over it, thus not deriving I₁ any more. But the derivation where F₂ undergoes QR is not D₁ but as the reader will shortly see, D₃. Thus the intended interpretation, I₁, is derived by the derivation D₁. (cf 2a)

Now let us try to derive the interpretation, I₂, where F₂, CŠAK KÉT KENYERET (only two slices of bread), takes scope over F₁, CŠAK HÁRMAN (only three people).

(2)

F₁: CŠAK HÁRMAN  F₂: CŠAK KÉT KENYERET
  only three people            only two slices of bread
I₁: F₁ >> F₂   I₂: F₂ >> F₁

b.  <D₂, I₂>: F₂ moves overtly, F₁ stays in situ.
One straightforward way is what I shall call D₂, which goes as follows. F₂ moves to the left-periphery where it takes main stress and thus focus interpretation. I₂ is derived by simply leaving F₁ in situ. (cf. 2b)

Another possible derivation of I₂, which I shall call D₃, is to take D₁ as described above and QR F₂ at LF to a position where it takes scope over F₁. (cf. 2c)

(2)

\[
F₁: \text{CSAK HÁRMAN} \quad F₂: \text{CSAK KÉT KENYERET}
\]
\[
\text{only three people} \quad \text{only two slices of bread}
\]
\[
I₁: F₁ >> F₂ \quad I₂: F₂ >> F₁
\]

2c. <D₃, I₂>: F₁ moves overtly, F₂ moves to a position above F₁ at LF. <D₃, I₂> is ruled out by the existence of <D₂, I₂>.

However, this derivation is ruled out by our definition of economy (cf. Ex. 18 in Chapter 2). This is so because, <D₃, I₂> contains two instances of movement, while <D₂, I₂> only one instance. Similarly, overt movement of F₂ and subsequent raising of F₁ over it at LF, which I shall call D₄, will be equally ruled out by the availability of the derivation, D₃, where the first focus moved overtly and the second one remained in situ. (cf. 2d)

(2)

\[
F₁: \text{CSAK HÁRMAN} \quad F₂: \text{CSAK KÉT KENYERET}
\]
\[
\text{only three people} \quad \text{only two slices of bread}
\]
\[
I₁: F₁ >> F₂ \quad I₂: F₂ >> F₁
\]

2d. <D₄, I₁>: F₂ moves overtly, F₁ moves to a position above F₂ at LF. <D₄, I₁> is ruled out by the existence of <D₁, I₁>.

It also follows that under the original interpretation, I₁, the second focus, F₂, cannot move to an A-bar position c-commanded by F₁, which I shall call
D₅. (cf. 2e) This is so because there exists a derivation, D₁, which arrives at the same interpretation, I₁, and which contains one less instance of movement.

(2)

<table>
<thead>
<tr>
<th>F₁: CSAK HÁRMAN</th>
<th>F₂: CSAK KÉT KENYERET</th>
</tr>
</thead>
<tbody>
<tr>
<td>only three people</td>
<td>only two slices of bread</td>
</tr>
</tbody>
</table>

I₁: F₁ >> F₂  \quad I₂: F₂ >> F₁

e. \quad <D₅, I₁>:  F₁ moves overtly, F₂ moves to a position below F₁ (at LF).
\quad <D₅, I₁> is ruled out by the existence of <D₁, I₁>.

3 Three operators

Above I described and compared possible derivations of sentences which involved two foci. I have concluded that overt or LF movement of the one that has narrow scope with respect to the other is never justified partly due to the fact that the language has a large word order freedom. In other words, since one instance of movement clearly disambiguates scope of two foci, it is never necessary to have two instances. This contrasts with É.Kiss’ (1998a) view who assumes that both foci undergo movement. But what about cases which contain three operators?

(3) CSAK EGY ALKALOMMAL kapott minden tárgyból jelest CSAK KÉT FIÚ.

\begin{align*}
F₁ & \quad V & \quad Q & \quad VM & \quad F₂ \\
\text{only one occasion-obl} & \quad \text{got} & \quad \text{every subject-obl} & \quad A+ & \quad \text{only two boys}
\end{align*}

‘It was only on one occasion that in every subject only two boys got an A+.’

É.Kiss (1998a) claims that if a universal quantifier intervenes between two foci its scope will be unambiguously lower than that of the higher focus, and higher than the scope of the lower one. She accounts for this by placing all three of them in designated A-bar positions. Recall the reasoning based on
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economy above. It gives us the prediction that two instances of movement will be enough to disambiguate scope in the required manner.

I claim that the first focus, $F_1$, occupies the main stress position, the quantifier has undergone QR and adjoined to the VP overtly, and the second focus, $F_2$, is in situ (cf. D₆ in 4a). The intended interpretation, $I_3 = F_1 >> Q >> F_2$, is reached by two instances of movement. The quantifier moves in order to disambiguate its scope with respect to the second focus. As in the flat VP the quantifier and the second focus symmetrically c-command each other, their scope is ambiguous unless one of them moves out.

(4)
$$\begin{align*}
F_1 &: \text{CSAK EGY ALKALOMMAL} & F_2 &: \text{CSAK KÉT FIÚ} & Q &: \text{minden tárgyból} \\
nonumber & \text{on only one occasion} & \text{only two boys} & \text{in every subject} \\
I_3 &: F_1 >> Q >> F_2 & I_4 &: F_1 >> F_2 >> Q \\
\end{align*}$$

a. $<D_6, I_3>$: $F_1$ moves overtly to main stress position, $Q$ adjoins to VP, $F_2$ stays in situ.

Economy prevents LF raising of the second focus over the quantifier (cf. D₈ in 4c), as the derivation D₇ exists where $F_1$ moves to the main stress position, $F_2$ adjoins to VP, and $Q$ remains in situ. See (5) and (4b).

(4)
$$\begin{align*}
F_1 &: \text{CSAK EGY ALKALOMMAL} & F_2 &: \text{CSAK KÉT FIÚ} & Q &: \text{minden tárgyból} \\
nonumber & \text{on only one occasion} & \text{only two boys} & \text{in every subject} \\
I_3 &: F_1 >> Q >> F_2 & I_4 &: F_1 >> F_2 >> Q \\
\end{align*}$$

b. $<D_7, I_4>$: $F_1$ moves overtly to main stress position, $F_1$ adjoins to VP, $Q$ stays in situ.

c. $<D_8, I_4>$: $F_1$ moves overtly to main stress position, $Q$ adjoins to VP, $F_2$ moves at LF over $Q$. $<D_8, I_4>$ is ruled out by the existence of $<D_7, I_4>$.
Similarly, economy rules out the existence of the derivation illustrated in (4d), as the derivation in (4a) exists. (Note (4a) is repeated here for convenience.)

Thus, the view I am presenting here is closer to É.Kiss’ (1998a) analysis in that I assume that in a sentence with two foci and an intervening universal, the second operator moves out of the VP by Spellout, at least optionally\(^1\). Our analyses differ with respect to the third operator, which takes lowest scope. É.Kiss (1998a) claims it has also moved to an A-bar position, whereas I claim that it stays in situ all through the derivation.

\(^1\) Note that following Bródy (1997b: 47) I do not assume *Procrastinate*. He argues that *Procrastinate* is counterintuitive as in the default case it derives maximally different LF and PF representations.
4 The position of the particle

Observe the position of the verbal particle in (3) and (5). As my analysis predicts, the verbal particle intervenes between the quantifier and the lower focus. Under É.Kiss’ (1998a) analysis the verbal particle either incorporates into the verb from the right, or remains in situ depending on its heaviness. Thus she cannot account for these sentences where the particle is in between two operators because she assumes that both operators have moved to their designated landing sites.

This is not to say that the particle necessarily intervenes between the second and third operator. It may precede both, thus immediately follow the verb. This order is clearly favoured if the VM is phonologically light. I assume that in this case the second operator adjoins to the VP at LF, i.e. undergoes quantifier raising. It cannot remain in situ because of the flat structure of the VP in Hungarian, which does not disambiguate scope between operators that remain in the VP, as they symmetrically c-command each other.

To summarise, although the judgments are admittedly subtle, the data seems to support the following claim. Once the first focus moved to the left-periphery to take up stress, and consequently highest scope, the second focus moves out of the VP and adjoin to VP if there is anything left in the VP to take scope over. And this is more or less independent of the size of the VM. The size of the VM only matters in that overt movement of the second operator is perfect in (5), whereas LF movement is preferred over overt movement as in (7a).

If the contrast between (6b) and (7b) is systematic, the analysis described above can account for the data. Once there are three and not two operators in the sentence, movement of the one that will take middle scope can either happen overtly or at LF. In (7b) it happened overtly in (7a) at LF. LF movement seems to be preferred if the VM is phonologically light. On the other hand, if there are only two operators in the sentence, as in (6), there is
no reason why the second one, which takes lower scope, should move at all. Hence the marginality of (6b) where it moved overtly.

\[ (6) \]
\begin{align*}
\text{a. } & \text{CSAK EGY ALKALOMMAL nézte meg CSAK KÉT FIÚ a képeket.} \\
& \text{only one occasion-obl saw VM only two boys the pictures} \\
\text{b. } & \text{?CSAK EGY ALKALOMMAL nézte CSAK KÉT FIÚ meg a képeket.} \\
& \text{only one occasion-obl saw only two boys VM the pictures} \\
& \text{‘It was only on one occasion that only two boys saw the paintings.’} 
\end{align*}

\[ (7) \]
\begin{align*}
\text{a. } & \text{CSAK EGY ALKALOMMAL nézett meg CSAK KÉT FIÚ minden képet.} \\
& \text{only one occasion-obl saw VM only two boys every picture} \\
\text{b. } & \text{?CSAK EGY ALKALOMMAL nézett CSAK KÉT FIÚ meg minden képet.} \\
& \text{only one occasion-obl saw only two boys VM every picture} \\
& \text{‘It was only on one occasion that only two boys saw every painting.’} 
\end{align*}

5 Conclusion

I conclude that there is a unique syntactic ‘focus’-position in Hungarian. We have a good reason for this under a stress-driven movement view of FocusP. There is one main stress in every sentence, so there is at most one position where a constituent can be base generated or move to bear this stress. No other movement is triggered by PF. On the other hand, the second operator undergoes movement to a VP-joined position (overtly or covertly), triggered by LF, if a third operator is present in the clause. The third one remains in situ as predicted by economy in (20) and shown by the position of the verbal particle in (3) and (5). The VP-joined position can be occupied by both universals or foci and is only filled if a third operator is present.
lower in the clause thus it does not appear to be a designated syntactic position (i.e. Spec of a functional head).
APPENDIX B TO CHAPTER 2

IDENTIFICATIONAL VS. NEW INFORMATION FOCUS

1 Introduction

I would like to briefly examine the classification of É.Kiss (1998) that foci are either identificational or indicate new information. É.Kiss (1998:248) argues that the distinction between the two types of foci, identificational and (new) information focus, is observable in the grammar as it correlates with a cluster of syntactic differences. I believe that the Hungarian data do not warrant the claim that both groups involve foci.

In this chapter I argued for a view of focus, along the lines of Reinhart’s Stress-focus correspondence principle. I would like to show that what É.Kiss calls new information focus in Hungarian is in fact not that, but rather it is non-discourse-linked status in Ariel’s (1990) sense under a wide VP focus. I will also argue that postverbal constituents do not receive main stress and therefore do not fall under the realm of the Stress focus correspondence principle.

2 What is focus?

É.Kiss (1998) adopts a standard assumption in the literature that the focus of an utterance can be identified by a question-answer pair. This is in fact the only characteristics that she gives that identificational and new informational foci share. I would like to show, that closer study of the data shows that this property does not support a claim that there are two types of foci in Hungarian.
É.Kiss (1998:247) claims that (1a) contrasts with (1b) in that the first involves identificational focus on the indirect object *Marinak ‘Mary-to’, whereas the same constituent bears new information focus in (1b). She also claims that in (1b) the indirect object and the verbal complex both bear pitch accent. However, in the rest of the paper she ignores the obligatory pitch accent on the verbal complex, which is present in all unmarked Hungarian utterances.

(1)

a. Tegnap este MARINAK mutattam be Pétert.
   *yesterday evening Mary-to introduced-I VM Peter-acc

b. Tegnap este BE MUTATTAM Pétert MARINAK.
   *yesterday evening VM introduced-I Peter-acc Mary-to

Note that the utterance in (1b) is only well-formed in a context where the object *Pétert ‘Peter-acc’* is accessible to both the hearer and the speaker. For example, if the speaker is Peter’s host in a foreign city and his job is to take care of him. The utterance may be part of a dialogue between the host and his boss reporting on his activities concerning Peter’s welfare. If Peter is not already present in the discourse-context, the utterance is inappropriate unless *Pétert ‘Peter-acc’* also receives stress. I will return to this point in Section 3.

(2) Tegnap este BEMUTATTAM PÉTERT MARINAK.
    *yesterday evening VM introduced-I Peter-acc Mary-to

If É.Kiss’ (1998) claim was right and the utterances in (1a) and (1b) involved identificational and information focus on the indirect object, then one would expect that both (1a) and (1b) are felicitous answers to the question in (3). This is not the case. (1b) is only marginally available as an answer to the question in (3).
(3) a. Q: Kinek mutattad be Pétert?
   *Who-to introduced-you VM Peter-acc*

   b. A: Tegnap este MARINAK mutattam be Pétert.
   *Yesterday evening Mary-to introduced-I VM Peter-acc*

   c. A’: ?#Tegnap este BEMUTATTAM Pétert MARINAK.
   *Yesterday evening VM introduced-I Peter-acc Mary-to*

É.Kiss (1998:250) claims that the following question-answer pair in (4) forms a felicitous discourse. She admits that the answer is ‘less commonly’ used in this context than the one in (5) where the object is the identificational focus of the utterance. In fact she indicates in the gloss that the answer in B’ is only felicitous if the speaker intends to signal that the answer was not exhaustive.
(4) A: Hol jártál a nyáron?
   Where have you been over the summer?
B: Jártam OLOSZORSZÁGBAN.
   ‘I went to Italy [among other places].’

(5) A: Hol jártál a nyáron?
   Where have you been over the summer?
B’: OLOSZORSZÁGBAN jártam.
   ‘I went to ITALY.’

(É. Kiss: 1998 Ex 11)

The verb *jártam* can be most appropriately translated into English as ‘I have been to’. Just like English *behave* it selects an obligatory adverbial. Due to its semantic emptiness *jártam* does not bear main stress in the unmarked case, just like English *grow* (cf. Bolinger 1972). If the utterance pronounced out-of-the-blue, the adverbial obligatorily appears in front of the V. This is presumably the same phenomenon that I described in the case of climbing

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1 Note that the choice of the context question is slightly unfortunate, as, given our world-knowledge, it can be easily interpreted as ‘What did you do over the summer?’, allowing for VP rather than adverbial focus interpretation in the answer. If we control for this, the postverbal focus is unavailable unless an interjection like *például* ‘for example’ is added (cf i).

(i) Context: Marsmen evaded Earth. They are known to have been to many places. In fact, them being Marsmen, they can be in more then one place at the same time.

A: Hol jártak a marslakók tegnap?
   Where went the Marsmen yesterday?
B: Jártak *(például)* OLOSZORSZÁGBAN.
   have-been-they Italy-in
verbs in Section 8.

(6) a. OLAŠZORSZÁGBAN jártam.
    *Italy-in have-been-I
b. *JÁRTAM Olašzországban.
    *have-been-I Italy-in
    ‘I have been to Italy.’

According to my judgments, if almost any other verb is used in (4), the question-answer pair with a postverbal focus is marginal.

(7) a. Q: Hol nyaraltál a nyáron?
    Where did you have holidays in the summer?

    _______   \_____________
    _______   \_____________

    b. A: ?*Nyaraltam OLAŠZORSZÁGBAN.
        *had-holidays-I Italy-in

There is in fact one intonation of (7b) that is appropriate in the context of (7a). In this intonation, the V is pronounced with characteristic left-dislocation intonation: low tone with a sharp rise at the end. The utterance improves further if an interjection, such as például ‘for example’ is added.

(7) _______ / _______ \_____________

    c. A’: NYARALTAM, például OLAŠZORSZÁGBAN.
        *had-holidays-I for-example Italy-in

Note that (7c) supports É.Kiss’ claim that the postverbal focus pattern does not involve exhaustive listing. If például ‘for example’ can be added, it cannot be the case that the focus of the answer gives an exhaustive answer. To the contrary, it only gives an example. A closer study of the utterance
with characteristic left-dislocation intonation and the availability of an interjection suggesting non-exhaustivity is left for future research.

É.Kiss’ (1998: 249) gives another example for the identificational vs. information focus distinction. She claims that the postverbal object in the second utterance in (8) ‘introduces new, nonpresupposed information’. Nevertheless, she admits that the V (also) receives a pitch accent.

(8) János és Mari VÁSÁROLNÁK.
   
   John and Mary are shopping.

   Mari KI NÉZETT magának egy KALAPOT.
   Mary VM spotted herself-for a hat-acc

É.Kiss (1998: 249)

Although it is true that the object carries nonpresupposed information, that in itself is not enough to claim that the object carries new information focus. By É.Kiss’ own test, a focus must be a possible answer to a corresponding question. (8), however, does not seem to be appropriate as an answer to a question on the object (cf. 9a). Even if it is marginally appropriate, (9c) is much more natural in the context.

(9) a. Mit nézett ki magának Mari?
   
   What did Mary spot for herself?

   ______ \__________________ \____

   b. ?#Mari KI NÉZETT magának egy KALAPOT.

   Mary VM spotted herself-for a hat-acc

   ______ \__________________

   c. Mari egy KALAPOT nézett ki magának.

   Mary a hat-acc spotted VM herself-for
What the context sentence in (8) indicates is that we are talking about Mary and John, enumerating what they have done. The discourse in (10) is perfectly parallel to the one in (8) from a pragmatic point of view. They both involve VP focus on all the utterances.

(10) János és Mari VÁSÁROLNAK.
John and Mary are shopping.
Mari EL KÖLTÖTTE az ÖSSZES pénzét.
Mary VM spent the all money-her-acc

János UNJA a banánt és végre HAZA akar menni.
John is-bored the banana-acc and finally home wants go-to
‘John is really bored and annoyed and wants to finally go home.’

It seems to be the case that the stress on the object in (8) is irrelevant for determining the focus of the utterance. The fact that the verb is stressed in all these cases supports the claim that the verb, but not the postverbal constituents, carries main stress. The focus of the utterances in (8) and (10) is on the VP. I would like to propose that the stress on the postverbal object in (8) is phrasal stress that simply indicates that the DP is not discourse-linked.

If so, then we understand why all the utterances involving alleged postverbal new information focus are not or only marginally available as answers to corresponding questions (cf. 3c, 7b, 9a). The postverbal constituent bears phrasal stress indicating that it represents information not yet present in the discourse. Intuitively, an answer to a question has to supply the information indicated by the question word. This requirement is satisfied in (3c), (7b) and (9a). However, in order to form a well-formed discourse, the relevant material has to be the focus of the answer. This is not the case in these examples, as they involve wide, VP focus, hence their marginality.
3 On phrasal stress in Hungarian

Different approaches to Hungarian stress in the literature include the following. Vogel & Kenesei (1987, 1990) present an approach based on prosodic structure, however their syntax-phonology mapping rules are different from the ones presented here. É.Kiss (1992: 93) takes the view that stress is assigned to syntactic structure. All of these approaches (and the view presented in this chapter) agree that stress in Hungarian is leftward oriented in any given domain.

Kálmán & Nádasdy (1994) present a very different approach to stress. In effect they claim that there is no single main stress in the Hungarian utterance. The main stress on the verb or the preverbal focus is uncontested in any theory. The issue relevant here is whether the stresses on the postverbal constituents are main stresses. If it turns out that the stress on a postverbal constituent is main stress, then according to the Stress-focus correspondence principle the prediction is that these are possible foci. On the other hand, if it turns out that these do not take main stress, then the prediction is, that postverbal constituents do not bear the focus of their utterance, contra É.Kiss (1998). To test this, let us see whether it is possible to omit them under wide focal interpretation.

Kálmán & Nádasdy (1994: 411) show that if the phrasal stress of the object is omitted, the utterance cannot be interpreted with wide focus (cf. 11b). This, they claim, suggests that the stress on the object is main stress.

(11)  
\begin{enumerate}
\item a. A: Mit csinált?
   \hspace{1cm} ‘What did he do?’
\item b. B: \textbf{FIZIKÁT} tanult a \textbf{BUSZON}.
\item c. B’: \textbf{# FIZIKÁT} tanult a buszon.
\end{enumerate}
\begin{tabular}{ll}
\textit{physics-acc} & \textit{studied the bus-on} \\
\end{tabular}
\begin{tabular}{ll}
\textit{He studied PHYSICS on the BUS.’} \\
\end{tabular}
But observe that, in (12), wide focus is available without stress on the object.

\[(12)\]

a. A: Mi van a fiaddal?
   ‘What’s the news about your son?’

b. B: Jól vannak a gyerekeim.
   well are-they the kids-mine
   ‘My kids are WELL.’

Recall from Chapter 1 that Neeleman & Reinhart (1998) argued that discourse-linked material (i.e. material that is accessible in the previous discourse) is obligatorily destressed and vice versa, material that is destressed is discourse-linked. In addition, Tanya Reinhart (p.c.) claims that if a set is present in the previous discourse, the superset is accessible in Ariel’s (1990) sense. In this light, what (12) shows is that phrasal stress on the postverbal constituent can be omitted under wide focal interpretation so long as the constituent is accessible in the discourse.

This point is further emphasized by (13). In (13) the meaning of the answer is different in the two cases: if the object lacks phrasal stress, the phonology paper is interpreted as one of the term papers; if the object is stressed, the term papers are interpreted as denoting a set that does not contain the phonology paper. Nevertheless, both utterances have VP focus as indicated by the question in (13a). (In fact the different intonations indicated on the English translations allow for the same interpretative difference in English.)
a. A: Mi lesz a fonológia esszéddel?
‘What about your phonology paper?’

b. B: Még DOLGOZOM a szemináriumú dolgozataim.

still work-I the seminar papers-on

‘I am still working on my seminar papers.’

c. B': Még DOLGOZOM a SZEMINÁRIUMI DOLGOZATAIMON.

still work-I the seminar papers-on

‘I am still working on my SEMINAR PAPERS.’

Thus it seems to be an entirely independent issue whether any postverbal constituent bears phrasal stress under wide focus. The only main stress is on the verb or the preverbal focus. The fact that these crucial examples are hard to come by is due to the fact that Hungarian is a heavily pro-drop language. As a result, ordinary discourse linking by simple repetition of the constituent is pragmatically rather odd in Hungarian.

Let me come back to a point made earlier. In (2) I showed that the unmarked pronunciation of the utterance, the one under wide VP focus is where there is stress on the V and on all the postverbal constituents. In this section I argued that in fact the postverbal constituents bear phrasal stress, while the stress on the verb is main stress (cf. 14). If so, we make the following prediction. In (15) I assumed that a kis Péter is one of the speaker’s children. (15b) is marginally available as an answer to (15a) as it contains the relevant information indicated by the question word. However, (15c) is totally inappropriate in the context of (15a), as it contains an element, which is unstressed even though it is not discourse-linked. This is explained by the generalisation that that a presence of a set in the discourse does not render any of its subsets accessible (Tanya Reinhart p.c.).

(14) Tegnap este BE MUTATTAM ’Péter ’Marinak.

yesterday evening VM introduced-I Peter-acc Mary-to
In this section I provided arguments in favour of the claim that postverbal constituents in Hungarian bear phrasal stress if they are not discourse-linked, but they do not bear main stress.

4 Discourse-linked verb

In Section 1 I claimed that the marginality of (3c), (7b) and (9a) was due to the fact that they do not bear focus on the postverbal constituents, as these only bear phrasal and not main stress, and that the focus of the utterance in these is on the VP. Let me argue for the latter claim here.

Recall the example in (9a) repeated here as (16b). As (16a) shows, this utterance is perfectly felicitous in a context indicating VP focus.

(16)  a. Mit csinált Mari?

What did Mary do?

b. ?#Mari KINÉZET magának egy KALAPOT.

Mary VM chose herself-for a hat-acc

I argued that even though the utterance in (16b) has VP focus, it is marginally acceptable in a context indicating DP\_DO focus, as the object in (16b) is new to the discourse. The following test can be applied to provide further evidence for this claim. In a context where the verb itself is discourse-
linked, (16b) should be inappropriate if it indeed has VP focus. On the other hand, if É.Kiss is right and it has focus on the postverbal DP, then discourse linking the verb should not make any difference.

Let us imagine the following situation. A group of people take part in a game in the course of which it will be revealed how well they know each other. According to the rules of the game, they have to enter a room full of theatrical equipment, look around and choose some objects that they think are characteristic of themselves. Then they come out and there is a discussion on who chose what and why. Two people have the following exchange on this game.

(17) A: Bementek. Mindannyian ki néztek néhány dolgot. Mit nézett ki Mari?

They entered. They all chose some things. What did Mary choose?

a. B: #Mari kinézett (például) egy KALAPOT.

Mary VM chose for-example a hat-acc

b. B’: Mari egy KALAPOT nézett ki.

Mary a hat-acc chose VM

This shows that a postverbal DP may not receive main stress even if the verb is discourse-linked. Thus it may not receive focus interpretation either, rendering the exchange in (17) infelicitous. I will come back to discourse linking a verb in Hungarian in Chapter 5.

5 Conclusion

To conclude, closer study shows that the Hungarian data does not support É.Kiss’ identification vs. new information focus distinction. The marked, postverbal focus pattern in Hungarian, as much as it occurs, is only possible when the verb itself is prosodically left dislocated (cf. 7c). Otherwise, stress
may be heard on a postverbal object under VP focus, if the object is not discourse-linked. As (17) shows, this does not actually put focus on the object. Rather, as I argued earlier, contra Kálmán & Nádasdy (1994), it is phrasal stress.

Let me also mention here that, É.Kiss’ insight is probably on the right track in the following sense: it is most probably due to the presence vs. absence of movement in the two constructions that postverbal focus (if possible cf. 7c) is interpreted non-exhaustively, whereas preverbal foci are exhaustive in Hungarian. This issue is left open for future research.
CHAPTER 3

ON ECONOMY AND THE STATUS OF PROSODIC PHONOLOGY IN THE GRAMMAR

1 Introduction

In this chapter I assess the stress-based account of focus presented earlier from a conceptual perspective. It rests on two major assumptions. First, it assumes that the conceptual-intentional interface has access to both PF and LF representations, and thus the Stress-focus correspondence principle proposed by Reinhart (1995) can be stated at the interface. Consequently, stress-driven movement operations are allowed in the grammar, and thus the grammar violates the Principle of phonology-free syntax proposed by Miller et al (1997) (cf. also Zwicky 1969, Zwicky & Pullum 1986 and Vogel & Kenesei 1990). Second, the account allows for comparison of expressions under economy. In particular, it is claimed that operations in the grammar such as movement or stress strengthening are subject to economy. In other words, they only legitimately apply if they have an effect on the interpretation of the expression.

It may turn out to be the case that one or both of these assumptions increase the complexity of the grammar. Even so, this would not necessarily constitute an argument against the account presented earlier. No theory can be abandoned unless an alternative theory exists that accounts for the same data. So, as a first step, an alternative account has to be formulated.

At this point, one might jump to the conclusion that if the alternative account does not make either of the two major assumptions that the stress-
based account makes, it is conceptually preferable on grounds of simplicity. However, this conclusion would be premature. The two theories have to be compared as a whole. If the alternative theory does not make the assumption(s) that lead to a more complex grammar and everything else is equal, then the alternative theory is indeed preferable on grounds of simplicity. But if the alternative theory makes other assumptions, which equally complicate the grammar, then the question becomes much more subtle.

Let me illustrate this with an example. It is taught in first-year syntax courses that an English wh-question involves displacement of the wh-element from its theta-position to [Spec, CP]. Everything else being equal, a theory of grammar that assumes the notion of syntactic displacement is more complex than a grammar that assumes no such notion. Thus, by the same logic as above, one might conclude that theories that account for word order differences without the notion of syntactic displacement are to be preferred to standard Principles and Parameters or Minimalist syntactic theory on grounds of simplicity. But note that it is not the case that in such a theory everything else is equal. In particular, the module that accounts for arguments (the equivalent of theta theory) will be terribly complex, and by and large without any predictive power. Thus, a theory without displacement must make other assumptions (missing from P & P or minimalist syntax) that also complicate the grammar.

The only way to assess a theory from a conceptual point of view is to develop an alternative theory, and compare all the assumptions that the theories make. It is only at this stage, that argumentation on grounds of simplicity becomes valid.

In Section 2 I study the two independent assumptions in the stress-based theory of focus: that PF information is available at the conceptual-intentional interface and that the grammar uses cross-derivational comparison of expressions. I spell out exactly what conditions an alternative account would have to meet to be potentially superior to the stress-based account on
grounds of conceptual simplicity and restrictiveness.

In Section 3, I develop an alternative account of the data presented in Chapter 1 and 2. The account is based on the assumption that there is a syntactic [+Focus]-feature present in the grammar, so I shall call it the ‘feature-driven account’. In the course of this chapter, it will be revealed that the feature-driven account has to make essentially the same assumptions that the stress-based theory makes to maintain the empirical coverage of the stress-based account, in addition to the assumption that there is a [+Focus]-feature in the grammar.

In Section 4 I investigate other phenomena in the grammar that receive an explanation if it is assumed that PF information is available at the conceptual-intentional interface. These include discourse linking and lexical insertion. I also show that it is unlikely that these phenomena should be encoded by syntactic features to facilitate indirect communication between PF and LF. In particular, I argue that featural encoding of focus and other pragmatic notions violates Chomsky’s (1995: 228) Inclusiveness condition.

In Section 5 I compare the empirical coverage of the stress-based and the feature-based theories. I show that the phenomenon of pied-piping, which Kenesei (1993) claimed supports a feature-based analysis, cannot be treated in a feature-based theory unless the hypothesis of the uniformity of interface conditions is violated and cross-derivational comparison is allowed.

Finally, I conclude, on grounds of simplicity, that the stress-based account to focus presented in Chapter 1 and 2 is to be preferred to the feature-driven account presented in this chapter.
2 Assumptions

According to Chomsky (1995: 219-20), a language L consists of expressions that are ordered pairs \((\pi, \lambda)\). An expression \((\pi, \lambda)\) is convergent at PF if \(\pi\) satisfies Full Interpretation at PF, and it is convergent at LF if \(\lambda\) satisfies Full Interpretation at LF. The expression converges, if it converges at both interfaces, otherwise, it crashes. He goes on to say that ‘we thus adopt the (nonobvious) hypothesis that there are no PF-LF interactions relevant to convergence’ (Chomsky 1995: 220). Let us formulate this hypothesis as in (1).

(1) **Hypothesis of no direct PF-LF communication**

The only communication between PF and LF is via syntax.

Given (1) the grammar has to observe (2).

(2) **Uniformity of interface conditions**

No interface condition (filter, rule, definition etc.) can be stated on either the PF or the LF interface that makes direct reference to information that is only available on the other interface.

Thus, it cannot have any principles, filters, rules or definitions that simultaneously and directly refer to both pragmatico-semantic and prosodic information. The reason is that there would be no place in the grammar where these principles, rules and filters could be stated.

This can be captured in a framework where phonological information, which is ultimately relevant for the interface of the grammar (in its wide sense) with Sensori-Motoric Apparatus, i.e. the articulatory and auditory devices, is separated from syntactic (or syntactico-semantic) information, which ultimately feeds the interface of the grammar with the conceptual-intentional system.
The motivation behind such a framework is that phonology is a module whose role is merely to interpret the output of the (overt) syntactic component for the Sensori-Motoric Apparatus. But what is the empirical support for such a model? As Miller et al (1997) discuss in detail, there is a wealth of empirical evidence in favour of the claim that phonological information is not available at the interface between the grammar and the conceptual-intentional system. (cf. also Zwicky 1969, Zwicky & Pullum 1986 and Vogel & Kenesei 1990).

In particular, and among others, they investigated the alleged generalisation that in French the number of syllables an attributive adjective has (and the number of syllables the nominal head has) determines whether the adjective appears preverbally or postverbally. They showed that the generalisation that short adjectives have to appear preverbally is simply not true and that its statistical significance can be by and large attributed to the coincidence that the most frequent adjectives often occupy prenominal position and that they are also often mono-syllabic.

Another case they investigated was the appearance of agreement on the French adverb *tout*, which allegedly surfaces only if the noun following it is feminine and begins with a consonant. It turns out that if the implicit assumption is dropped that the adverb agrees with the noun in both number and gender, and one postulates that agreement only effects gender, then there is no need to make reference to segmental phonological properties of the noun.

On the basis of these and similar cases Miller et al (1997) concluded that it is a universal property of language that syntactic rules may never make reference to phonological information (cf. 3) (cf. also Zwicky 1969, Zwicky & Pullum 1986 and Vogel & Kenesei 1990). The Principle of phonology-free syntax is based on the conceptual reasoning that phonological information, which by assumption does not feed into the conceptual-intentional interface, has no effect on the syntactic computation.
Principle of Phonology-Free Syntax

In the grammar of a natural language, rules of syntax make no reference to phonology.

(Miller et al 1997: 68)

Reinhart (1995) argued that the following principle holds in English.

Stress-focus correspondence principle:

The focus of a clause is any syntactic constituent that contains the main stress of the intonational phrase corresponding to the clause.

(Following Reinhart 1995: 62)

As I already explained briefly in Chapter 1, a principle like (4) can only apply if both (overt) syntactic information and information from (sentential) phonology are available. This is so, as the principle in (4) makes reference to prosodic information while defining a pragmatic (or possible semantic) notion, focus. In particular, assuming (4) is in clear violation of the hypothesis of the uniformity of interface conditions (cf. 2).

Thus, I argued, the standard Minimalist conception of the architecture of the grammar has to be modified to allow for prosodic information to feed into the interface with the conceptual-intentional system.

Following Nespor & Vogel (1986) I further assume that phonological rules operate on prosodic structure and not directly on the syntactic representation. The two representations are connected via mapping rules in the spirit of Jackendoff (1997). Given Reinhart’s (1995) Stress-focus correspondence principle, I assume that both the syntactic and the prosodic representations feed into the conceptual-intentional system. Figure 1 is repeated here from Chapter 1.
In Chapter 2, I argued that in Hungarian a stress-driven movement operation is available to satisfy the Stress-focus correspondence principle in (4). (5) clearly violates the Principle of phonology-free syntax (cf. 3).

1 See Chapter 4 for empirical support for this claim.
(5) **Stress-driven movement:**

In Hungarian, movement of the focused constituent to the left-periphery is triggered by the requirement that a focused constituent be stressed.

Clearly, (4) violates (2) if stated on either the PF or the LF interface. In addition, (5) seems to fly in the face of the generalisation in (3) that phonology never drives syntax. So, it seems that if we try to maintain such a model, we cannot posit (4) (or 5). How can we derive its effects, nevertheless? The solution lies in the word *direct* in (2). If we assume that there is an entity present in the syntactic computation that survives at both the PF and the LF interfaces, then we may state two *separate* conditions, one at PF, one at LF and thus indirectly account for the PF-LF correspondence in (1).

The entity that is standardly assumed to do this work is the [+Focus]-feature, henceforth [+F]. Positing [+F] offers a solution to the problem posed by (5) as well. If there is [+F], one may assume that focus-movement is triggered by the presence of [+F] in a way that is standard in checking theory (Chomsky 1995). Thus, at first sight, an account based on [+F] seems a theoretically plausible way of encoding the PF-LF correspondence in the grammar and driving focus-movement. In what follows I shall investigate if it is possible to formulate an account for the English data in Neeleman & Reinhart (1998) and the Hungarian data in Chapter 2 that satisfies the hypothesis in (2) and (3). If this was the case, and the alternative account made no assumptions that are not present in the stress-based account, the feature-driven account should be accepted as conceptually preferable, as it maintains a model of the grammar where phonology is dependent on syntax and the universal *Principle of phonology-free syntax*.

There is an additional conceptual reason why a feature-driven approach might be preferable, if it has the same empirical range as the stress-based account and makes no further assumptions. Recall that Reinhart (1995)
argued that if stress strengthening applied to the subject in English, the *Stress-focus correspondence principle* (cf. 4) predicts that the subject and the IP, which contains the subject, can be the focus of the utterance in (6). However, as (7) illustrates, stress on the subject is only possible in a context where the subject is intended to be focused. IP-focus is ruled out.

(6) **My neighbour** is building a desk.

(7) a. Who is building a desk?
    b. #What’s this noise?

Reinhart (1995) argued that the non-availability of IP-focus is due to economy. The operation of stress shifting is inevitable if the subject is to be focused. However, IP-focus is available in the focus set of the original utterance, without stress shift. Thus, performing a stress shifting operation will lead to ungrammaticality exactly when it does not have an effect on the interpretation. In particular Reinhart (1995) assumed the following definition of economy violation.

(8) *Economy violation:*

Take fully derived (syntactically and prosodically) structures \(D_i\) and their interpretations \(I_i\) as ordered pairs. \(<D_1, I_1>\) is ruled out as an economy violation if and only if there exists \(<D_2, I_1>\), and \(D_2\) involves less operations (syntactic or prosodic) than \(D_1\).

(cf. Reinhart, 1995:48)

The notion of economy adds a considerable complication to the grammar, because it assumes that expressions are compared with each other. Thus, to determine whether an expression is grammatical or not, it may not be sufficient to examine whether it satisfies all the interface conditions at PF and LF. The expression might be convergent at both interfaces and nevertheless
be ungrammatical, if another expression has the same interpretation but involves less operations. A grammar without such comparison of expressions is less complex then a grammar with comparison. Thus *everything else being equal*, the grammar without comparison is to be preferred on conceptual grounds.

As Bródy (1997b) pointed out, in principle, in a feature-based theory economy considerations are not necessary. There are no optional operations. The presence of a feature always has an effect (triggers movement or accounts for non-canonical stress placement). In those cases where there is no operation observable, by assumption there is no feature present.

To sum up, if it can be shown that the feature-driven account can account for the data presented earlier maintaining the peripherality of phonology and the *Principle of phonology-free syntax*, not assuming economy and without any further assumptions that would complicate the grammar, then the feature-driven account is to be chosen on conceptual grounds.

In the next section I shall develop a feature-driven analysis that accounts for most of the data discussed in the earlier chapters. It will turn out that a feature-based account can only maintain empirical coverage that is similar to that of the stress-based account if additional assumptions are made. In particular, direct PF-LF communication can only be avoided if, in addition to the existence of the [+Focus]-feature, a PF filter is assumed. By the end of this chapter, it will become apparent that the additional assumptions made in the feature-based theory are essentially equivalent to those made in the stress-based account. This result, if true, favours the stress-based account.

### 3 A feature-driven account

As I already described in Chapter 2 Section 3, the standard analysis of the Hungarian left-peripheral focus construction assumes that a [+Focus] feature
(henceforth [+F]) is present on every contrastively focused constituent (cf. Bródy 1990, 1995a; Kenesei 1993; also Laka 1990, Rizzi 1997, Ortiz de Urbina 1999 etc. etc.).

\[(9)\]
\text{[+F] assignment (first version)}

Assign [+F] to a constituent.

It is further assumed that the constituent bearing [+F] receives focus interpretation at LF.

\[(10)\]
\text{[+F] interpretation at LF (first version)}

Interpret the [+F]-marked constituent as focus.

There is also a corresponding functional head, Focus, projected in the functional domain. If the Focus head is strong, as it is in Hungarian, it will trigger overt movement of the constituent bearing [+F]. In a tensed sentence, this is accompanied by V movement to F, thus the focused constituent and the V are adjacent. The data supporting V-movement are sentences that contain verbal modifiers (VM). In Hungarian the default position for VM is preverbal; it is immediately in front of the V. In sentences which have a focused element, the VM follows the V. This is an indication of V-movement.
If the Focus head is weak, as it is in the English example in (12), the focused constituent will remain in situ (at least in the overt syntax).

Although the standard account remained agnostic to the issue of focus-stress correspondence, it can be easily extended to account for the fact that in both English and Hungarian the focused constituent receives main stress. Let
me use a tree-based metrical system where Strong and Weak (S/W) labels are assigned to the binary branching structure and where main stress is on the node that bears S and that is only dominated by nodes bearing S (following Liberman 1979 and Liberman & Prince 1977). To derive the fact that main stress falls on the focused element, all we have to assume is the following (cf. also Kenesei 1993).

(13)  
\[ [+F] \text{ interpretation at PF (First version)} \]
Assign S to the node marked [+F] and to any dominating node.

As (14) and (15) illustrate, the [+F]-based analysis gives the right word order and the right stress pattern in both languages. So, it seems that at first sight, this feature-based approach is empirically comparable to the account presented earlier. At the same time it appears to be conceptually preferable as it conforms to the hypothesis in (2), that there are no principles in the grammar that simultaneously make reference to PF and LF information, while making the two assumptions that there is a [+F] syntactic feature in the grammar and that a corresponding functional projection (FocusP) is projected in the left-periphery of the clause.

(14)  
\[
\text{MARl} \quad \text{hivta fel} \quad \text{Pétert.} \\
\text{Mary-nom} \quad \text{rang VM Peter-acc.}
\]
The first of these assumptions, however, is not without conceptual problems of its own. It poses a problem for the feature-driven account presented above that has to be repaired before we can evaluate the empirical adequacy of the approach on more complex data. Recall the principle of [+F] assignment repeated here for convenience.

\[(16)=(9) \quad [+F] \text{assignment (First version)}\]

Assign [+F] to a constituent.

This principle cannot be stated in Minimalism. In Minimalism there are two ways a node may acquire some property, i.e. a feature. A terminal node may be assigned a feature from the lexicon. A non-terminal node has to inherit its features from its daughters, which created the non-terminal node via merger. This is formulated by as follows (cf. also Chomsky 1995: 228).
Principle of merger

The properties of a non-terminal node are fully recoverable from its daughters.

(Modified from Neeleman & Van de Koot 1999: 480)

In particular the Principle of merger ensures that no information may enter the derivation via a non-terminal node, and thus that all the information present in the tree ultimately comes from a terminal node. It also regulates the spread of information in the tree. It makes sure that information on a terminal node is not available outside the subpart of the tree that dominates the terminal node in question.

Given the Principle of merger, it is not possible for a non-terminal node to possess a [+F]-feature if neither of its daughters have that feature. The solution is to assign the [+F]-feature to terminal nodes, and to allow for its percolation to non-terminal nodes (cf. Selkirk 1984). The reformulated principles of [+F]-assignment and percolation are given below.

(18) [+F] assignment (Second and final version)
Assign [+F] to a lexical item.

(19) [+F] percolation
Allow the percolation of [+F] from a node to a dominating node.

Having changed the assignment principles, the PF and LF interpretative principles have to be amended as well.

(20) [+F] interpretation at LF (Second and final version)
Interpret the largest node marked [+F] as focus.
(21)  

[+F] interpretation at PF (Second version)

Assign S to the largest node marked [+F] and to any dominating node.

Let us now see how this analysis based on lexical assignment of [+F] can account for some of the data presented in Neeleman & Reinhart (1998) and Chapter 2. In (22) the N head ball takes [+F] in the lexicon. [+F] may percolate up the tree onto the NP, the DP, the VP and the IP.

![Diagram](image_url)

According to (20), the largest [+F]-marked node is interpreted as the focus of the utterance at LF. The fact that the utterance in (22) is a possible answer to the context question in (23a) suggests that in this case [+F] percolates up to IP, as illustrated in the diagram in (22). However, as the other context questions indicate, the utterance in (22) can have VP, DP, DO and NP focus as well. This suggests that [+F] may percolate up to different levels: to the IP in the answer to (23a), to the VP in the answer to (23b), to the DP, DO in the answer to (23c) and to the NP, DO in the answer to (23d). In all these cases, the

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Note that the fact that in an out-of-the-blue sentence, the [+F] feature has to percolate up to the IP node, while in a case where there is contrastive focus on the object, the feature stays in situ. This seems counter-intuitive given the general tendency for structure to be minimized in syntax, as it is in the unmarked case where the length of the path of [+F] percolation is maximized.
PF interpretation principle, (21), correctly derives that stress falls on the noun head *ball*.

\[(23)\]

a. What happened?
b. What did John do?
c. What did John kick?
d. What blue object did John kick?

Recall from Chapter 1 that Neeleman & Reinhart (1998) showed that wide focal interpretations are in many cases blocked in English, if the stressed constituent is not in the position where the nuclear stress rule assigns main stress. They argued that this is due to economy. The operation of stress strengthening, which is necessary to allow the element to be focused, is not free. It can only apply if it is necessary, i.e. if it derives focus on an element that was not in the original focus set of the utterance. Thus (24) has the focus set in (25), indicated by the context questions.

\[(24)\]

a. Which ball did John kick?
b. #What did John kick?
c. #What did John do?
d. #What happened?
As it is illustrated in the tree-diagram in (24), the feature-driven approach accounts for the fact that (24) can be uttered as an answer to (25a). Placing [+F] on the adjective blue allows focusing this node at LF. Given the PF interpretative principle, the adjective (and any dominating node) receives S, the adjective being the largest node bearing [+F]. As a result main stress falls on the adjective.

The account also rules out the utterance in (26) as an answer to the context questions in (25b-d). As (26) indicates, if [+F] percolates to any higher node, the largest node marked [+F] will no longer be the terminal node dominating the adjective blue. Thus main stress will fall on the N ball, if any feature-percolation took place.

(26)

\[
\begin{array}{c}
\text{S}^{+[F]} \\
W \\
S^{+[F]} \\
W \\
S^{+[F]} \\
S^{+[F]} \\
\text{John kicked the blue ball.}
\end{array}
\]

As (26) shows, the principles of [+F] interpretation at PF and LF do not overgenerate. Nevertheless, (26) highlights an important issue. Take any terminal node marked [+F] that occupies in a position that is assigned Weak by the NSR, e.g. blue in (26). What justifies the assignment of [+F] to this node? It cannot be that the node is focused at LF, as it is not in (26). It is a dominating node that is focused. It cannot be that the node bears main stress, as it does not, being Weak. All we can say is that any terminal node marked [+F] is contained in the node that is interpreted as focus at LF – part of the focus, as it were.
Take now the terminal node bearing Strong in the DP\textsubscript{DO} in (26): ball. Given the principles of PF and LF interpretation, in (26), this node gets main stress, and is part of the constituent that is interpreted as focus at LF. Thus a node may lack [+F] and still be contained in the node that is interpreted as focus at LF. Thus, [+F] assignment to a terminal node cannot be ‘justified’ by allowing the node to be contained in the focus of the utterance, as that seems possible even for a terminal node without [+F].

Thus, it seems that [+F] does not have any interpretative effect on the terminal node where it enters the derivation. If we allow for syntactic features to do this, we render the notion of Principle of merger (cf. 17) vacuous, as the interpretative effect that [+F] has on a the non-terminal node is not present on the terminal where the feature originated. In other words, if [+F] has no effect on the terminal node, assuming it is there nevertheless, is an unfalsifiable statement.

To conclude, the problem seems to be that (20) and (21), the [+F] interpretative principles at LF and PF both refer to the largest node bearing [+F]. Thus, if feature-percolation applies, [+F] is never actually interpreted on the terminal, lexical node. One possible way to rectify this would be to assume that instead of (21) the principle in (27) regulates the interpretation of [+F] at PF.

(27) \textit{[+F] interpretation at PF (third version –to be abandoned later)}

Assign S to the terminal node marked [+F] and to any dominating node.

This version of the feature-based theory would be welcome from a theoretical point of view, as in this case it is possible to claim that the terminal node bearing [+F] has a property that has the interpretative effect that this terminal node bears main stress at PF.

However conceptually appealing this hypothesis might be, it vastly overgenerates. For example, in (26) the modifier blue bears [+F]. According to
the PF interpretative principle in (27), that node and any dominating node bears $S$, thus main stress falls on this element. Assuming that $[+F]$ may percolate to any dominating node, we derive by the LF interpretative principle in (20) that any constituent containing the modifier, the DP, the VP and the IP can be interpreted as focus at LF. This is incorrect. Wide focus readings are unavailable in (26). Recall that Neeleman & Reinhart (1998) accounted for this by economy considerations. In particular they claimed that wide focus readings are only available in a marked stress pattern if they were unavailable in the unmarked stress pattern, assigned by the NSR.

The way out seems to be to keep (21) as the principle responsible for the interpretation of $[+F]$ at PF, and assume that an additional PF filter is operative in the grammar that correlates $[+F]$ on a terminal node with main stress. The presence of the filter ensures that $[+F]$ does not violate Principle of merger (cf. 17), and together with the principle in (21), it accounts for the data. It rules out those cases where $[+F]$ has percolated from a position where the NSR would not assign stress within the domain where $[+F]$ is interpreted at LF.

(28) NSR filter

* if a terminal node bearing $[+F]$ is dominated by a Weak node.

This filter, together with (21), account for the unavailability of wide focus readings. In (26), if $[+F]$ percolates up to the $\text{DP}_{\text{DO}}$, the VP or the IP, at PF these nodes and any dominating node will receive a Strong label, according to the PF interpretative principle in (21). However, in (26), within the $\text{DP}_{\text{DO}}$ itself, it is the N head that receives $S$ by the NSR. Main stress will fall on this node. Thus (26) with wide focus readings violates the NSR filter in (28), as the terminal node marked $[+F]$, blue, does not receive main stress.

This account also extends to cases of subject focus in English. If the element bearing $[+F]$ is the N head of the subject as in (29), then $[+F]$ may percolate up to the $\text{DP}_{\text{SU}}$. Interpreting $[+F]$ on this node will result in $\text{DP}_{\text{SU}}$
focus, and main stress on the N head. This reading is indeed available in English for an utterance with stress on the nominal head of the subject. The NSR filter is not violated as the terminal node bearing [+F] receives main stress. Further percolation of [+F] to IP, however, is blocked. This is so, as the largest node bearing [+F] in this case would be the IP. The PF interpretative principle in (21) would therefore place main stress on the nominal head of the object, in violation of the NSR filter.

(29)

The account developed so far is empirically comparable to the economy-based account. From a theoretical point of view, it adheres to standard minimalist assumptions as PF information is not directly available at the interface, and there is no comparison of expressions for grammaticality under economy. Nevertheless, it has conceptual shortcomings of its own.

The analysis assumes the following two things at the same time: (i) the largest node bearing [+F] receives S (dominated by Ss) at PF; and (ii) an expression is ungrammatical, if a terminal node bearing [+F] is W. In other words, at PF, there is an interpretative principle and a filter that correlates [+F] with main stress. I have shown above that eliminating the latter results in rendering [+F] interpretively vacuous—an unfalsifiable account. Eliminating the former, on the other hand, has the effect that the account overgenerates, and is thus empirically inadequate. Thus, we are forced to assume both the principle in (21) and the filter in (28) to account for the
correlation between [+F] and stress. A principle may drive operations in the grammar, whereas a filter merely rules out expressions that violate it. Given their different status, there does not seem to be much hope in reformulating (21) and (28) as one single interpretative principle or filter. In contrast, the economy-based account makes one single assumption with regard to the correlation of stress and focus, and, of course, economy.

4 The Inclusiveness condition (Chomsky 1995: 228)

Given that the alternative feature-driven account seems to run into conceptual problems of its own, it is worth investigating the advantages of the stress-based approach. Here, I would like to show that focus is by no means a unique linguistic phenomenon that requires the availability of PF information at the interface. It is also not the case that the stress-based account fully abandons the idea that phonology is does not feed into the conceptual-intentional interface. Rather, I argue that the architecture of the grammar proposed here maintains the motivation behind this idea, while keeping it empirically adequate. By the end of the discussion it will be apparent that in effect, an account that maintains that the conceptual-intentional interface has no access to PF has to give up the Inclusiveness Condition as formulated in Chomsky (1995: 228).

As Jackendoff (1997) argues, there are reasons to assume that at some point phonological and semantic information are both available. This is apparent from the nature of lexical insertion he proposes. In agreement with similar approaches by Di Sciullo & Williams (1987), Halle & Marantz (1993: 122) and others, he assumes that lexical insertion is postponed until S-

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3 See also Bródy (1995) for essentially the same result that prosody and semantics must be in direct communication.
structure (Jackendoff 1997: 86). This is because lexical items are ‘finely individuated’ (Jackendoff 1997: 91) both in phonology and in semantics, but not in syntax. The phonological, and semantic information is not referred to in syntax; why carry it along syntax then? Thus at S-structure, the matching between kæt (the phonological representation of a lexical item) and CAT (the semantic representation) has to be done. But, as Jackendoff argues, this match does not happen via syntax, because the lexical items are not finely individuated in syntax. For this particular item, all the information the syntax needs, and therefore has, is that it is a noun, countable, etc. Thus there phonology and semantics must be allowed to have direct communication.

Jackendoff compares his view of lexical insertion with an alternative that maintains that phonology and semantics only communicate via syntax. This view ‘tracks’ lexical items through the syntax with the help of a diacritic. For the particular example, one may assume that the item kæt/Noun/CAT has index №85 in syntax: kæt/Noun/85/CAT (Jackendoff, 1997:92). This is, however, conceptually inelegant for two reasons. First, each lexical item needs a separate index, a huge burden for storage. Second, this index is never referred to in any sense by a syntactic rule.

Note the close correspondence between this idea and that of a syntactic [+Focus]-feature. [+F] is assumed to ‘track’ focused constituents through the syntax and thus account for the indirect stress-focus correspondence.

Jackendoff (1997: 93-96) gives another argument for direct communication between phonology and semantics. First, lexical items like hello have phonological properties, and semantic properties, but no syntactic properties, e.g. no syntactic category. Thus in order for the phonological form to match the semantic form, a mapping has to be done directly between phonology and semantics.

Jackendoff (1997) also mentions the stress-focus correspondence as an argument for direct PF-LF communication in the grammar. In fact, as I shall show in more detail below, if we take a closer look at other pragmatic notions concerning information packaging, such as topic, discourse-linked
etc., it becomes apparent that they all seem to necessitate direct PF-LF communication, or alternatively, indirect PF-LF communication mediated by an appropriate syntactic feature.

Thus, a third argument in favour of the availability of prosodic phonological information at the conceptual-intentional interface can be given based on marking discourse-linked status in the grammar. Neeleman & Reinhart (1998) argued that in English discourse-linked elements are marked by a destressing operation. As a result, discourse linking can only be marked in a position where main stress falls. In (30) the object is a pronoun, whose unmarked interpretation is discourse-linked. The unmarked pronunciation of (30) is with stress on the V, with a destressed object pronoun.

(30) John saw her.

Thus, in English, discourse linking, a pragmatic information status, is marked by a phonological operation: destressing. This can be stated in a principle as in (31), if our grammar allows direct communication between prosody and pragmatics. Otherwise one has to introduce a feature [+DL] that marks discourse-linked constituents in the lexicon, parallel to the [+F]-feature.

(31) **Anaphoric interpretation principle:**

Material is discourse-linked if it is unstressed.

(cf. Neeleman & Reinhart 1998: 338)

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4 In languages such as Italian, where the stress shifting operation seems unavailable, object pronouns undergo cliticisation. From this perspective, the displacement of the clitic pronoun from the canonical object position may be explained by the need for the pronoun to avoid the position of the main stress. See more on the different ways languages mark discourse-linked status in Chapter 5.
If discourse linking was accounted for by the presence of a [+DL]-feature and focus by [+F], then one would expect that topics get a [+topic]-feature (cf. 32).

(32) As for Professor Jones, I met him at a conference in Athens.
    [+topic]

The focus of the utterance in (32) is at a conference in Athens, the topic is Professor Jones and the presupposition is I met y at x. However, Williams (1997: 614-5) argued that so-called topics in English topicalisation are secondary or embedded foci. Thus the focus of the utterance in (32) is at a conference in Athens and the presupposition is I met Professor Jones at x. Within the presupposition, the focus is Professor Jones and the presupposition is I met y at x. Thus the topic of the utterance, Professor Jones, is the focus of the presupposition: a secondary or embedded focus. This is illustrated in (33).

(33)

Since the topic is the most prominent element within the presupposition both pragmatically and prosodically, it follows that it has secondary stress and that it ties the utterance to previous discourse by identifying what the conversation is about.\(^5\)

\(^5\) The account does not explain why topics appear at the beginning of the utterance in English, if foci are utterance-final. Williams’ (1997) explanation based on the nature of the stress-rule in English, does not generalise over to Hungarian. I will briefly come back to this point in Chapter 6.
Given Williams’ (1997) account of topics as embedded foci, as there is no principled limit to ‘embedding’ foci, tertiary, quartary etc. etc. foci are perfectly possible. This possibility puts serious doubt on the existence of a [+topic]-feature. Even the existence of a [+secondary focus]-feature is doubtful, as that would entail (other things being equal) the existence of [+tertiary focus], etc. etc. (Williams 1997: 610). Rather, Williams links the grammatical representation of secondary (tertiary etc.) foci to their distinctive intonational properties directly.

Thus it seems that many pragmatic notions that relate to the information status of a given element (such as focus, topic, discourse-linked), share the property of being marked by prosodic phonological means. Let me formulate this generalisation as a hypothetical universal.

(34)  *Pragmatics-prosody correspondence hypothesis*

The prosody of an element partially (or fully) determines the information status of the element in discourse.

For (34) to be possible, the grammar has to allow that prosodic phonology feeds not only into the sensori-motoric apparatus, but into the interface with the conceptual-intentional system as well.6

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6 It may be the case that segmental phonology and syllable structure do not influence syntax because they influence morphology. If this was true, the architecture of the grammar proposed here would have to be amended as follows. Morphology and syntax are separate modules. The former maps onto word-level phonology, while the latter maps onto sentential phonology. This conception of the grammar raises many issues that cannot be addressed here. In particular, Does word-level phonology feed the conceptual-intentional system?, Does morphology do so, or do they only communicate with this interface indirectly via sentential phonology and syntax?
Prosodic phonology may have an effect on the interface with the conceptual-intentional system, as well as at the sensorimotoric apparatus. Segmental phonology only feeds the sensorimotoric apparatus.

Recall that if the *Principle of phonology-free syntax* did not hold, one would expect to find languages with rules as follows: If the V starts with a [kʰ] (i.e. aspirated voiceless velar stop), then it undergoes V-to-C movement. I would like to argue that the conceptual motivation behind the *Principle of phonology-free syntax* (cf. 3; Miller et al 1997: 68) stems from the idea that phonological information is not available at the conceptual-intentional interface of the grammar. In other words, to the extent prosodic phonology is demonstrated to be present at the interface, the *Principle of phonology-free syntax* loses support. In particular, if the stress-based theory of focus is on the right track, and our model of the grammar is altered in order to accommodate the principle of stress-focus correspondence in (4), then stress-driven movement (cf. 5) will become immediately available. This is not to say that (5) must be allowed if (4) is allowed, but simply that this is the null hypothesis. To the extent that the principle of stress-focus correspondence (cf. 4) is right, it may be assumed to trigger syntactic movement in Hungarian. Thus, I make the following hypothesis.

\[(36)\quad \text{Weak principle of phonology-free syntax} \]

Phonological information may drive syntactic processes to the extent it may carry information that is relevant at the interface with the conceptual-intentional system.

Crucially, recall from Section 2 that all the evidence for the *Principle of phonology-free syntax* concerned alleged syntactic rules conditioned by segmental phonology or syllable structure rather than information relating to larger prosodic structure, such as the prosodic word, the prosodic phrase
and the intonational phrase (cf. also Inkelas & Zec 1995: 547 for the same claim).\footnote{There are a number of proposals in the literature that establish a case for prosodically conditioned syntax: King (1997a) argues that so-called Slavic long head-movement is rather syntactic movement triggered by the need to host a second position clitic; Neeleman & Weerman (1999) argue that the requirement that the V be in the same phonological phrase as its DP complement triggers the formation of VP-shells in English; stress-driven movement for focus in one form or other has been proposed by Zubizarreta (1998), Büring & Gutiérrez-Bravo (2000) and Costa (2000); Inkelas & Zec (1995) argue that in English HNPS the moved object has to be at least two phonological phrases; finally, Truckenbrodt (1995) argued that extraposition from NP is subject to prosodic constraints on the size of the element undergoing extraposition and also on the size of the material crossed.}

If the account in Neeleman & Reinhart (1998) and Chapter 2 is on the right track, it shows that the hypothesis of the peripherality of phonology, and consequently and to the same extent, the Principle of phonology-free syntax are empirically inadequate, as far as sentential prosodic phonology is concerned. Nevertheless, adopting (36), I subscribe to the hypothesis that information that is irrelevant for the conceptual-intentional system interface is not present in the syntactic computation and may not effect it in any way.\footnote{See Bródy (1997b) for a view of checking theory that eliminates uninterpretable features from the grammar. He thereby reaches the same conclusion that the syntactic representation may not be effected by features that do not have an interpretative effect at the conceptual-intentional interface.} However, I argue that prosodic phonology does not fall into this category.

Having established that prosodic phonological information has to be available at the interface with the conceptual-intentional system, it remains to be seen whether it is possible to encode such information into syntactic
features rather than making it directly available at the interface. In what follows I shall argue that syntactic features that encode pragmatic information status (topic, focus, ground etc.) violate the Inclusiveness condition of Chomsky (1995:228).

As Chomsky (1995: 228) states, ‘a “perfect language” should meet the condition of inclusiveness: any structure formed by the computation [...] is constituted of elements already present in the lexical items selected for N [the numeration]; no new objects are added in the course of the computation apart from rearrangements of lexical properties [...]. Let us assume that this condition holds (virtually) of the computation from N to LF (N → λ)’. At least in the present formulation of the feature-based approach, [+F] violates the Inclusiveness condition, as there is no sense in which bearing [+F] is a lexical property of an item. Thus, [+F] is nothing more then a diacritic introduced into the computation to account for something that does not directly relate to the lexical item bearing [+F].

As I have argued earlier, it is questionable whether these pragmatically motivated syntactic features satisfy Principle of merger, in effect, a weaker form of Inclusiveness. The terminal node marked by the relevant feature does not itself receive the interpretation of bearing the information status of focus, topic, discourse-linked etc. Rather, it is the non-terminal node dominating it that gets that interpretation. Thus, rather than encoding the discourse property, one has to encode the corresponding intonational property on the lexical item: the relevant features would relate to being unstressed, bearing secondary stress etc. etc.

However, a grammar that has features and corresponding filters that encode properties such as unstressed, main stress, secondary stress etc., however, violates Inclusiveness in a very precise sense. Chomsky makes the following remark ‘standard theories take it [the inclusiveness condition] to be radically false for the computation to PF.’ (Chomsky 1995: Ch4 Fn10) He further explains that syllable structure and intonation are clear cases where the inclusiveness condition does not hold. Take main stress. It is not really
the lexical property of the lexical item that it bears main stress. Rather this property follows from its position in the prosodic structure (see Zubizarreta 1998 for the same claim). The syntactic equivalent of these cases would be to introduce features and corresponding filters with the effect that they would rule out expressions where a particular lexical item, bearing the relevant feature, appears in a specifier position or as complement of verbal head.

On the basis of the above discussion, let me conclude that the question between a stress-based and a feature-driven account remains empirical. This is so, as the two conceptual advantages of the feature-driven account, the fact that it maintains that there is no PF information available at the conceptual-intentional interface and that it does not allow for comparison of expressions, can only be retained by introducing conceptually unattractive assumptions. In particular, the feature-driven account can only maintain that PF information is unavailable at the conceptual-intentional interface by the assumption of the existence of the [+F]-feature, which has been shown to have no effects in the grammar other then encoding the availability of PF information at the interface. Although, the feature-driven account does not need to assume comparison of expressions, it may only avoid doing so by assuming a PF-filter (cf. 28) in addition to the PF and LF interpretative principles (cf. 20 and 21). Thus, the grammar has two distinct ways of relating [+F] to stress, in effect, restating the economy consideration.

In addition, the grammar that encodes pragmatic notions by syntactic features consistently violates the Inclusiveness Condition of Chomsky (1995).

In what follows I will attempt to show that in the case of the stress-based account, these assumptions (i.e. availability of PF information at the interface; economy) provide a straightforward explanation for other phenomena without any further assumptions. I will also investigate whether the assumptions of the feature-driven approach (i.e. existence of [+F] plus Focus-head; no Inclusiveness; NSR filter) provide an explanation for other so far not mentioned phenomena. It will become apparent that the empirical
range of the feature-driven approach can only be widened if further assumptions are made.

5 Pied-piping and other phenomena

Recall from Chapter 2 that certain long-standing puzzles in Hungarian syntax received an explanation under the stress-based approach to focus. This is not to say, of course, that it is impossible to account for these facts in a feature-based theory. Simply, extra assumptions are needed to derive them.

First, although focusing in Hungarian normally involves overt movement of the focused constituent to the left-periphery, Verb- focusing appears to involve no movement. The normal order in the verbal complex is VM-V, but the VM is stranded under V-movement, thus giving rise to V-VM order. Under V-focus, the order is VM-V, suggesting that no V-movement took place. I argued in Chapter 2 that this is because the VM-V complex is in the nuclear stress position in an unmarked utterance, thus no movement is necessary to derive focus on V. It receives main stress in situ. Bródy (1990: 212) accounted for the VM-V order under V focus by the following filter.

(37)  **Doubly-filled Focus filter**

Either the F head contains a complex head, or [Spec, FP] is overtly filled, but not both.

(cf. Bródy 1990: 212)

Second, Koopman & Szabolcsi (1998) observed that particle climbing, which is attested in certain Hungarian infinitival complexes, is blocked if a constituent is contrastively focused either in the main clause or in the infinitival clauses (cf. 38a-c). An intervening quantifier or topic does not block climbing, (cf. 38d).
(38)

a. (*Át) A DUNÁT (*át) fogom akarni kezdeni úszni.
   across the Danube-acc across will-I want-to begin-to swim-to
   ‘It is the Danube that I will want to begin to swim across.’

b. ??Át fogom A DUNÁT akarni kezdeni úszni.
   across will-I the Danube-acc want-to begin-to swim-to
   ‘It is the Danube that I will want to begin to swim across.’

c. ??A DUNÁT fogom át akarni kezdeni úszni.
   the Danube-acc will-I across want-to begin-to swim-to
   ‘It is the Danube that I will want to begin to swim across.’

d. “Át fogom a Dunát akarni kezdeni úszni.
   across will-I the Danube-acc want-to begin-to swim-to
   ‘As for the Danube, I will want to begin to swim across.’

The stress-driven approach to climbing and focusing allows a straightforward analysis of the complementary distribution of focused elements and climbed particles. The blocking effect is due to the fact that once focusing happened there is no trigger for climbing. Recall that focus-movement is triggered by the interpretative requirement that the DP gets stressed (cf. Chapter 2 Ex.16), and that climbing happens to ensure that the V does not get stressed (cf. Chapter 2 Section 8). Clearly, focus-movement alone satisfies both its own need to get stressed and the verb’s need not to get stressed. Thus, in sentences with a focused constituent, climbing is ruled out by economy in the sense of Reinhart (1995), an unnecessary operation is blocked.

Koopman & Szabolcsi (1999: 84-85), account for the observed blocking effect as follows. They claim that in their [PredP [WP VM [VP V tVM ]]] sequence
the VP moves to [Spec, PredP] in a neutral clause, thus arriving at a separation of the VM and the V; in non-neutral clauses, however, the WP moves to [Spec, PredP], thus keeping the VM-V order unchanged. It is easy to see that separation of the VM and the V is necessary for climbing, so it will be ruled out exactly in non-neutral clauses. They speculate that the ‘motivation may be ultimately phonological (intonational); the effects are clearly syntactic’ (Koopman & Szabolcsi 1999: 85). My analysis is in line with this claim in that I assume that climbing is indeed phonologically conditioned syntactic movement.

Third, the stress-based account predicts that if there are multiple foci in an utterance, only one may undergo movement to the nuclear stress position. The movement of the second focus is blocked by economy. This focus receives stress by an extra stress assigning rule, whether it moves or not. Thus, its movement would violate economy. The feature-driven account allows for this option. As it is known from constructions involving multiple wh, there are languages that move one wh to the checking position and leave the other one in situ. (39) illustrates this for English.

(39) Who loves who?

Other languages may move both wh-elements, or leave both in situ. Thus the feature-based and the stress-based accounts make different predictions. The feature-driven account predicts a three-way typology of multiple focus constructions: both foci move, neither moves, one moves the other remains in situ. In particular, it predicts that languages exist where both foci appear displaced in a multiple focus construction. The stress-based account predicts that such a language may not exist. As far as I know, there is no description of such a language in the literature. If such languages indeed do not exist, this would provide support for a view where wh and focus are treated differently in the grammar.
Having shown that the stress-based approach to focus explains certain long standing puzzles, let me now investigate whether the feature-based approach can account for some phenomena that do not follow straightforwardly from a stress-based approach.

As the following data illustrate, Hungarian focus movement (cf. 40a) is similar to Hungarian\(^9\) and English \textit{wh}-movement (cf. 40b and c) in that sometimes the moved constituent is bigger than the actual focused or \textit{wh}-element.

(40)
\begin{itemize}
  \item a. \([\text{FP }[\text{DP Használt} \ AUTÓT]} \text{ vettem}.]\]
    \begin{flushleft}
    \textit{second-had} CAR bought-I
    \end{flushleft}
  \item b. \([\text{FP }[\text{DP Melyik autót}] \text{ vetted meg}].]\]
    \begin{flushleft}
    \textit{which car-acc} bought-you VM
    \end{flushleft}
  \item c. \([\text{CP }[\text{DP Whose car}] \text{ did you buy}].]\]
\end{itemize}

Although Horváth (1998: 197) showed that the parallelism between pied-piping in focus and \textit{wh} does not go all the way in Hungarian, according to Ortiz de Urbina (1999: 318), it does so in Basque. Based on the fact that focus and \textit{wh} both exhibit pied-piping, Kenesei (1993: 40) argues that \textit{wh} and focus should be treated alike; in terms of a syntactic \([+wh]\) and \([+F]\)-feature and that pied-piping should be accounted for in terms of feature-percolation.

The parallelism between the focus and \textit{wh}-pied-piping data indeed suggests a unified treatment of pied-piping in both focus and \textit{wh}. However, such a unified treatment only gives further support to an account based on \([F]\)- and \([+wh]\)-features, if pied-piping can be accommodated in terms of these syntactic features without any further assumptions that are not needed

\(^9\) The standard analysis of Hungarian \textit{wh}-movement is that the \textit{wh}-constituent moves to the same position where focused phrases move. In accordance with this, they bear main stress.
in a stress-based approach. In other words, if Kenesei’s (1993) argument is to go through, the possibility of pied-piping in the focus construction should follow from the principles and filters already present in the account based on [+F] plus any further assumptions that the stress-based account would also have to make in order to account for the parallelism between pied-piping in focus and *wh* data.

We shall shortly see that in many cases of pied-piping, the phenomenon cannot be accounted for by the assumption of the existence of a [+F], unless the hypothesis of uniformity of interface conditions (cf. 2) is given up and comparison of expressions is allowed. Let us try to flesh out in more detail the feature-based account of pied-piping.

In the utterance in (39a) the DP\textsubscript{DO} fronted to the left-periphery, to [Spec, FP]. [+F] is assigned to the Noun head autót ‘car-acc’ of the DP\textsubscript{DO}. In order to trigger movement of the DP\textsubscript{DO}, rather than its head, [+F] has to percolate onto the DP\textsubscript{DO} node. But, in that case, the largest node marked [+F] will be the DP\textsubscript{DO}. Thus, according to the PF and LF interpretative principles (cf. 20 and 21), the DP\textsubscript{DO} node will be interpreted as focus at LF, and it will receive S and be only dominated by S at PF. Moreover, given the fact that the Hungarian stress system is S-W not W-S as the English one, placing an S on the DP\textsubscript{DO} will not give us the result of main stress falling on the N head. Instead main stress will fall on the adjective, használt ‘second-hand’.

In order for main stress to fall on the N head, [+F] has to be interpreted at PF on that node, it cannot percolate further up. If that was the case, the correct LF interpretation of the utterance would be derived as well. As (41) shows, the utterance in (40a) can be an answer to the context question in (41a), but not to the questions in (41b-c) indicating that focus on that node is necessarily narrow.
(41) Focus set of (40a): [N]
   a. Használt tévét vettél?
      *Second-hand TV bought-you?*
   b. # Mit vettél?
      *What bought-you?*
   c. # Mi történt?
      *What happened?*

So, it seems that we have two options. First, we may assume that \ [+F\] is allowed to percolate up to the DP\(_{DO}\) in which case we can easily account for the movement of the DP\(_{DO}\) to [Spec, FP], but we are forced to ensure some other way that \ [+F\] is interpreted both at LF and at PF on the \textit{lower} N node. Second, we may assume that \ [+F\] does not percolate to the DP node in (40a), thus accounting for its PF and LF properties correctly. What remains to be answered is what triggers movement of the DP to the checking domain of the Focus head if it does not bear \ [+F\].

Let us see the first option in more detail. It could be implemented by assuming that \ [+F\] on the DP\(_{DO}\) is obligatorily deleted at the Spellout point. However, this is not possible in a minimalist grammar where there is no S-structure, and therefore no principles or rules may refer to the Spellout point. Second, in addition to the LF and PF interpretative principles and the \textit{NSR filter} at PF, we may assume two additional rules that delete at PF and at LF the \ [+F\] on the largest node in the pied-piping case at hand. This could be formulated as in (42) and (43).

(42) \textit{LF Pied-piping rule}
    Delete \ [+F\] on the largest node at LF.

(43) \textit{PF Pied-piping rule}
    Delete \ [+F\] on the largest node at PF.
But if [+F] on the largest node is deleted both at PF and LF, then assuming that it nevertheless precolates to that node is an unfalsifiable statement.

Let us now investigate the other option: assume that [+F] in (40a) is blocked. In this case we can account for the PF and LF properties of the utterance. However, we have to account for the movement of the DP to the checking domain of the F head. One way of doing so would be to assume that movement of the focused constituent is not triggered by [+F], but by some other feature at least in the pied-piping case at hand. This may be possible, but that would mean that we give up the intended parallelism between focus and *wh*.

Alternatively, one may assume that the movement is triggered by [+F] on the node embedded inside the DP. This would require a reformulation of the domain assumed for feature checking in Chomsky (1995). Assuming that this can be done, let me turn to the crucial question that is left open by all the possible accounts of pied-piping accumulated so far: *When* is it possible to move a larger phrase to the checking domain of a head?

Chomsky (1995: 264) suggests that pied-piping happens in those cases where movement of the *wh*-element or the focused element would violate island constraints available in the given language. What pied-piping does, is in effect ‘taking along’ the island with the element that is intended to move.

---

10 This is essentially Horváth's (1998) proposal, according to whom Hungarian focus movement is not triggered by [+F], but by [+exhaustive identification]. In this approach, the stress-focus correspondence is a coincidence in Hungarian. Note that [+exhaustive identification] feature introduces an inclusiveness violation in the same sense as [+Focus] was shown to do so above (cf. Section 3).

In addition, Horváth fails to account for the fact that constituents that undergo movement to check their [+ex. iden.]-feature always receive main stress and focal interpretation.
Note that it is not clear whether it is overall true that pied-piping can always be accounted for by economy considerations. Let me point to one potential problem, namely, optional pied-piping. If it turns out that in some cases pied-piping is truly optional, then an economy account would have to be substantially revised. I enumerate three cases where optional pied-piping seems to happen. A closer study of these cases is left for future research.

It is well-known that English *wh*-movement out of PPs show optional pied-piping.

(44) a. Who did you talk to \( t_{DP} \)?
    b. To whom did you talk \( t_{PP} \)?

Similarly, Hungarian *wh*-movement involving *wh*-possessors seems to show optional pied-piping (cf 45).

(45) a. Kinek a kabátja van a képen?
    *Whose the coat-his is the picture-on*
    b. Kinek van a kabátja a képen?
    *Whose is the coat-his the picture-on*

Following Reinhart (1994: Fn 4), I claim that there is a pragmatic difference between (45a) and (45b). It seems to be the case that in (45a), where pied-piping happened, the proposition is presupposed. In the non-pied-piping case that is not the case. The right context for (45a) is when there is a coat in the picture; in (45b) we are looking for people’s coat and we want to know if they are shown on the picture at all. If this is on the right track, then the examples involving *wh*-possessors do not involve optional pied-piping.

Several languages are reported in the literature to show so-called clausal pied-piping (cf. Hermon 1984 on Quechua; Ortiz de Urbina 1990 on Basque; and Simpson & Bhattacharya 2000 on Bangla). In these cases, a *wh*-word (or
focus) undergoes movement to a designated position inside the embedded clause, while the whole embedded clause gets pied-piped to the matrix \textit{wh} (or focus) position. This illustrated for Bangla in (46a).

\begin{align*}
(46) & \quad \text{a. } \text{Jo}n \ [C_P \text{ ke} \text{ co}l \text{ e} \text{ ge} \text{ che}]_i \ \text{bollo} \ t_i? \\
& \quad \text{John who leave gone said} \\
& \quad \text{‘Who did John say left?’} \\
& \quad \text{(Simpson & Bhattacharya 2000: 9, Ex 25)}
\end{align*}

However, in these cases, an alternative derivation exists, where the \textit{wh}-element in the embedded clause undergoes long \textit{wh}-movement targeting the designated position in the matrix clause. An example is given in (46b).

\begin{align*}
(46) & \quad \text{b. } \text{Jo}n \ \text{ke}t_i \ \text{bollo} \ [C_P \ t_i \ \text{co}l \ \text{ge} \text{che}]? \\
& \quad \text{John who said leave gone} \\
& \quad \text{‘Who did John say left?’} \\
& \quad \text{(Simspon & Bhattacharya 2000: 9, Ex 26)}
\end{align*}

To conclude this side-step, in what follows I will develop an economy-based account for a large body of data involving pied-piping. Whether this account can be extended to the above cases is an open question.

But let us see those cases, where economy seems to be at play. Movement of the nominal head and that of a modifier (or specifier) from a DP violate the ECP both in Hungarian and in English. This is illustrated in (47). Consequently, if any of these elements is focused in Hungarian or is a \textit{wh}-element in either Hungarian or English, the DP is pied-piped.
Since movement of the DP itself does not violate any island constraints, no bigger constituent is effected by pied-piping in (48). In (48a-b) it is shown that adjunct clauses with a pronominal double are not taken along under focus movement in Hungarian. In (48c) it is shown that DP complements of P move without pied-piping the PP along in English wh-questions.

Finally, in languages where so-called split constituents appear, not only the movement of a complement, but the movement of the modifier, the head (or specifier) of the DP is allowed; it does not violate island constraints. As predicted, in these languages these elements may move on their own, without pied-piping. This is illustrated here for Serbo-Croat.
(49) MALOG sam video t\textsubscript{Adj} studenta. (Serbo-Croat; Alex Perovi\'c p.c.)

\hspace{1cm} \text{little aux saw student}

\hspace{1cm} ‘I saw the LITTLE student.’

Thus it appears, that pied-piping is allowed in exactly those cases and to exactly that extent that it avoids an island violation. If this generalisation is true, it can be straightforwardly accounted for by economy considerations. Thus, pied-piping happens if the interpretation that it derives could not have been derived otherwise, for example by moving a smaller constituent. This is stated in (50).

(50) Pied-piping filter

*An expression E\textsubscript{1}: \langle D\textsubscript{1}, I\textsubscript{1} \rangle, if there exist a grammatical expression E\textsubscript{2}: \langle D\textsubscript{2}, I\textsubscript{1} \rangle and E\textsubscript{2} involves no pied-piping.

This filter solves the empirical problem posed by (40a). In particular, in (40a) [+F] does not percolate up to the DP from the N head. The Focus head triggers overt movement of the DP to [Spec, FP]. As a result the [+F] interpretative principles at LF and PF (cf. 20-21) apply to [+F] on the N head, deriving, correctly, main stress and focus interpretation on the N head. Since there exist no other expression with focus and main stress on the N head that does not involve pied-piping, the pied-piping filter (cf. 50) does not apply.

In contrast, in (48a), [+F] does not percolate from the lower segment of the DP to the higher segment. The complex DP moves to [Spec, FP] to check [+F]. [+F] on the lower DP segment is interpreted as focus at LF and as main stress at PF. However, the pied-piping filter (cf. 50) renders this expression ungrammatical, as there exist an alternative derivation, (48a), which also derives focus interpretation on the lower segment of the DP and main stress on the D head, but where no pied-piping applied.

This may be so, but it is important to note that there are two serious conceptual issues concerning the pied-piping filter in (50). First, it violates (2),
the hypothesis that all interface conditions are uniform with respect to the

type of information they contain. The pied-piping filter in (50) makes reference
to the grammaticality of another expression. It is a necessary condition for an
expression to be grammatical to be convergent at both the LF and PF
interfaces. So, the information whether an expression is grammatical is not
available at either of the interfaces, information from both interfaces is
necessary. As a result, the pied-piping filter is not uniform with respect to the
nature of the information (PF or LF) to which it makes reference. Thus, stated
on either interfaces, it violates the hypothesis of uniformity of interface conditions
(cf. 2).

Second, (50) necessitates cross-derivational comparison. In particular, for
each expression one has to compute whether there exist an alternative
expression with the same interpretation that did not involve pied-piping.

Thus, the parallelism of the wh and focus data in terms of pied-piping
does not support a feature-driven analysis. If anything, it supports an
account based on the availability of PF information at the interface and
economy.

So far I have shown that the presence of the syntactic [+F] and [+wh]
features does not provide an account for pied-piping. A further assumption
is necessary to account for the pied-piping data. These assumption cannot be
stated on either the PF or LF interfaces under the uniformity hypothesis and
it involves cross-derivational comparison. Let me now show that it is
possible to account for pied-piping assuming the availability of PF
information at the interface and economy, without the presence of the
syntactic [+F] and [+wh] features. Of course, these features may be assumed,
my claim is only that their presence is not necessary to account for pied-
piping.

The nature of pied-piping reveals a perspective on economy that is not
covered by the definition adapted from Reinhart (1995) repeated here for
convenience.
(51) **Economy violation:**

Take fully derived (syntactically and prosodically) structures $D_i$ and their interpretations $I_i$ as ordered pairs. $<D_1, I_1>$ is ruled out as an economy violation if and only if there exists $<D_2, I_1>$, and $D_2$ involves less operations (syntactic or prosodic) than $D_1$.

(cf. Reinhart, 1995:48)

The definition allows for pied-piping to happen in the cases where it is needed to avoid an island-violation. However, it fails to block it in cases where no island violation is present, such as in (45a and c). The problem stems from the derivational perspective taken by the definition in (51). As it stands it rules out a certain *operation* if it has no effect on the interpretation. It is not concerned with the size of the material that is effected by the operation.

From a representational perspective, following Bródy (1995b, 1997, 2000a,b), the syntactic operation, movement, is rather construed as multiple representation (i.e. copies) of the constituent that undergoes movement and a chain linking these together, as in (52).\(^{11}\) (See also Chomsky’s 1995: 202 copy theory of movement.)

\[
(52) \quad [\alpha \beta_1] \ldots [\alpha \beta_n]
\]

From this point of view economy may be reformulated as follows.

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\(^{11}\) Bródy (1999) assumes that the chain is not actually present in the syntactic representation. I depart from this view here, but this particular difference does not bear on the argumentation presented here.
Representational economy

Take an expression $E_i$ and its interpretation at the PF and LF interfaces as ordered pair, $<E_i, I_i>$. $<E_i, I_i>$ violates representational economy, if there exists a grammatical expression with the same interpretation, $<E'_i, I'_i>$, and $E'_i$ has less structure than $E_i$.

(Following Reinhart 1995: 48)

Let us see if this definition allows for the existence of pied-piping in the cases where it avoids an island violation, and whether it correctly restricts pied-piping to these cases. Recall the English $wh$-pied piping examples repeated here for convenience. I indicate the unpronounced, lower chain members with curly brackets.

(54)

a. *Whose did you see {whose} dog?
   a’. Whose dog did you see {whose dog}?

b. Who did you see pictures of {who}?
   b’. *Pictures of who did you see {pictures of who}?

In (54a’), the omission of the first instance of dog from the expression does not lead to a grammatical expression, as the resulting expression, (54a), violates the Left Branch Condition of (Ross 1967). In contrast, (54b’) is ruled out by Representational economy as omission of the first instance of the elements pictures and of lead to the expression in (54b), which is grammatical and has the same interpretation as the expression in (54b’).

Similarly, in the Hungarian focus and $wh$ pied-piping cases, repeated below, Representational economy rules out exactly those cases where pied-piping was unnecessary.
In (55a’) omission of the first instances of the element a ‘the’ and diákot ‘student-acc’ leads to the expression in (55a), but (55a) is ungrammatical as it violates the Left Branch Condition. Similarly, in (55b’) omission of the first instance of autót ‘car-acc’, as in (55b), leads to ungrammaticality. In contrast, (55c’) violates Representational economy as omission of the clause containing the elements hogy Péter elutazott Kanadába ‘that Peter went Canada-to’ leads to the expression in (55c), which has the same interpretation as (55c’) and is grammatical.

To summarise, I have argued that an explanation for pied-piping in terms of syntactic features violates the hypothesis of the uniformity of interface conditions, and involves cross-derivational comparison. I have also shown that to the extent that it happens to avoid island-violations, pied-piping can be explained by economy considerations, once these are stated in representational terms. Thus, similarities between pied-piping in wh-movement and focus-movement do not provide independent empirical support for a feature-driven account.
6 Language variation

Another potential advantage of the feature-driven approach is that it predicts a certain language variation. In particular, given standard checking theory, a functional head is either strong or weak, and thus movement of the constituent bearing the corresponding syntactic feature is either overt or covert. Thus, it appears that the feature-based theory can account for the difference between Hungarian and English: Hungarian, has overt focus movement, as the Focus-head is strong; English has a weak Focus-head, so focus movement is covert.

In this section, I will briefly argue that the difference between Hungarian and English is not parametric. It is not the case that Hungarian has focus-movement, but no stress strengthening and English has stress strengthening but no movement. Rather it seems that Hungarian has a preference for movement. Stress strengthening does apply, if movement is unavailable for independent reasons. The differences between English and Hungarian suggest that language variation is most appropriately treated in a theory where economy is built into the framework, such as Optimality Theory (cf. Prince & Smolensky 1993). This is given in Chapter 4, where the empirical range is extended to Italian focus.12

Recall from Neeleman & Reinhart (1998) reported in Chapter 1 that in (56) a prosodic operation, stress shifting, applied to derive the intended interpretation indicated by the context question: focus on the subject.

12 In Chapter 5 I also argue that the feature-driven analysis faces a problem when it is extended to Italian. Italian is to some extent like Hungarian and to some extent like English, and this causes problems for a parameter that has two values.
(56)  A: Who is building a desk?
      B: My “NEIGHBOUR is building a ‘desk.

Recall from Chapter 2 that the stress shifting operation is subject to economy. In (57a) subject focus is derived as a result of one stress shifting operation, one instance of the assignment of an S label to the constituent corresponding to the subject on the prosodic tree. (54b) is ungrammatical under the intended interpretation that places focus on the subject, as too many stress shifting operations took place. In particular the operation within the subject DP was unnecessary, therefore ruled out by economy.

(57)

a. Focus set: \{ DP_{the gun} , PP_{with the gun} , DP_{subj} , *IP\}

\[
\text{IntP}_S \\
\phi_S \\
\omega_W \phi_W \\
\omega_S \omega_S \\
[DP \text{The [NP man [PP with the GUN]]} [VP committed [DP the ‘murder]]]
\]

b. Focus set: \{ N_{man} , *DP_{subj} , *IP\}

\[
\text{IntP}_S \\
\phi_S \\
\omega_W \phi_W \\
\omega_S \omega_S \\
[DP \text{The [NP MAN [PP with the gun]]} [VP committed [DP the ‘murder]]]
\]

I would like to concentrate on the following two generalisations that can be made on the basis of this data. First, English makes use of the prosodic
operation stress shifting to derive a marked focus pattern. Second, the prosodic operation stress shift is subject to economy.

Let us now recall from Chapter 2 that Hungarian makes use of a syntactic movement operation to derive marked focus. Rather than shifting the stress to the constituent that is intended to be the focus of the utterance, the constituent itself is moved to the position where the nuclear stress rule assigns main stress (cf. 58). I have also argued in the discussion about pied-piping above that the syntactic operation, movement, is subject to economy.

(58)

\[
\begin{array}{c}
\text{IntP}_S \\
\phi_W \\
\text{IntP}_S \\
\phi_S \\
\omega_S \\
\phi_S \\
\omega_S \\
\omega_W \\
\omega_S \\
\omega_S \\
\omega_S \\
\omega_W \\
\omega_S \\
[FP [DP A nőj [FP [DP a KALAPJAT] vette [VP [le tő] tőDP tőP] [the woman her cap-acc took off]]]
\end{array}
\]

‘It was her hat that the woman took off (not her scarf).’

Thus, it seems that there are two operations available in the grammar, a prosodic one, stress shifting, and a syntactic one, movement, to derive focus patterns that are not in the focus set of the original unmarked utterance. Both of these are subject to economy. Language variation, then, consists of a choice between the two operations.

As the following data illustrate (from Chapter 2), language variation is more subtle than a parametric choice between syntactic or prosodic marked operations. In (59a), the object DP, containing the intended focus of the utterance, the N head of the object, undergoes movement to the left-periphery. In addition, a stress shifting operation is performed within the object DP. The ungrammaticality of (59b) shows that the DP cannot stay in
situ with stress assigned to the N head by more than one stress shifting operations.

(59)

a. 

b. 

As I argued in detail earlier, Hungarian DPs are islands for extraction of the head N. Thus the N head of the object DP cannot move to the focus position. In Hungarian, the DP is pied-piped to the main stress position, and stress strengthening is minimized. In effect, this means that the prosodic operation of stress strengthening is not simply ‘switched off’ in Hungarian. It is only disfavoured with respect to the syntactic movement operation. In
precisely the case where movement alone is unavailable, due to restrictions on extraction, a stress shifting operation is preformed.

Thus, language variation does not seem to be based on parametric choice, rather it seems to be the case that both the syntactic and the prosodic operations are available in both languages, albeit with different weight: stress shifting is preferred in English, while movement is preferred in Hungarian. The framework that is particularly well-suited for accounting for these patterns is Optimality Theory (cf. Prince & Smolensky 1993). Chapter 4 gives an optimality theoretic account of the English, Hungarian data discussed in Chapters 1 and 2 and Neeleman & Reinhart (1998). The Italian focus data, presented in Chapter 4, also fall under the analysis.

7 Conclusion

In this chapter I evaluated the stress-based account from a conceptual perspective. The account makes two major assumptions: PF information is available at the conceptual-intentional interface alongside LF information; there is cross-derivational comparison under economy in the grammar. The issue that I addressed was whether it is possible to account for the data presented in Chapters 1 and 2 and Neeleman & Reinhart (1998) without these assumptions.

As a starting point, I developed an alternative account for the data based on the assumption that there is a syntactic [+Focus]-feature in the grammar. I argued that the empirical coverage of the stress-based account can only be maintained if a certain duplication is allowed: alongside the \( [+F] \) interpretation principle at PF (cf. 21), the NSR filter (cf. 28) is also assumed. This seems problematic as they both relate \([+F]\) to main stress in one way or another.
Next I explored other phenomena that necessitate PF-LF communication in the grammar. I argued that these phenomena raise a conceptual problem. All of these features violate Chomsky’s (1995) *Inclusiveness condition*, thereby introducing another conceptual burden for the feature-based theory.

In comparison, a grammar that allows for the availability of PF information at the interface as far as prosody is concerned is not only empirically more adequate but at the same time it maintains the insight that information that does not feed into the conceptual-intentional interface cannot drive syntactic operations.

Third, I enumerated various phenomena that receive a straightforward explanation under the stress-based approach. I also investigated a suggestion by Kenesei (1993) that the fact that focus and *wh* both exhibit pied-piping gives support to a feature-based treatment of both phenomena. I concluded that at least in some cases, pied-piping can only be explained if PF information is available at the interface and if economy is assumed. Moreover, once this is allowed, no syntactic [+F] or [+wh] feature is necessary to account for the pied-piping facts. I suggested a reformulation of economy based on the principle of Full Interpretation from a representational perspective.

Finally, I showed that language variation between English and Hungarian seems to require an account in a framework where variation is not parametric (i.e. strong/weak Focus-head), rather the result of different rankings of violable constraints, such as in Optimality Theory. A full account of this issue in these terms is given in Chapters 4 and 5.

I would like to conclude that the two major assumptions of the stress-based theory, namely the direct availability of PF information at the conceptual-intentional interface, and that there is cross-derivational comparison under economy, is supported by a wide range of empirical evidence. In comparison, the alternative theory based on the existence of a syntactic [+Focus]-feature is not independently supported by empirical evidence. The feature-based theory is also not superior to the stress-based
theory in terms of conceptual simplicity, as it introduces a duplication in the relation between [+F] and main stress and it violates Chomsky’s (1995) *Inclusiveness condition*. I conclude that the detailed, overall comparison favours the stress-based theory.
CHAPTER 4

COMPETING MODULES

1 Introduction

Selkirk (1984, 1986), Nespor & Vogel (1986), Chen (1987) and many others argued that phonological rules do not operate on the syntactic representation, because the domain of phonological rules is structurally non-isomorphic to the syntactic representation (contra e.g. Cinque 1993). Rather, phonological rules operate on the prosodic representation. Following Jackendoff (1997), I assume that the prosodic and syntactic representations are really two distinct representations, satisfying two independent sets of principles and that it is not possible to derive one representation from the other. Nevertheless, there is a way of relating the two representations, by what is commonly known as the syntax-phonology or syntax-prosody mapping. It is via this mapping that a correspondence is established between the two independent representations. The mapping is, of course, itself based on a third set of principles. Otherwise the syntactic and prosodic representations would be paired up in a random fashion. This is illustrated in Figure 2, which is a zoom-in on the earlier Figure 1 (cf. e.g. Ch 3 Section 2).
In the unmarked case, a well-formed syntactic representation can be paired up with a well-formed prosodic representation in a way that the syntax-prosody mapping principles are satisfied. However, if the grammar has three separate sets of principles (i.e. prosodic, syntactic and mapping), then there is a potential for mismatch. For example, it could be the case that an utterance satisfies all the prosodic and all the syntactic principles, but violates some of the mapping principles. Moreover, it may also be the case that an utterance satisfies all the syntactic and mapping principles violating some of the prosodic ones; or that an utterance satisfies prosodic and mapping principles, while disobeying syntactic ones. So there are potentially three different ways a language may resolve an arising mismatch between the prosodic, syntactic and mapping principles. In other words, there are three different types of marked cases.

As I have already mentioned in Chapter 3 Section 6, and as it will be apparent in the course of this chapter, these three possibilities do not represent a parametric choice. Rather the three options are present in all languages, albeit with different weight. For this reason the framework of Optimality Theory (cf. Prince & Smolensky 1993) is particularly well-suited

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1 This is contra an assumption made by Chomsky (1995: 220), who states that an expression that is convergent at LF and convergent at PF is convergent as a whole.
for the discussion of how languages resolve potential mismatches at the syntax-prosody interface.

In Optimality Theory, principles are assumed to be violable. Each violable principle is represented by a constraint and there is a set of (potentially) grammatical expressions, the candidate set. Each constraint introduces an ordering on the candidate set. This means that the candidate that best satisfies that constraint will be favoured with respect to those that satisfy it less; the least favoured candidate being the one that most violates the constraint. The constraints themselves are not on a par, rather they are ranked with respect to each other.\(^2\) Thus a candidate that satisfies a higher ranked constraint is always favoured over another that violates that constraint, even if the latter candidate satisfies all the lower-ranked constraints. Equally, if all the candidates violate a highly ranked constraint, the best favoured candidate(s) will be the one(s) that least violate it. In each language, the constraints are ranked differently.

In particular, the main claim of this chapter is that the three different sets of principles — syntax, prosody and the syntax-prosody mapping — can themselves be represented by three constraints — SYNTAX, PROSODY, MAP — in a higher-level evaluation at the interface between the grammar and the conceptual-intentional system of the mind. In other words, (certain aspects of) the modules of the grammar may be thought of as higher-level constraints. These constraints are ranked differently in the languages considered here: English, Hungarian and Italian. As a result, potential mismatches are resolved differently in each language.

In the unmarked case, no mismatches arise. In other words, if one takes the set of candidates that are favoured by SYNTAX, the set of candidates that are favoured by PROSODY and the set of candidates favoured by MAP, then there is a candidate that is present in all three of these sets. In other words,

\(^2\) The ranking is not understood to be temporal; thus, ranking of constraints does not correspond to ‘rule ordering’.
the intersection of these three sets is not empty. In this case the higher level evaluation at the interface between the grammar and the conceptual-intentional interface is trivial. The candidate that is optimal under all three constraints separately, will be the overall winner.

Marked utterances arise, when there is no candidate that is favoured separately by all three constraints. In these cases, the higher level evaluation determines which marked option is favoured in that language, based on the language-particular ranking of the constraints. For instance, in a language where SYNTAX is ranked highest, candidates with marked syntactic operations will be outperformed by candidates involving marked prosodic or marked mapping operations. This is not to say that marked syntactic operations will be absent from this language. They will occur, however, only if there is no other way (involving marked prosodic or mapping operations) to derive a particular interpretation, on the basis of the given set of lexical items.

2 Markedness and language variation

Let us make it more precise how the syntax-prosody mapping happens. Let us follow Chomsky (1995) in assuming that a language is a set of well-formed expressions. Each expression exp is an ordered pair of a syntactic and a prosodic representation: exp=<syn, pros>. Let us define the set $E_{LI}$ to contain all the possible expressions in the language, based on a set of lexical items L under a certain interpretation I. In slightly more precise terms, the set $E_{LI}$ is the Cartesian product of the set $S_{LI}$ and the set $P_{LI}$, where $S_{LI}$ is the

---

3 In Section 3 I will give a definition for the notion ‘possible representation’. For now, it suffices to keep the discussion on an intuitive level.

4 It is unclear whether interpretation is in fact directly relevant for the prosodic representations. For consistency I assume that it is.
set of all the possible syntactic representations based on a set of lexical items \( L \), under a certain interpretation \( I \), and \( P_{LI} \) is the set of all the possible prosodic representations, based on the same set of lexical items \( L \), under the same interpretation \( I \).

In particular, if we assume that there is a very simple language, where \( S_{LI} \), the set of possible syntactic representations based on \( L \) under the interpretation \( I \), has only two members, \( \text{syn}_1 \) and \( \text{syn}_2 \), and where \( P_{LI} \) also has only two members, \( \text{pros}_1 \) and \( \text{pros}_2 \), then \( E_{LI} \) in this language will have four members: \( \text{syn}_1 \rightarrow \text{pros}_1 \), \( \text{syn}_1 \rightarrow \text{pros}_2 \), \( \text{syn}_2 \rightarrow \text{pros}_1 \), and \( \text{syn}_2 \rightarrow \text{pros}_2 \).

(1) Hypothetical language \( L_g \):

\[
S_{LI} : \{ \text{syn}_1, \text{syn}_2 \} \quad P_{LI} : \{ \text{pros}_1, \text{pros}_2 \} \quad E_{LI} : \{ <\text{syn}_1, \text{pros}_1>, <\text{syn}_1, \text{pros}_2>, <\text{syn}_2, \text{pros}_1>, <\text{syn}_2, \text{pros}_2> \}
\]

The mapping takes the set of possible expressions, \( E_{LI} \), as its input, and introduces an ordering on it. Those expressions that best satisfy all the mapping principles will be ranked highest, those that introduce more violations will be ranked lower, and those that violate them most will be ranked lowest. This is illustrated in (2) for our hypothetical language. Let us assume that in this language the syntax-prosody mapping favours identical pairs, i.e. 1-1 and 2-2. So, as shown in (2), the expressions containing identical representations will be favoured over the ones involving nonidentical ones.

(2)

\[
E_{LI} : \quad \rightarrow \text{MAP} \quad \rightarrow E_{LI_{map}}: \text{ordered set of exp.-s}
\]

<table>
<thead>
<tr>
<th>INPUT</th>
<th>MAP</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt;\text{syn}_1, \text{pros}_1&gt;)</td>
<td>(\checkmark)</td>
<td>(&lt;\text{syn}_1, \text{pros}_1&gt;): (\checkmark)</td>
</tr>
<tr>
<td>(&lt;\text{syn}_1, \text{pros}_2&gt;)</td>
<td>(\checkmark)</td>
<td>(&lt;\text{syn}_2, \text{pros}_2&gt;): (\checkmark)</td>
</tr>
<tr>
<td>(&lt;\text{syn}_2, \text{pros}_1&gt;)</td>
<td>(\ast)</td>
<td>(&lt;\text{syn}_1, \text{pros}_1&gt;): (\ast)</td>
</tr>
<tr>
<td>(&lt;\text{syn}_2, \text{pros}_2&gt;)</td>
<td>(\ast)</td>
<td>(&lt;\text{syn}_2, \text{pros}_2&gt;): (\ast)</td>
</tr>
</tbody>
</table>
Given that the language described in (1) is very simple, the ordering imposed by the mapping on the set of possible expressions is also rather simple. It has only two levels: good and bad. In principle the ordering could have more levels. But this is immaterial for the discussion; all that matters here is that the mapping introduces an ordering on a set that was previously unordered.

If the syntax-prosody mapping is an ordering on a set of possible expressions, \( \mathcal{E}_{LL} \), then it can be represented as a constraint in the framework of Optimality Theory (cf. Prince & Smolensky 1993). This is so, as a constraint in OT does precisely that: it imposes an ordering on a set, the candidate set. This is illustrated in (3) for the same simplified language that was described in (1).

\[
(3)
\begin{array}{|c|c|}
\hline
\text{MAP} \\
\hline
\prec \, \langle \text{syn}_1, \text{pros}_1 \rangle \\
\langle \text{syn}_1, \text{pros}_2 \rangle & \prec ! \\
\prec \, \langle \text{syn}_2, \text{pros}_1 \rangle & \prec ! \\
\prec \, \langle \text{syn}_2, \text{pros}_2 \rangle \\
\hline
\end{array}
\]

Let us now turn to what a module is. A module is a collection of (inviolable or violable) principles that regulate a certain aspect of a grammatical representation. In particular, the module of syntax takes as its input the set of all the possible syntactic representations, \( \mathcal{S}_{LL} \), based on the set of lexical items \( \mathcal{L} \). For concreteness’ sake, let us assume for now that the set of possible syntactic representations \( \mathcal{S}_{LL} \) based on the set of lexical items \( \mathcal{L} \) contains all the possible syntactic representations where members of \( \mathcal{L} \) are put together by the operations Merge and Chain.\(^5\) The module of syntax

\(^5\) In Section 3, I will assume that the set \( \mathcal{S} \) is in fact more restricted. It does not involve all the syntactic representations that are put together from
determines which one of these possible syntactic representations satisfy the principles in the module. In effect, the module of syntax imposes an *ordering* on the set $S_{LI}$ the set of possible syntactic representations. Those members of $S_{LI}$ that satisfy all the syntactic principles will outrank those that violate one or more principles.

Given that $E_{LI}$ the set of possible expressions is based on the set $S_{LI}$ the set of possible syntactic representations, it follows that the module of syntax imposes an ordering on $E_{LI}$. This ordering is simply based on the ordering imposed by this module on $S_{LI}$. In other words, SYNTAX imposes an ordering on $E_{LI}$ based on properties of the first member of each pair of representations $<$syn, pros$>$.

Similarly, the module of prosody takes as its input the set $P_{LI}$ the set of all the possible prosodic representations based on the set of lexical items $L$ under an interpretation $I$. It imposes an ordering on $P_{LI}$ in a way that those representations that satisfy all the prosodic principles will be ranked highest, the others will be ranked lower. Again, trivially, this entails that the module of prosody imposes an ordering on the set $E_{LI}$ as $E_{LI}$ is based on $P_{LI}$. Thus, $E_{LI}$ is ordered by PROSODY in such a way that the ordering only takes into consideration the second member of each pair of representations $<$syn, pros$>$.

So, the modules of syntax and of prosody, just like the syntax-prosody mapping, impose an ordering on the previously unordered set $E_{LI}$. Thus, these modules can be represented as constraints in the sense of Optimality Theory at a higher level of evaluation. So alongside the constraint MAP one may introduce the constraints SYNTAX and PROSODY.

Crucially, this does not imply that a module itself has to be a set of ‘lower order’ constraints. In other words, the discussion does not entail that the members of $L$ by Merge and Chain, but only those that satisfy inviolable syntactic principles. In particular, all members of $S_{LI}$ contain phrases that are endocentric; no member of $S_{LI}$ has unchecked features; etc. etc.
module of syntax or prosody consists of a set of ranked constraints. This may be so. As I will argue, it is in fact so, in the case of prosody. But this is immaterial for this discussion. As it will become apparent in the discussion in Section 3, the inviolable principles of each module are satisfied by all the members of the set \( E_{11} \) by definition. I will return to the description of the principles of each module that are relevant for the evaluation by the constraints SYNTAX, PROSODY and MAP in Section 3. But for now, suffice it to say that following the discussion of representational economy in Chapter 3, I take it that syntax has at least one violable principle, which ensures that structure is minimal.

In principle, it could be the case that a module is a set of only inviolable principles. Then it would impose a rather ‘strict’ ordering on the input set. In particular, it would impose a two-level ordering: grammatical vs. ungrammatical. So, the nature of the imposed ordering depends on the nature of the module. But whatever the nature of the module, it holds that a module introduces an ordering on a previously unordered set, so the module as a whole can be represented as a constraint at a higher-level evaluation.

Let us return to our hypothetical language. Let us assume that the relevant syntactic principles in this language are such that \( \text{syn}_1 \) is preferred to \( \text{syn}_2 \). Recall from Chapter 3 that representational economy was assumed to be a key property of the syntactic representation. So, one possible reason why SYNTAX prefers \( \text{syn}_1 \) over \( \text{syn}_2 \) could be that \( \text{syn}_1 \) involves less structure than \( \text{syn}_2 \). This state of affairs is shown in (4).

\[
\begin{array}{c|c|c}
E_{11} & \rightarrow \text{CONSTRAINT} \rightarrow & E_{\text{syn}}: \text{ordered set of exp.-s} \\
\text{INPUT} & \text{SYNTAX} & \text{OUTPUT} \\
<\text{syn}_1, \text{pros}_1> & <\text{syn}_1, \text{pros}_1>: \checkmark \\
<\text{syn}_1, \text{pros}_2> & <\text{syn}_1, \text{pros}_2>: \checkmark \\
<\text{syn}_2, \text{pros}_1> & <\text{syn}_2, \text{pros}_1>: * \\
<\text{syn}_2, \text{pros}_2> & <\text{syn}_2, \text{pros}_2>: * \\
\end{array}
\]

Let us further assume that in this language PROSODY imposes a
different ordering on the set of possible expressions (based on the set of lexical items L and under the interpretation I). It favours \text{pros}_2 over \text{pros}_1. This is shown in (5).

\text{(5)} \hspace{1cm} \begin{array}{l}
E_{\text{LI}} \\
\rightarrow \text{CONSTRAINT} \rightarrow \text{PROSODY} \\
\text{INPUT} \hspace{1cm} \text{OUTPUT} \\
<\text{syn}_1, \text{pros}_1> \hspace{1cm} <\text{syn}_1, \text{pros}_2>: \checkmark \\
<\text{syn}_1, \text{pros}_2> \hspace{1cm} <\text{syn}_2, \text{pros}_2>: \checkmark \\
<\text{syn}_2, \text{pros}_1> \hspace{1cm} <\text{syn}_1, \text{pros}_1>: * \\
<\text{syn}_2, \text{pros}_2> \hspace{1cm} <\text{syn}_2, \text{pros}_1>: *
\end{array}

Recall from (2) that in this language MAP favours matching pairs (i.e. 1-1 and 2-2) over non-matching ones. It is easy to see that we have a potential problem here. SYNTAX, PROSODY and MAP introduce three different orderings on the same set. In particular SYNTAX favours expressions of the type \text{syn}_1 – \text{pros}; PROSODY favours \text{syn} – \text{pros}_2; and MAP favours \text{syn}_1 – \text{pros}_1 and \text{syn}_2 – \text{pros}_2. Although any two of these orderings are compatible, there is no expression in the language that is favoured by all three of them. Instead, we get a mismatch of the three sets of principles that govern SYNTAX, PROSODY and MAP.

So, how does the grammar resolve the mismatch? Recall from (3), (4) and (5) that syntax, prosody and the syntax-prosody mapping operate in a way that each imposes an ordering on the set of possible expressions \(E_{\text{LI}}\). Recall also, that something that imposes an ordering on a previously unordered set can be represented by a constraint (cf. Prince & Smolensky 1993). In this chapter, I argue for two claims. The modules of the grammar can be represented as constraints in a higher level evaluation: SYNTAX, PROSODY and MAP. Furthermore, language variation in marked focus patterns can be accounted for if the constraints are ranked in an OT fashion. So, the mismatch illustrated above is resolved differently in different languages.

In particular, if our simplified language had the ranking SYNTAX \(<>\) MAP \(>>\) PROSODY, then the mismatch would be resolved in the following
way. MAP favours identical pairs of representations. SYNTAX favours an expression with syn$_1$. As a consequence, out of the two identical pairs, syn$_1$ – pros$_1$ is chosen as the optimal candidate. As the tableau in (6) reveals, this candidate is not optimal under the constraint PROSODY. Nevertheless it wins, given that PROSODY is ranked lowest of the constraints in this language. In Section 3 I will show that this ranking applies in English.

(6)  

<table>
<thead>
<tr>
<th></th>
<th>SYNTAX</th>
<th>MAP</th>
<th>PROSODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;syn$_1$, pros$_1$&gt;</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&lt;syn$_1$, pros$_2$&gt;</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;syn$_2$, pros$_1$&gt;</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&lt;syn$_2$, pros$_2$&gt;</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Similarly, if our hypothetical language had the ranking MAP >> PROSODY >> SYNTAX, then the following result would be obtained. MAP favours identical pairs, and PROSODY favours expressions that involve pros$_2$. So, syn$_2$ – pros$_2$ is chosen as the optimal candidate under this ranking. Admittedly, this candidate is not optimal under SYNTAX, however SYNTAX is ranked lowest among the constraints in this language. I will argue in Section 4 that this ranking corresponds to Hungarian.

(7)  

<table>
<thead>
<tr>
<th></th>
<th>MAP</th>
<th>PROSODY</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;syn$_1$, pros$_1$&gt;</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>&lt;syn$_1$, pros$_2$&gt;</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>&lt;syn$_2$, pros$_1$&gt;</td>
<td></td>
<td>*!</td>
<td>*</td>
</tr>
<tr>
<td>&lt;syn$_2$, pros$_2$&gt;</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

Finally, in Section 5 I will show that the ranking PROSODY >> SYNTAX >> MAP applies in Italian. If this ranking applied in our simplified language
the following result would be obtained. PROSODY favours an expression with pros\textsubscript{2}. SYNTAX favours an expression with syn\textsubscript{1}. So, syn\textsubscript{1} \dashv pros\textsubscript{2} is the optimal candidate under the ranking, even though it does not satisfy MAP.

(8) \textit{Language C}

<table>
<thead>
<tr>
<th></th>
<th>PROSODY</th>
<th>SYNTAX</th>
<th>MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>$&lt;$syn\textsubscript{1}, pros\textsubscript{1}$&gt;$</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\textit{F} $&lt;$syn\textsubscript{1}, pros\textsubscript{2}$&gt;$</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$&lt;$syn\textsubscript{2}, pros\textsubscript{1}$&gt;$</td>
<td>*!</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>$&lt;$syn\textsubscript{2}, pros\textsubscript{2}$&gt;$</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

To summarize, I argued that if a mismatch appears between the syntactic module, the prosodic module and the syntax-prosody mapping, it is a language particular choice which one is violated. In English, prosodic requirements are sacrificed to obtain an optimal syntactic representation and an optimal mapping. In Hungarian, prosodic and mapping requirements are observed, while syntactic requirements may be violated. Finally, Italian violates the mapping principles most easily.

3 The constraints and the candidate set

In Section 2 I argued that the modules of the grammar may be thought of as constraints in the Optimalty Theoretic sense of the word and that different languages rank these constraints differently. As a result, potential mismatches resulting from the constraints corresponding to the modules are resolved in a different way in the different languages. This is formulated as follows.
The principles in a module (syntax, prosody, syntax-prosody mapping) impose an ordering on the set of possible expressions, $E_{LI}$, based on the set of lexical items $L$, under the interpretation $I$.

Each ordering imposed on $E_{LI}$ may be represented by a constraint (i.e. SYNTAX, PROSODY and MAP respectively) at a higher level evaluation.

An expression $exp_{LI}$ is well-formed if it is optimal in the evaluation under the ranked constraints SYNTAX, PROSODY and MAP.

The constraints SYNTAX, PROSODY and MAP are ranked differently in different languages.

Thus, I propose the following architecture of the grammar, depicted\(^6\) in Figure 3. Let us now discuss the components of such a grammar in turn.

---

\(^6\) This conception of the grammar is similar in spirit to the Representation Theory of Williams (2000).
Let us start by defining the candidate set on which the constraints operate during the evaluation, $E_{LI}$. I assume that there is a generator GEN that takes as its input a set of lexical items, $L$, and produces possible syntactic and prosodic representations based on this set $L$ under a given interpretation $I$ (cf. e.g. Fox 1994; Reinhart 1995; Grimshaw 1997). The output of GEN is the set $E_{LI}$, which contains all the possible pairings of syntactic and prosodic
representations. But what counts as a ‘possible representation’ or ‘possible pairing’? I assume that GEN produces all and only those syntactic and prosodic representations that satisfy the non-violable syntactic and prosodic representations. Furthermore, each pair of representations formed by GEN satisfies the non-violable mapping principles.

(13) GEN produces all and only those expressions that satisfy the non-violable syntactic, prosodic and mapping principles (based on a set of lexical items L under an interpretation I).

So, GEN produces syntactic structures where all the commonly known syntactic conditions hold. In particular, the input set defined by GEN does not contain structures that are not endocentric, where there are ungoverned traces, where there are anaphors that lack a c-commanding, local antecedent, where there are unchecked features etc. etc. For a more precise delimitation of what count as ‘core’ syntactic principles, see Neeleman & Van de Koot (2000).

In line with the discussion in Chapter 3, I assume that the grammar allows for syntactic chain formation that is not feature-driven. Thus, I assume that GEN allows for the formation of an infinite number of syntactic structures for any set L, involving more and more instances of chains. As we shall shortly see, the constraint SYNTAX regulates the occurrence of chains in the spirit of representational economy (cf. Chapter 3, Section 5).

As far as prosodic structure is concerned, GEN produces all the possible structures that conform to the prosodic hierarchy: intonational phrase > phonological phrase > phonological word. This condition is known as the Strict Layer Hypothesis.\(^7\) The Strict Layer Hypothesis is in some sense the

\(^7\) Contrary to standard practice in prosodic theory, I take recursive prosodic structure (cf. i) to be allowed by the Strict Layer Hypothesis (cf. also Truckenbrodt 1999 for a similar view). As it will be made clear below, the
counterpart of conditions ensuring endocentricity and projection in syntax.

Recall that following Reinhart (1995) and Neeleman & Reinhart (1998) I argued that the following interpretative principles hold universally.

(14) **Stress-focus correspondence principle:**
The focus of a clause is any syntactic constituent that contains the main stress of the intonational phrase corresponding to the clause.

(Following Reinhart 1995:62)

(15) **Anaphoric interpretation principle:**
Material is discourse-linked if it is unstressed.

(cf. Neeleman & Reinhart 1998: 338)

There is no constraint corresponding to the grammar-pragmatics mapping representing the principles in (14) and (15). Rather, the input set generated by GEN has to take into account the intended interpretation of the expression. Hence the proposal that the input set is defined under a particular interpretation I. Given that pragmatics is not part of the Fodorian module of language, but part of what he calls the central systems, it is to be expected that the grammar–pragmatics mapping is not part of the evaluation of constraints inside the grammar.\(^8\)

Let us now take each constraint in turn. Recall that in Chapter 3 Section 5 I argued that representational economy regulates syntactic structure occurrence of recursive prosodic structure is regulated by the violable prosodic constraints.

\[
(i) \quad [[ \phi \hat{\phi}_{\text{IntP}} \hat{\phi}_{\text{IntP}} ]]
\]

\(^8\) The mapping between the grammar (as a whole) and pragmatics is not a mapping between two distinct representations. Rather, the latter is derived from the former by mapping principles such as (14) and (15)
building. In the model of grammar presented here, representational economy reduces to a single violable syntactic principle, given in (16).

(16)  *Structure
No structure. (Violated by each node in the structure.)

(cf. Prince & Smolensky 1993)

(16) is possibly only one of many violable principles making up the constraint SYNTAX.\(^9\) However, for reasons of clarity of presentation, this is the only principle considered here. Given that each node in the structure violates (16), chain-formation is not favoured by SYNTAX. A syntactic chain involves merger of a copy of the constituent forming the chain. Thus, chain formation introduces extra structure. In particular, phrasal adjunction introduces at least two new nodes: one by the merged copy of the phrase and one immediately dominating it (cf. 17b). Movement to a Spec position, on the other hand, introduces at least four new nodes in the tree: the one by the merged copy of the phrase, one by the head hosting the phrase, one by the intermediate projection of this head, and one by the maximal projection of this head, immediately dominating the copy of the phrase (cf. 17c).\(^{10}\)

\(\text{---}\)

\(^9\) In fact, it might also be the case that the principle in (16) is in itself only a shorthand for many separate principles. In particular, minimal structure can be ensured in syntax with the following set of rankable OT-type constraints. For reasons of clarity this possibility is not spelt out here in more detail.

\(^{10}\) This is under the assumption, already spelt out in Chapter 2 Section 10, that functional heads are not present in the structure unless they are members of a chain that contains lexical material.
This is not to say that chain-formation never happens. Simply, it either happens to satisfy an inviolable principle (i.e. feature-driven chains) or in order to derive an interpretation that is otherwise unavailable. In both cases, it violates the principle in (16). However, feature-driven chains are irrelevant for the evaluation, as all the candidates in the candidate set generated by GEN involve the same features in the same positions, triggering the formation of the same chains. As a result of the evaluation, the formation of non-feature-driven chains is minimised, i.e. it only happens if there is no cheaper alternative, involving less extra structure. The following shorthand may be used to provide a guide-line for evaluating the candidates with respect to the principle \( *\text{Structure} \).

(18)

a. If an XP is adjoined to a maximal projection (on the left or right), the additional number of violations on \( *\text{Structure} \) is the number of nodes dominated by XP plus two.
b. If an XP is copied and merged in a Spec position (left or right). The additional number of violations on \( *\text{Structure} \) is the number of nodes dominated by XP plus four.

Given that, by assumption, \( *\text{Structure} \) is only principle that is relevant for the evaluation of SYNTAX, the ordering imposed by SYNTAX follows the ordering imposed by \( *\text{Structure}.^{11} \) In particular, the candidate that has the least violations on \( *\text{Structure} \) will have the smallest number of violations on

---

\( ^{11} \) Recall that SYNTAX represents only the \textit{violable} syntactic principles.
the higher level constraint SYNTAX. For concreteness' sake, let us assume it has no violation. The candidate that comes second under \(^*\text{Structure}\) will come second under SYNTAX. In particular, it will have one violation on SYNTAX. The candidate that comes third under \(^*\text{Structure}\) will induce two violations on SYNTAX. And so on, and so forth. Finally, the candidate that fares worst with respect to \(^*\text{Structure}\) will have the largest number of violations on the higher level constraint SYNTAX.\(^{12}\)

Let us turn to the mapping between prosody and syntax. Following McCarthy & Prince (1993) and others, I argue that MAP states that the left and right edges of the intonational phrase have to be aligned with the corresponding edges of the clause. The clause is understood to be the largest extended projection of the verb (cf. 19). This is in line with the mapping principles proposed in Chapter 2 Section 4. However, some of the mapping principles mentioned there are omitted here for reasons of clarity of presentation.

\[(19) \quad \text{a. ALIGN (clause, L; IntP, L)}
\]

Align all the left-edges of the largest extended projection of the V with the left-edge of an intonational phrase.

\(^{12}\) At this point, it might seem to be the case that given the principle \(^*\text{Structure}\), the null parse candidate will always be the optimal candidate under SYNTAX. This however is not the case, given that each candidate is considered under a particular interpretation I. For instance, note that the null parse candidate does not contain a stressed element, and therefore, by the Stress-focus correspondence principle, does not have a focus. Under the assumption that each utterance has a focus, the null parse candidate will never be in the candidate set under any interpretation I. In other words, we successfully derive the age-old wisdom that if one does not have anything new to say, one had better not say anything.
b. ALIGN (IntP, L; clause, L)
Align all the left-edges of the intonational phrase with the left-edge of the the largest extended projection of the V.

c. ALIGN (clause, R; IntP, R)
Align all the right-edges of the largest extended projection of the V with the right-edge of an intonational phrase.

d. ALIGN (IntP, R; clause, R)
Align all the right-edges of the intonational phrase with the right-edge of the the largest extended projection of the V.

For our present purposes, the proposed principles do not need to be ranked with respect to each other. So, when calculating the violations on the higher-level constraint MAP, I simply add up the violations caused on each principle. Given this formulation of the mapping principles (that are relevant for present purposes), MAP can be violated in four different ways.

(20) MAP is violated…
    a. if the left-edge of the intonational phrase is not aligned with the left-edge of the extended projection of the verb.
    b. if the left-edge of the extended projection of the verb is not aligned with the left-edge of the intonational phrase.

(21) MAP is violated…
    a. if the right-edge of the intonational phrase is not aligned with the right-edge of the extended projection of the verb.
    b. if the right-edge of the extended projection of the verb is not aligned with the right-edge of the intonational phrase.

Finally, let me take a closer look at prosody. Following McCarthy & Prince (1993), Prince & Smolensky (1993), Pesetsky (1998), Truckenbrodt (1999) and many others I take the prosodic module to be based on violable,
ranked principles in an OT fashion. Note that these constraints, are not on a par with the constraints MAP, SYNTAX and PROSODY. They are lower order constraints within prosody itself. These constraints act on the set \( P_L \), the set of possible prosodic representations based on the set of lexical items \( L \) under the interpretation \( I \). In particular, I propose that the following constraints are operative in prosody.

Following the discussion of prosody in Chapter 2 Section 4 I assume that prosodic structure is made up of intonational phrases, formed by a group of phonological phrases, which themselves are formed by phonological words. The following two constraints ensure that the entire string is parsed into the prosodic structure. As directionality is typically important in phonology, there are two such constraints. The first of these is ranked high in the languages considered in this chapter.

\[
(22) \quad \text{ALIGN (utterance, } L; \text{IntP, } L) \\
\text{Align the left-edge of every utterance with the left-edge of an intonational phrase.}
\]

---

13 The inviolable principles in prosody are assumed to be part of GEN. Thus, all the structures supplied by GEN, i.e. all the candidates in the input for the evaluation, satisfy these.

14 These constraints are parallel to McCarthy & Prince’s (1993) generalised alignment constraints acting on a smaller domain of prosodic structure. For instance, \( \text{ALIGN (Pwd, } L; \text{ Ft, } L) \) ensures that there are no extrametrical syllables on the left-edge of the leftmost foot inside the prosodic word, as it states that the left-edge of every prosodic word has to be aligned with the left-edge of a foot (cf. McCarthy & Prince 1993: 13).

15 Note that there is in fact a universal tendency to disallow left-peripheral extrametricality (cf. Van der Hulst 1999: 34).
(23) **ALIGN** (utterance, R; IntP, R)
Align the right-edge of every utterance, by the right-edge of an intonational phrase.

The following constraints ensure that stress is peripheral\(^{16}\). These constraints are ranked differently depending on the directionality of stress in a given language. In Hungarian, LAS is ranked higher than RAS to ensure leftward oriented stress. In contrast, in Italian and English, the ranking is RAS >> LAS, to ensure rightward oriented stress.

(24) **RIGHT-ALIGN STRESS** (RAS)
   a. Mark the rightmost phonological word in a phonological phrase by phrasal stress.
   b. Mark the rightmost phonological phrase in the intonational phrase by main stress.

(25) **LEFT-ALIGN STRESS** (LAS)
   a. Mark the leftmost phonological word in a phonological phrase by phrasal stress.
   b. Mark the leftmost phonological phrase in the intonational phrase by main stress.

The generalisation that can be made for the prosodic constraints is the following.

\(^{16}\) Note that LAS and RAS are each a shorthands for two constraints. These are given in their precise formulation in Chapter 2 Section 4. This is for the sole reason to ease presentation. For the same reason, I assume that in all the candidates that I discuss, phrasal stress falls on the rightmost phonological word in those phonological phrases that do not bear main stress.
(26) **ALIGN** (utterance, L; IntP, L) and **ALIGN** (utterance, R; IntP, R) are violated, if a phonological phrase is extrametrical on the left/ right.
i.e. $\phi [\text{IntP} \phi \phi \phi] \text{ or } [\text{IntP} \phi \phi \phi] \phi$

(27) RAS and LAS are violated…
a. if there is a phonological word intervening between the phonological word bearing phrasal stress and the the left/ right-edge of the phonological phrase.
i.e. $[\omega \omega \omega \omega \phi] \text{ or } [\omega \omega \omega \omega \phi]$
b. if there is a phonological phrase intervening between the phonological phrase bearing main stress and the the left/ right-edge of the intonational phrase.
i.e. $[\text{IntP} \phi \phi \phi \phi] \text{ or } [\text{IntP} \phi \phi \phi \phi]$

Given that the constraints **ALIGN** (utterance, L; IntP, L), **ALIGN** (utterance, R; IntP, R), RAS and LAS are constraints acting on on the set $P_{LI}$, the set of all possible prosodic representations, they jointly impose an ordering on that set. The violations on PROSODY are determined by this ordering (in accordance with 10), in a way that PROSODY orders $E_{LI}$ by the properties of the second member of each expression $<\text{syn}, \text{pros}>$. Thus the candidate that is optimal under **ALIGN** (utterance, L; IntP, L), **ALIGN** (utterance, R; IntP, R), RAS and LAS, will have the smallest number of violations on the higher-level constraint PROSODY. In particular, let us assume it has no violation. The candidate that comes second with respect to the constraints in (22)-(25), will come second under PROSODY. In particular, it will have one violation on PROSODY. The candidate that comes third in the evaluation within prosody will induce two violations on PROSODY. And so on and so forth. Finally, the candidate that fares worst under the prosodic constraints will have the largest number of violations on PROSODY.
4 English

4.1 The English unmarked utterance

Recall from Section 1 that the ranking proposed for English is the following.

\[(28) \quad \text{SYNTAX} \prec \text{MAP} \prec \text{PROSODY}\]

As (29) illustrates, an English unmarked utterance under a wide focus interpretation has right-peripheral stress.

\[(29) \quad \text{What is the noise?}\]
\[\quad \text{a. } \text{Fred's neighbour is building a DESK.}\]
\[\quad \text{b. } \#\text{Fred's NEIGHBOUR is building a desk.}\]

The following notation is used in the tableaus in this chapter. The interpretation relevant for the Stress-focus correspondence principle and the Anaphoric interpretation principle is indicated in the top lefthand corner of the tableaus. Each candidate has two separate representations: one prosodic, the other syntactic. Main stress is indicated in the prosodic representation with SMALL CAPS. Phrasal stress is indicated with a single quote: ‘; while unstressed material is indicated with italics. Focus is indicated with underlining. Although the lower member of a syntactic chain is understood to be a full copy of the higher member of the chain with respect to *Structure, in line with general practice I only included coindexed traces in the syntactic representations. As a final point, the evaluation of the candidates is explained step by step, introducing one constraint at a time. Those candidates that are disharmonic under a higher ranked constraint, are omitted from the subsequent tableaus. For ease of reference the candidates are numbered.

Let us now see whether the ranking in (28) derives (29).
The candidates 1-6 in the tableau in (30a) do not involve any syntactic chain formation. As a result, they have a minimal number of violations on SYNTAX. Note that these candidates have different prosodic structures. This, however, is irrelevant for the evaluation under SYNTAX, as SYNTAX orders the candidate set with respect to the first members of the ordered pairs <syn, pros>.

(30a) English unmarked utterance (SYNTAX) Candidates 1-6

<table>
<thead>
<tr>
<th>Focus= IP</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[{(Fred's) (neighbour) _} {is building) (a DESK) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
<tr>
<td>2</td>
<td>[{(Fred's) (neighbour) _} {is BUILDING) (a desk) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
<tr>
<td>3</td>
<td>[{(Fred's) (NEIGHBOUR) _} {is building) (a desk) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
<tr>
<td>4</td>
<td>[{(FRED's) (neighbour) _} {is building) (a desk) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
<tr>
<td>5</td>
<td>[{(Fred's) (neighbour) _} {is building) (a DESK) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
<tr>
<td>6</td>
<td>[{(Fred's) (neighbour) _} {is building) (a DESK) _} _^{\text{intP}}] [Fred's neighbour _^{\text{DP}}] is [building [a desk _^{\text{DP}}] _^{\text{VP}}] _^{\text{IP}}</td>
</tr>
</tbody>
</table>

The candidates 7-9 involve a phrasal adjunction of the DP_{SU} to IP on the right. As a result candidates 7-9 place five extra violations on *Structure compared to the violations placed by candidates 1-6. This is so, because the

\[\text{Note that the following candidates are also members of the candidate set. I omitted them as they involve stress shift within a phonological word. In this work I ignore prosodic operations inside the phonological word.}\]

(i) \[\{(My) (neighbour) \_\} \{is building) (a desk) \_\} \_^{\text{intP}}\]

(ii) \[\{(My) (neighbour) \_\} \{is building) (a desk) \_\} \_^{\text{intP}}\]
Chapter 4: The three-way typology

adjoined DP dominates (at least) three nodes, D, [Spec, DP], N(P); in addition, there are two extra violations on *Structure by the two nodes created by the adjunction, the copy of the DP and the higher segment of the IP (cf. 18a). As candidates 7-9 are outperformed by candidates 1-6 under SYNTAX, they will no longer be considered here to ease presentation.

(30b) English unmarked utterance (SYNTAX) Candidates 7-9

<table>
<thead>
<tr>
<th>Focus= IP</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td><img src="image1" alt="Candidate 7" />. <img src="image2" alt="Violation" />.</td>
</tr>
<tr>
<td>8</td>
<td><img src="image3" alt="Candidate 8" />. <img src="image4" alt="Violation" />.</td>
</tr>
<tr>
<td>9</td>
<td><img src="image5" alt="Candidate 9" />. <img src="image6" alt="Violation" />.</td>
</tr>
</tbody>
</table>

The remaining candidates (cf. 10-13) involve phrasal movement of the DP_SU to a rightward oriented Spec position. The Spec position is licensed by the lexicalisation of the functional head by movement of I in the spirit of the discussion in Chapter 2 Section 10. Given that the head of the chain is a Spec position, candidates 10-13 introduces seven violations on *Structure. The seven violations are made up from the five violations also present in candidates 7-9 and the two extra violations caused by the head and the intermediate projection of the new projection (cf. 18b). Candidates 10-13 are outperformed by candidates 1-6 under the evaluation under SYNTAX, so they need not be considered any longer in the overall evaluation.
In the tableau in (31) candidates 1-6 are compared under MAP. The 5th and 6th candidates violate MAP, as their syntactic representation involves one single IP, while their prosodic representation has recursive intonational phrases. Thus, the lefthand innermost [IntP] bracket in the case of candidate 5 and the righthand innermost [IntP] in the case of candidate 6 violate MAP in the sense given in (20a) and (21a) respectively. Thus, candidates 1-4 survive under the joint ranking of SYNTAX and MAP.
Focus = IP

<table>
<thead>
<tr>
<th></th>
<th>Focus= IP</th>
<th>SYN-TAX</th>
<th>MAP</th>
</tr>
</thead>
</table>
| 1 | $[(\text{Fred's}) (\text{neighbour}) \phi] \{ (\text{is building}) (a \text{ desk}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         |     |
| 2 | $[(\text{Fred's}) (\text{neighbour}) \phi] \{ (\text{is BUILDING}) (a \text{ desk}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         |     |
| 3 | $[(\text{Fred's}) (\text{NEIGHBOUR}) \phi] \{ (\text{is building}) (a \text{ desk}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         |     |
| 4 | $[(\text{Fred's}) (\text{neighbour}) \phi] \{ (\text{is building}) (a \text{ desk}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         |     |
| 5 | $[(\text{Fred's}) (\text{neighbour}) \phi] \{ (\text{is building}) (a \text{ DESK}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         | "!"
| 6 | $[(\text{Fred's}) (\text{neighbour}) \phi] \{ (\text{is building}) (a \text{ DESK}) \phi \}_\text{IntP}$  
  $[ [\text{Fred's neighbour DP}] \text{is } [ \text{building} [a \text{ desk DP vP}] \text{ vP} ] ]$ |         | "!"

Recall that PROSODY itself was assumed to represent a set of ranked constraints. I propose the following ranking of the prosodic constraints for English. Candidates 1-4 are evaluated under the prosodic constraints in tableau (33).

(32)  

**English prosody**

$\text{ALIGN (utterance, L; IntP, L) } \langle \rangle \text{ ALIGN (utterance, R; IntP, R) } \rangle \text{ RAS } \rangle \text{ LAS}$

As (33) shows these constraints have the effect that the string is fully parsed into prosodic structure, and that main stress is right-peripheral. I include only the second member of each candidate in (33), as the prosodic constraints impose an ordering on the set $P_{LL}$, not on the set $E_{LL}$. The optimal candidate under the prosodic constraints is candidate 1. This candidate does not violate the alignment constraints, as both the left and the right edge of
the utterance is aligned with a left or right-edge of an intonational phrase (cf. 22, 23 and 26). RAS is not violated as main stress is on the rightmost phonological phrase within the intonational phrase, while phrasal stresses are on the rightmost phonological words in the phonological phrases. LAS is violated twice: once because main stress does not fall on the leftmost phonological phrase within the intonational phrase, and once because main stress does not fall on the leftmost phonological word within the phonological phrase.18

(33)  

Prosody of English unmarked utterance

<table>
<thead>
<tr>
<th></th>
<th>AL L18</th>
<th>AL R</th>
<th>RAS</th>
<th>LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr1</td>
<td>φ[(Fred’s) (neighbour) φ] [(is building) (a desk) φ]IntP</td>
<td></td>
<td></td>
<td>&quot;*&quot;</td>
</tr>
<tr>
<td>pr2</td>
<td>[(Fred’s) (neighbour) φ] [(is BUILDING) (a desk) φ]IntP</td>
<td>&quot;φ&quot;</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>pr3</td>
<td>[(Fred’s) (NEIGHBOUR) φ] [(is building) (a desk) φ]IntP</td>
<td>&quot;φ&quot;</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>pr4</td>
<td>[(FRED’S) (neighbour) φ] [(is building) (a desk) φ]IntP</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Recall that the ordering imposed by the prosodic constraints is carried over as the ranking imposed by PROSODY in the evaluation at the interface. See (34) for the full ranking of the English unmarked utterance.

---

18 For ease of presentation, I omitted those candidates that involve misaligned phrasal stresses in those phonological phrases that do not bear the main, clausal stress, e.g. φ[(Fred’s) (neighbour) φ] [(is building) (a desk) φ]IntP. These candidates are, correctly, ruled out, as they impose extra violation(s) on RAS.

19 AL L stands for ALIGN (utterance, L; IntP, L) and AL R stands for ALIGN (utterance, R; IntP, R).
We may now conclude that the constraint ranking proposed for English, together with the constraint ranking proposed for English prosody correctly derive that an English utterance under wide, IP, focus involves no syntactic (non-feature-driven) chains, has no extrametrical material and has right-peripheral stress.

### 4.2 Marked focus in English

(35) is repeated from Chapter 1. As the context question in (35a) indicates, the focus of the utterance in (35b) is on the subject DP. Main stress appears on the subject in this case.

(35)  a. Who ate the pizza?
     b. JOHN ate the pizza.

Neeleman & Reinhart (1998) argued that in cases of marked focus English makes use of a prosodic operation: stress strengthening. This is in contrast to Hungarian, which was shown to make use of stress-driven movement in Chapter 2. This state of affairs falls out of the ranking proposed for these
languages, as SYNTAX is ranked higher than PROSODY in English, but not in Hungarian.

In the tableau in (36a), the candidates involve no syntactic chains. As a result, these candidates are optimal with respect SYNTAX. As it is indicated in the top lefthand corner of the tableau, these candidates are considered under focus=DP<sub>SU</sub> interpretation. For this reason, the candidate that was optimal in the previous evaluation, the unmarked utterance, is not included here. This is because, main stress in the unmarked utterance falls on the DP<sub>DO</sub>, therefore, by the Stress-focus correspondence principle (cf. 14), it does not have focus=DP<sub>SU</sub> interpretation.

(36a)  *English marked utterance* (SYNTAX) (Candidates 1-4)

<table>
<thead>
<tr>
<th></th>
<th>Focus= DP&lt;sub&gt;SU&lt;/sub&gt;</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$\langle {(Fred's) (NEIGHBOUR) \phi } {(is building) '(a desk) \phi } \text{IntP}\rangle$</td>
<td>$\langle \text{Fred's neighbour } \phi \rangle$ is $\langle \text{building [a desk } \phi \rangle \text{vp} \rangle \text{ip} \rangle$</td>
</tr>
<tr>
<td>2</td>
<td>$\langle {(FRED'S) (neighbour) \phi } {(is building) '(a desk) \phi } \text{IntP}\rangle$</td>
<td>$\langle \text{Fred's neighbour } \phi \rangle$ is $\langle \text{building [a desk } \phi \rangle \text{vp} \rangle \text{ip} \rangle$</td>
</tr>
<tr>
<td>3</td>
<td>$\langle {(Fred's) (NEIGHBOUR) \phi } {(is building) '(a desk) \phi } \text{IntP}\rangle$</td>
<td>$\langle \text{Fred's neighbour } \phi \rangle$ is $\langle \text{building [a desk } \phi \rangle \text{vp} \rangle \text{ip} \rangle$</td>
</tr>
<tr>
<td>4</td>
<td>$\langle {(FRED'S) (neighbour) \phi } \text{IntP}\rangle$ $\langle {(is building) '(a desk) \phi } \text{IntP}\rangle$</td>
<td>$\langle \text{Fred's neighbour } \phi \rangle$ is $\langle \text{building [a desk } \phi \rangle \text{vp} \rangle \text{ip} \rangle$</td>
</tr>
</tbody>
</table>

Candidates 5-7 involve rightward adjunction of the DP<sub>SU</sub> to IP. Candidates 8-9 involve leftward adjunction of the subject to IP. As the tableau in (36b) shows, these are outperformed by candidates 1-4 with respect to SYNTAX due to the presence of the adjunction. Thus the ranking proposed for English ensures that stress-driven movement operations are not favoured in English.<sup>20</sup>

---

<sup>20</sup> Note that HNPS in English seems to be similar to Italian focus-movement. It is well-known (cf. e.g. Rochemont 1986) that the DP that
The remaining candidates involve movement of the subject to a Spec position: candidates 10-12 on the right; candidates 13 and 14 on the left. These fare worse than candidates 5-9 with respect to SYNTAX, as chains headed by a Specifier position involve more structure than chains headed by an adjoined phrase.

undegoes heavy NP shift is the focus of the utterance. However, Rochemont (1986:27-8) argues that HNPS in English is intonationally distinct from a normal ditransitive construction. In particular, there is an obligatory pause after the phrase that is sister of the V. Two main stresses can be heard, one on this phrase, one on the shifted DP. In the light of these facts, he suggests that the HNPS construction involves two intonational phrases, two accent domains. In this chapter I disregard cases where two distinct intonational phrase are involved.
As the tableaus in (36a-c) show, the candidates with non-feature-driven syntactic chains (cf. candidates 5-14) are outperformed by those without such chains (cf. candidates 1-4). Candidates 5-14 need not be considered any further. The tableau in (37) compares the surviving candidates under MAP. It is apparent that candidates (3) and (4) are suboptimal under MAP, as they involve a left and a right intonational phrase boundary, respectively, that is not aligned with the relevant edge of the clause (cf. 20a and 21a).

<table>
<thead>
<tr>
<th>Focus= DP _t</th>
<th>SYN-TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td><img src="image1.png" alt="Tableau" /></td>
</tr>
<tr>
<td>11</td>
<td><img src="image2.png" alt="Tableau" /></td>
</tr>
<tr>
<td>12</td>
<td><img src="image3.png" alt="Tableau" /></td>
</tr>
<tr>
<td>13</td>
<td><img src="image4.png" alt="Tableau" /></td>
</tr>
<tr>
<td>14</td>
<td><img src="image5.png" alt="Tableau" /></td>
</tr>
</tbody>
</table>
(37) *English marked utterance (SYNTAX => MAP) (Candidates 1-4)*

<table>
<thead>
<tr>
<th>Focus= DPšu</th>
<th>SYNTAX</th>
<th>MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 φ[[(Fred’s) (NEIGHBOUR) ø] {(is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>[Fred’s neighbour DP] is [ building [a desk DP] VP] IF</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>2 φ[[(FRED’S) (neighbour) ø] {(is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>[Fred’s neighbour DP] is [ building [a desk DP] VP] IF</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>3 [[(Fred’s) (NEIGHBOUR) ø] [[[is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>[Fred’s neighbour DP] is [ building [a desk DP] VP] IF</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>4 [[[FRED’S) (neighbour) ø}] {(is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>[Fred’s neighbour DP] is [ building [a desk DP] VP] IF</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
</tbody>
</table>

The remaining candidates (cf. 1 and 2) undergo prosodic evaluation (cf. 38). Both candidates satisfy the prosodic alignment constraints, both violate RAS once as main stress does not fall on the rightmost phonological phrase within the IP and both violate LAS once as the phrasal stress in the second phonological phrase is not left-aligned. In addition, candidate 2 violates RAS a second time, as stress within the leftmost phonological phrase is not aligned to the right. Candidate 1 has extra violations on LAS, but LAS is ranked lower than RAS in English. Thus, candidate 1 is the overall winner of the evaluation. This is correct, as candidate 1 is indeed well-formed in English under focus= subject interpretation (cf. 35).

(38) *Prosody of English marked utterance*

<table>
<thead>
<tr>
<th>Focus= DPšu</th>
<th>A L A L</th>
<th>R A S</th>
<th>L A S</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr1 φ[[(Fred’s) (NEIGHBOUR) ø] {(is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>pr2 [[[FRED’S) (neighbour) ø}] {(is building) ‘(a desk) ø}</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
<tr>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
<td>![parallel symbol]</td>
</tr>
</tbody>
</table>
With the transmission of the results of (38) to the evaluation by the constraints corresponding to the modules (cf. 39), one may conclude that in English, the arising mismatch between prosody, syntax and the mapping is resolved by sacrificing an optimal prosodic representation to a suboptimal one.

(39) *English marked utterance (SYNTAX <> MAP >> PROSODY) (Candidates 1-2)*

<table>
<thead>
<tr>
<th>Focus= DP[m]</th>
<th>SYNTAX</th>
<th>MAP</th>
<th>PROSODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$\forall [(\text{Fred's}) \text{ (NEIGHBOUR)} \phi { (\text{is building}) ' (a desk) \phi } \text{IntP}]$</td>
<td>[ [Fred’s neighbour DP] is [ building [a desk DP] VP] VP]</td>
<td>![ ]</td>
</tr>
<tr>
<td>2</td>
<td>$\forall [(\text{Fred's}) \text{ (neighbour) } \phi { (\text{is building}) ' (a desk) \phi } \text{IntP}]$</td>
<td>[ [Fred’s neighbour DP] is [ building [a desk DP] VP] VP]</td>
<td>![ ]</td>
</tr>
</tbody>
</table>

Note that the results obtained are significant in more than one respect. Not only was it shown that English derives marked focus patterns by stress shifting, it also became apparent that English stress shifting is the shortest possible. In other words, English has right-peripheral stress within the focused constituent. This is so, as candidate 2 with fully left-aligned stress is outperformed by candidate 1 in (38) under the ranking proposed here for English.

In addition, it was demonstrated that stress shifting does not happen in the unmarked case. Candidate 1 in (38) is the same as candidate 3 in (33). Compare this candidate with candidate 1 in (33). The latter does not violate RAS, so if they are compared in the same evaluation, as in (33), it outperforms candidate 3, as it fares better with respect to the prosodic constraints. Thus we also derived the result of Neeleman & Reinhart (1998) that marked focus is achieved by stress shift, but in this case, the focus of the utterance is necessarily interpreted narrow. In other words, the shifted stress does not give rise to ‘focus-projection’.
The generalisations that follow from the proposed ranking so far are the following. An unmarked English utterance exhibits rightmost stress, and either the stress-bearing element or any constituent that contains it can be focused. If another element is in focus, in order to satisfy Focus Interpretation Principle, the element bears stress and a marked left-peripheral stress emerges. Stress shifting is minimal. In the marked cases the phenomenon of focus projection is no longer attested; shifted focus is necessarily narrow.

5 Hungarian

5.1 The Hungarian unmarked utterance

The first difference between Hungarian and English is that in Hungarian nuclear stress is left peripheral (see the discussion in Chapter 2, Section 4 and Appendix B to Chapter 2). Thus, the ranking of the prosodic constraints will be as follows.

(40) Hungarian prosody
\[
\text{ALIGN (utterance, L; IntP, L) <-> ALIGN (utterance, R; IntP, R) >> LAS >> RAS}
\]

As I argued in Chapter 2, the Hungarian VP is V-initial (cf. É.Kiss 1992). The VP is the largest extended projection of the V whose head is lexically filled. In the unmarked utterance, main stress falls on the V. So-called topics precede the V, so the stressed V is not strictly speaking leftmost in the utterance. However, I argued in Chapter 2 that these are adjoined to VP. Given the mapping principles (cf. 19a-d), every left and right edge of the VP is aligned with a corresponding edge of the intonational phrase and vice versa. If there is leftward adjunction to VP in syntax, both VP segments are mapped onto \[\text{IntP}\] and a recursive prosodic structure is obtained in prosody. Topics are dominated by the higher IntP segment, but not by the lower one.
In (41) I indicate the prosodic structure of an unmarked utterance in the first line, and the syntactic one in the second.

(41)   [{   A nő φ} [[MEG ETTE φ] {a kenyeret φ} IntP] IntP]  
       [[A nő DP] [[MEG ETTE v] [a kenyeret DP] VP] VP]  

    the woman    VM-ate    the bread-acc

‘The woman ate up the bread.’

As a result of the ranking in (40) the ordering shown in tableau (42) is obtained in prosody. Here we see that in the prosodic evaluation, the optimal candidate has no extrametrical material, no recursive prosodic structure and left-peripheral stress. If there is a recursive prosodic structure, as in the candidates 5-7, then the ranking prefers the one where main stress is aligned with the \textit{innermost} intonational phrase boundary, i.e. the fifth candidate. Let us derive the violations on candidates 5 and 6, the rest are similar. Both of these candidates violate LAS once, as there is a lefthand [\textit{IntP}] bracket in each case which is not aligned with the stress-bearing phonological phrase. In both cases one phonological word intervenes. RAS is violated two more times in the 6\textsuperscript{th} candidate, than in the 5\textsuperscript{th}. In the 5\textsuperscript{th} candidate both righthand [\textit{IntP}] brackets are separated from the stress-bearing phonological phrase by one phonological word. In contrast, in the 6\textsuperscript{th} candidate, both [\textit{IntP}] are separated from the stress-bearing phonological phrase by two phonological phrases.
We may conclude that, Hungarian prosody does not favour recursive prosodic structure. However, recall that the ranking proposed for Hungarian is the following.

\[
\text{(43) MAP >> PROSODY >> SYNTAX}
\]

If so, then we predict that recursive prosodic structure will surface, even though it is not optimal in prosody, if forced by MAP. In particular, if there is syntactic adjunction to the largest extended projection of the V, then MAP
favours the presence of recursive intonational phrases. Moreover, we also predict that in this case, prosodic constraints will favour the candidate that has main stress aligned with the innermost segment of the intonational phrase. Let me show that these predictions are correct.

The relevant competing candidates in (44) are as follows. The first five candidates have identical syntactic structures. They involve a syntactic chain formed by the topic in the leftward VP-adjoined position. Candidates 1-3 have recursive prosodic structure, while candidates 4 and 5 have only a single intonational phrase layer. In candidates 6-8 the verb moved and the topic adjoined to the newly created VP phrase. We may observe that candidates 4, 5 and 8 violate MAP, as they lack a leftward intonational phrase bracket aligned with the innermost segment of the VP. Candidates 1-3 and 6-7 survive MAP.

---

21 I assume that a pragmatic condition similar to the Stress-focus correspondence principle and the Anaphoric interpretation principle forces topics to take up a VP-adjoined position in Hungarian. See Chapter 6 for a brief discussion of topics.

22 Given the stress-focus correspondence principle, a candidate that contains two main stresses has two foci. Thus, a candidate such as (i) is not the member of the candidate set in (44). Note that (i) does not violate LAS. Sentences involving two distinct intonational phrases, and thus two main stresses are not considered here.

(i) \([\text{IntP} \{\phi \ A \ N\O \ \}]\ [\text{IntP} \{\phi \ MEG\ ETTE\ \}\{\phi \ a\ kenyeret\}]\)

the woman          VM-ate             the bread-acc
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Recall from (40) and (42) that Hungarian prosodic constraints favour non-recursive prosodic structure over a recursive one. However, due to the presence of a topic, all the prosodic structures in the expressions that survive MAP in (44) are recursive. (42) also shows that in this case, the optimal
candidate under the prosodic ranking is the one where main stress is aligned with the innermost segment of the recursive intonational phrases. So the prosodic ranking of the candidates that survived MAP under the prosodic constraints is the following.

(45)  Proscy of Hungarian unmarked utterance (Candidates 1-3 and 6-7)

<table>
<thead>
<tr>
<th>Focus= unspecified</th>
<th>LA</th>
<th>LR</th>
<th>AS</th>
<th>RAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=PRS</td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2=PRS</td>
<td>*</td>
<td>***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3=PRS</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6=PRS</td>
<td>*</td>
<td>***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7=PRS</td>
<td>*</td>
<td>+++</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As a result of this prosodic evaluation, one obtains the following result in the overall evaluation under MAP >> PROSODY >> SYNTAX. As (46) shows, the ranking correctly derives that the unmarked Hungarian utterance involving a topic has the syntactic and prosodic structure in (41) (i.e. the first candidate).

This candidate only violates *Structure three times, as there are three extra nodes present in the structure, due to the adjoined topic. In candidates 6 and 7, on the other hand, there are five violations on *Structure, those three as in the first candidate, one by the moved V and another by the projection of the moved verb. So candidate 1 outperforms candidates 6 and 7 in SYNTAX. Note that this is in fact immaterial as candidate 1 is the only optimal candidate under the joint ranking of MAP >> PROSODY.
To sum up, the ranking proposed for Hungarian and Hungarin prosody derive that in a non-recursive prosodic structure stress is left-peripheral. If there are adjoined IntP segments, main stress is aligned with the innermost segment. Thus in a Hungarian clause where all the constituents are in situ, main stress falls on the V as that is leftmost in the innermost segment of the VP. Main stress also falls on the V, if a topic adjoins to VP.

5.2 Marked focus in Hungarian
Recall from Chapter 2 that Hungarian has a special word order associated with focusing an XP. This is known as the Hungarian Focus Construction. As I already described there, the standard analysis of the construction is by
Bródy (1990, 1995a). Bródy claims that the focused element has a [+Focus]-feature, the Focus-head projects above the VP. Both the nominal and the verbal features of the Focus-head are assumed to be strong in a tensed clause. As a result the focused element moves to [Spec, FP], and the V, stranding its particle, moves to F. The analysis derives correctly that the focused XP and the V are always adjacent in Hungarian. This is illustrated in (47). Topics in this case adjoin to FP.

\[
(47) \text{[A nő DP1] [FP [a KALAPJÁT DP2] vette [VP [le tv] tőle DP1 tőle DP2 FP] FP]}
\]
\[
\text{the woman the cap-her-acc took off}
\]
\[
\text{‘It was her hat that the woman took off (not her scarf.)’}
\]

In Chapter 2 I have shown that the Stress-focus correspondence principle applies in Hungarian. In a neutral Hungarian sentence main stress falls on the V, or the Particle-V complex if the V is a particle verb. I argued there that the Hungarian Focus construction is not feature-driven movement. Rather the focused constituent moves to the left-periphery to pick up main stress. This is stated in (48).

\[
(48) \text{Stress-driven movement:}
\]
\[
\text{In Hungarian, movement of the focused constituent to the left-periphery is triggered by the requirement that a focused constituent be stressed.}
\]
\[
\text{(Section 2.5, Ex. 16)}
\]

(49), whose syntactic representation is repeated here from (47), shows the prosodic structure of the focus construction in Hungarian.
(49)=(47)
\[
\begin{array}{c}
\{ \text{A nő φ} \} \quad \{ \text{a KALAPJÁT} \quad \text{vette φ} \} \quad \{ \text{le φ leP} \} \text{ leP}
\end{array}
\]
\[
\begin{array}{c}
\{ \text{[A nő DP1]} \} \quad \{ \text{[a KALAPJÁT DP2]} \quad \text{vette}[ \{ \text{[le tv v] tDP1 tDP2 VP} \} \text{ VP}] \text{ FP] FP]}
\end{array}
\]
the woman the cap-her-acc took off

‘It was her hat that the woman took off’

As we will now see, Hungarian marked focus involves stress-driven movement, rather than stress shifting, as PROSODY is ranked higher than SYNTAX. It also follows that stress-driven movement targets a Spec position (i.e. it is accompanied by V-movement) and that it is movement to the left-periphery.

The candidates in (50) show these options. The first candidate involves left-peripheral focus in a Spec position, accompanied by V-movement. The second candidate has focus in a right-peripheral Spec position. The third and fourth candidates have in situ focus. Note that the latter is the equivalent of the optimal candidate in English with marked focus. The fifth and sixth candidates have left-peripheral focus, but in an adjoined position. The seventh candidate has right-peripheral focus in a VP-adjoined position. I will argue in the next section that this candidate is optimal in the evaluation of Italian marked focus.
As shown in (50), MAP is violated by the fourth and the sixth candidates. Given the ranking imposed by the prosodic constraints in Hungarian (cf. 40) the fourth candidate would fare better in terms of prosody then the third one. Similarly, the sixth candidate would outperform the fifth candidate in prosody. However, given that MAP is ranked higher than PROSODY in Hungarian, this does not play a role. Let us see how the surviving candidates fare with respect to the prosodic constraints.

<table>
<thead>
<tr>
<th>Focus= DP</th>
<th>MAP</th>
</tr>
</thead>
</table>
the woman the cap-her-acc took off |
| 2 | &lt;[‘(A nő) φ] [[(vette) φ] {‘(le) φ} (a KALAPJÁT) φ] IntP] IntP] [[A nő DP1] [vette [ le tv tDP1 tDP2 VP] [a kalapját DP2] FP] FP] 
the woman took off the cap-her-acc |
the woman off-took the cap-her-acc |
the woman off-took the cap-her-acc |
the woman the cap-her-acc off-took |
the woman the cap-her-acc off-took |
the woman off-took the cap-her-acc |

As shown in (50), MAP is violated by the fourth and the sixth candidates. Given the ranking imposed by the prosodic constraints in Hungarian (cf. 40) the fourth candidate would fare better in terms of prosody then the third one. Similarly, the sixth candidate would outperform the fifth candidate in prosody. However, given that MAP is ranked higher than PROSODY in Hungarian, this does not play a role. Let us see how the surviving candidates fare with respect to the prosodic constraints.
The first candidate violates LAS only once: the higher segment of the [\textit{IntP}] is separated from the stress bearing phonological phrase by one phonological phrase. All the other candidates violate LAS at least twice: all of them have at least two [\textit{IntP}] brackets that are separated from the stress bearing phonological phrase by at least one phonological phrase.

Given that there is only one candidate that survives the joint ranking of MAP and PROSODY, the evaluation of the SYNTAX constraint is not necessary. The first candidate is the winner of the overall evaluation. This is the correct result, as the first candidate is the Hungarian marked focal utterance, as shown by (49). For concreteness, the overall, joint ranking of MAP, PROSODY and SYNTAX is illustrated in (52). It is shown that the first candidate is in fact suboptimal under the constraint SYNTAX, as it involves phrasal movement to a Spec position accompanied by V movement. Nevertheless, this candidate is the overall winner, as SYNTAX itself is ranked lowest among the constraints.
To sum up the results of this section. It was shown that Hungarian prefers stress-driven movement over stress shifting to derive marked focus. It was also shown that stress-driven movement is necessarily accompanied by V-movement in Hungarian, as otherwise either a misaligned mapping is needed to ensure that the focused phrase gets main stress, or the stress constraints receive extra violations.

5.3 Stress shifting and pied-piping in Hungarian

At the end of Chapter 3 I argued that an account based on parameters is ill-equipped to account for the attested language variation, because although Hungarian prefers stress-driven movement, it does exhibit stress shifting in...
precisely those cases where movement is unavailable for independent reasons. Let me show that the relevant data falls out from the proposed ranking.

In Hungarian, as opposed to Serbo-Croat, movement of the N head out of a DP is not allowed. As a result, GEN does not supply a candidate where the N head appears in the left-periphery stranding the rest of the material in the DP in situ.\footnote{I assume that the difference between Hungarian and Serbo-Croat is that there is a functional D head in the former, but not the latter. As a result, an empty position inside the NP may be governed by the V in Serbo-Croat, but not in Hungarian, due to the intervention of the D head.} If the N head of a DP is focused, the whole DP is pied-piped to the left-periphery and stress is shifted to the right within the DP. This is shown in the first candidate in (53). The second candidate illustrates the possibility of leaving the DP in situ and shifting the stress across a larger distance. Both candidates satisfy MAP. (There are of course many other possible candidates, which do not satisfy MAP. I omitted them here to save space.) So, the decision as to which one is optimal is taken by the prosodic constraints represented in PROSODY.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|l|}
\hline
& Focus: N head of DPCO & A L L & A L R & LAS & R A S \\
\hline
pr$_1$ & $\llbracket \{ \text{\v{P}eter} \} [\{ \text{egy használt} \} \{ \text{AUTÓT} \} \{ \text{vett} \} \{ \text{InF} \} \{ \text{InF} \} ] \rrbracket$ & & & & \text{**} & \\
& \emph{Peter a second-hand car-acc bought} & & & & \text{*} & \\
\hline
pr$_2$ & $\llbracket \{ \text{\v{P}eter} \} [\{ \text{vett} \} \{ \text{egy használt} \} \{ \text{AUTÓT} \} \{ \text{InF} \} \{ \text{InF} \} ] \rrbracket$ & & & & \text{**} & \\
& \emph{Peter bought a second-hand car-acc} & & & & \text{*} & \\
\hline
\end{tabular}
\caption{Stress shift in Hungarian – ranking within prosody}
\end{table}

The first candidate is preferred in prosody, as it involves only two violations on LAS, while the second candidate violates LAS four times. The violations are as follows: the phonological phrase bearing main stress is
separated from the higher segment of the intonational phrase by one phonological phrase in the first candidate. In the second candidate one phonological phrase intervenes between the stress-bearing phrase and the lower IntP segment, and two between the stress-bearing phrase and the higher segment of IntP. In addition, the stress-bearing phonological word is separated from the left-edge of its phonological phrase by one phonological word in both candidates. So, even though it violates SYNTAX (cf. 54), as it involves syntactic chain formation, the first candidate is nevertheless optimal in the overall evaluation. (The first candidate violates *Structure nine more times than the second one.)

(54) Stress shift in Hungarian (MAP >> PROSODY >> SYNTAX)

<table>
<thead>
<tr>
<th>Focus: N of DP to</th>
<th>MAP</th>
<th>PROSODY</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>🟢</td>
<td></td>
<td>🟢</td>
</tr>
<tr>
<td>Peter a second-hand car-acc bought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>🟢</td>
<td></td>
<td>🟢 !</td>
</tr>
<tr>
<td>Peter bought a second-hand car-acc</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the basis of (54) it might appear to be the case that under the ranking proposed for Hungarian, syntactic chain formation is ‘free’. In Chapter 3, I showed that it is not the case that chain formation is free in Hungarian. I argued that the syntactic structure is minimized; chains are only formed if necessary, and the size of the constituent copied into the head of the chain is the smallest possible. So, there are cases where it is the lowest-ranked constraint SYNTAX that decides which one is the optimal candidate in the overall evaluation. For instance, an adjunct clause of a DP is not pied-piped to the left-periphery if the small DP is focused. This is shown in the tableau
in (55). Here, too, as in (53) I only included candidates that satisfy MAP. I also assumed that the candidates fare equally well under PROSODY.

(55) Pied-piping in Hungarian (SYNTAX)

<table>
<thead>
<tr>
<th>Focus: D</th>
<th>SYNTAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>![hallottam [ {hallottam v} [ { azt dp} [hogy Péter elutazott Kanadába cp] dp] vp] vp] that-acc heard-I that Peter went Canada-to]</td>
</tr>
<tr>
<td>2</td>
<td>![hallottam [ {hallottam v} [{AZT dp} [hogy Péter elutazott Kanadába cp] dp] vp] vp] that-acc that Peter went Canada-to heard-I]</td>
</tr>
</tbody>
</table>

Given that the ordering imposed by SYNTAX is based on the ordering imposed by the principle *Structure, it follows that a chain that involves larger copies will involve more violation on *Structure, and therefore on SYNTAX. (In particular, the first candidate places four violations on *Structure, due to the fronting of the DP and the formation of the Spec position hosting it. The second candidate, on the other hand violates *Structure twelve times.)

I would like to conclude that the ranking proposed for Hungarian accounted for the fact that under a marked focal interpretation, Hungarian prefers stress-driven movement to stress shifting. It also followed that this movement targets a left-peripheral Spec position, accompanied by V movement. In addition, I showed that the preference for stress-driven movement is not the result of a parametric choice, as stress shifting is attested in precisely those cases when stress-driven movement is unavailable, such as in a case when a N head of a DP is focused. Finally, I illustrated with Hungarian pied-piping data that the lowest ranked constraint SYNTAX is not completely inert in Hungarian.
6 Italian

6.1 Three focus constructions

In the previous sections I argued that English has the ranking in (56a), while Hungarian has the ranking in (56b). As a result, I accounted for the fact that Hungarian marked focus involves the formation of syntactic chains, while English marked focus involves stress shift. In this section I will investigate the possibilities that arise under the ranking in (56c). I will argue that it accounts for the full range of focus constructions available in Italian.

(56)

a. SYNTAX <=> MAP >> PROSODY
b. MAP >> PROSODY >> SYNTAX
c. PROSODY >> SYNTAX >> MAP

In particular, the ranking in (56c) will be shown to account for the following three different marked focus patterns. (57a) involves right-peripheral focus, (57b) has string-medial focus while (57c) has left-peripheral focus. I only address the first two in this chapter. The third-type of marked focus in Italian, the left-peripheral focus construction is the topic of Section 4 in Chapter 5.

(57)

a. Gianni ha dato a Maria un libro INTERESSANTE

Gianni has given to Mary a book interesting

b. Gianni (gli) ha dato un libro INTERESSANTE, a Maria.

Gianni to-her has given a book interesting to Mary

c. Un libro INTERESSANTE, Gianni ha dato a Maria.

a book interesting Gianni has given to Mary
As the examples in (57) illustrate, Italian is similar to English and unlike Hungarian from the perspective of the unmarked syntactic representation. In particular, in Italian, the V moves to I (at least unless an auxiliary is present), so the largest extended projection of the V is the IP.

Italian stress is similar to English stress in that it is right-peripheral. Cinque (1993) argued that this similarity is due to the similar syntactic structures the two languages have. Nevertheless, there are certain systematic differences between Italian and English stress.

Let us start by the similarities. In Italian, in any relevant domain main stress falls on the rightmost constituent. Let me illustrate this with the following examples.

(58)  
\begin{align*}
\text{a. } & \{(\text{un libro}) \ (\text{interessante})_g\} \\
& a \text{ book interesting} \\
\text{b. } & \{(\text{il libro}) \ (\text{di Pietro})_g\} \\
& \text{the book of Peter}
\end{align*}

(59)  
\[\{(\text{Ha cucinato})_g\} \ (\text{le SALSICCE})_g \ \text{Intr} \]
\[\text{pro has cooked } \text{the sausages}\]

Thus, it is expected that RAS is ranked higher than LAS. This will account for the similar stress pattern in English and Italian.

The following examples illustrate the different behaviour of English and Italian. It is apparent that Italian, as opposed to English, always has right-peripheral stress. If a postverbal DP is discourse-linked, as in (60), it is destressed in English. In Italian, the unstressed pronoun cliticises onto the verb. It does not occupy a right-peripheral position. It would be a strong claim to suggest that cliticisation is in fact triggered by the need to destress the DP. Although this may be on the right track, I have insufficient evidence to make such a claim. Rather, I would like to make a much weaker claim.
The existence of clitic pronouns in the language allows for the presence of the clitic construction (cf. 60c). Since this construction is less marked prosodically than the construction that involves destressing (cf. 60b), the latter is blocked by economy.

(60) a. I ate it.

b. *Ho MANGIATO lo.

c. Lo ho MANGIATO.

Similarly, the so-called Italian postverbal subject construction equally shows that Italian stress is always right-peripheral. Verbs such as English arrive and Italian arrivare are semantically empty. They cannot bear main stress under wide focus. In Italian, subjects may occur in a postverbal position. I remain agnostic to the origin of this construction. Whether the subject is base-generated postverbally, or it moves to that position, or the predicate is fronted to a position preceding the subject in the canonical subject position (Pinto 1997), the fact that the postverbal subject construction is available in Italian (cf. 61c) is enough to block the possibility of destressing (cf. 61b).

(61) a. JOHNSON died.

b. *JOHNSON è morto.

c. È morto JOHNSON.

(Cinque 1993: 260-261)

Finally, the Italian equivalent of semantically empty verbs in Bolinger’
(1972) sense do not show destressing. Rather, they ignore the (alleged) semantic requirement that such verbs cannot bear main stress.
(62)  a. I have INSTRUCTIONS to leave.
b. *Ho ISTRUZIONI da lasciare.
c. Ho istruzioni da LASCIARE.

(Cinque 1993: 262)

What these examples seem to show is that the difference between English and Italian is that Italian has always right-peripheral stress, whereas in English stress-shifting or destressing may be possible, if necessary because of semantic or pragmatic requirements. These requirements are either not observed in Italian, as in (62), or observed in a way that allows for strictly right-peripheral stress. In the case of light predicates, the subject appears postverbally and takes up nuclear stress. In the case of argumental or adjunct phrases, a corresponding clitic is present in the representation. I will return to the lack of destressing in Italian in Chapter 5 Section 4. For now, suffice it to say that in Italian, as opposed to English, RAS is ranked higher than ALIGN (utterance, R; IntP, R).

(63)  Italian prosody

ALIGN (utterance, L; IntP, L) >> RAS >>
ALIGN (utterance, R; IntP, R) >> LAS

6.2 The unmarked utterance in Italian

Antinucci & Cinque (1977) observed that the following Italian sentence, uttered with neutral intonation, may appear in a restricted set of contexts. The context questions in (64b-e) indicate that the focus of the utterance in (64a) can be the DP_{DO}, the VP or the IP, but not the DP_{SL}.
So, it seems that Reinhart’s Focus Interpretation principle holds in Italian. In (64a) main stress falls on the rightmost constituent, so it is felicitous in the contexts in (64b-d), as these require foci which contain the rightmost position. It also follows that (64a) cannot be uttered in the context of (64e), as (64e) indicates focus on a constituent, in particular the subject, which does not contain the main stress of the clause.

Let me show that this result is in fact born out by the proposed ranking. The candidate set for the unmarked utterance is parallel to the candidate set in the unmarked English utterance (cf. 30a-c).

Candidates 1-7 in tableau (65a) involve no syntactic chains. To be more precise, these candidates involve no non-feature-driven chains. The canonical position of the subject in Italian is [Spec, IP]. If one adopts the VP-internal subject hypothesis (cf. Koopman & Sportiche 1991), then all of these examples involve a syntactic A-chain placing the subject into [Spec, IP]. I disregard this chain in the discussion that follows. As far as prosodic structure is concerned, the first five candidates in (65a) have a non-recursive
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prosodic structure, with main stress on a different element in each candidate. Candidates 6 and 7 involve recursive prosodic structures.

(65a) **Candidate set for Italian unmarked utterance (1-7)**

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Focus= IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>[‘(Gianni) φ] {‘(ha dato) (un libro) ’(rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>2</td>
<td>[‘(Gianni) φ] {‘(ha dato) (un libro) (ROSSO) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>3</td>
<td>[‘(Gianni) φ] {‘(ha dato) (un LIBRO) (rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>4</td>
<td>[‘(Gianni) φ] {‘(ha DATO) (un libro) (rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>5</td>
<td>[‘(GIANNI) φ] {‘(ha dato) (un libro) ’(rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>6</td>
<td>[‘(Gianni) φ] {‘(ha dato) (un libro) ’(rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
<tr>
<td>7</td>
<td>[‘(Gianni) φ] {‘(ha dato) (un libro) ’(rosso) φ} {‘(a MARIA) φ}</td>
</tr>
<tr>
<td></td>
<td><em>Gianni has given a book red to Maria</em></td>
</tr>
</tbody>
</table>

The tableau in (65b) involves candidates with non-feature-driven syntactic chains targeting a right-peripheral, adjoined position. Candidates 8 and 9 have an aligned, recursive prosodic structure. Note that the largest extended projection of the V in Italian is the IP. As a result, adjunction to IP,
but not adjunction to VP, will have the result that the corresponding intonational phrase is segmented, if the mapping principles are satisfied. Candidates 10-11 involve no recursive intonational phrases, even though their syntactic structure involves adjunction to IP. Thus, they violate the mapping principles.

The last set of relevant candidates is given in (65c). Here the syntactic structure of the candidates involves movement targeting a rightward oriented Spec position accompanied by the movement of Infl. As Infl moved, the largest extended projection of the V is the newly created IP. Thus, a non-recursive intonational phrase is preferred by the mapping principles (cf. candidates 12-13) over a recursive one (cf. candidate 14).
As PROSODY is ranked highest in Italian, the candidates first have to be evaluated with respect to the prosodic constraints. Recall from the discussion of the prosodic constraints in Hungarian (cf. 40 and 42), that recursive prosodic structure is always outperformed by a corresponding non-recursive one under the evaluation in prosody, as wherever the main stress falls, it introduces extra violations on RAS and/ or LAS if an additional intonational phrase segment is present. This is so, as the violations on RAS and LAS are counted with respect to all segments. This is illustrated in (66a) for the first and the seventh candidate (cf. 65a).
Prosody of Italian unmarked utterance – See (65a) for Candidates 1 and 7.

<table>
<thead>
<tr>
<th></th>
<th>ALIGN L</th>
<th>RAS</th>
<th>ALIGN R</th>
<th>LAS</th>
</tr>
</thead>
</table>
| pros1 | $\phi[\{\text{'(Gianni)}\}\text{IntP}]$
|       |         |     |         |     |
|       | $\{\text{(ha dato) \,(un libro) \,'(rosso)}\}$
|       |         |     |         |     |
|       | $\{\text{(a M\text{ARIA})}\}$
|       |         |     |         |     |
|       | *Gianni has given a book red to Maria* |
| pros7 | $\phi[\{\text{'(Gianni)}\}\text{IntP}]$
|       |         |     | *\text{'}$ |     |
|       | $\{\text{(ha dato) \,(un libro) \,'(rosso)}\}$
|       |         |     |         |     |
|       | $\{\text{(a M\text{ARIA})}\}$
|       |         |     |         |     |
|       | *Gianni has given a book red to Maria* |

The first candidate does not violate RAS, whereas the candidate 7 violates RAS twice, as there are two phonological phrases intervening between the right-edge of the lower segment of the intonational phrase and the phonological phrase bearing main stress. Candidate 7 also places extra violations on LAS, as the two intervening phonological phrases between the left-edge of the intonational phrase now count twice, as there are two segments of the intonational phrase. (Both candidates violate RAS twice because the phrasal stress within the DP_{DO} is right-aligned.) Candidates 6, 8-9 and 14 (which are not shown to ease presentation) are ruled out in a similar way. The remaining candidates are evaluated under the prosodic constraints in the tableau in (66b).
In (66b) it is shown that if there is only a single intonational phrase, main stress has to be aligned with the right-edge of the intonational phrase and phrasal stresses align with the right-edge of their phonological phrases. The candidates that survive PROSODY are thus the following: candidates 1, 11 and 13. These have to be evaluated with respect to SYNTAX.

This is shown in (67). Here we can see that candidate 1 is optimal, as it involves no syntactic chains. In contrast, candidate 11 involves a phrasal
adjunction, and candidate 13 a chain targetting a Spec position. Since only one candidate survives the joint ranking of PROSODY >> SYNTAX, it need not be evaluated with respect to MAP; it is the overall winner. (As a matter of fact, Candidate 1 satisfies the mapping principles.) Thus we derived Antinucci & Cinque’s (1977) observation that the unmarked Italian utterance has right-peripheral stress (cf. 59).

\[(67)\]  
**Italian unmarked utterance** (Candidates 1, 11 and 13)

<table>
<thead>
<tr>
<th>Focus</th>
<th>PRO</th>
<th>SYN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [{'(Gianni) φ } {(ha dato) (un libro) ‘(rosso) φ } {(a MARIA)φ} IP]] has given a book red to Maria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 [{[Ha dato) (un libro) ‘(rosso) φ } {'(a Maria) φ } {GIANNI) φ} IP]] has given a book red to Maria Gianni</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 [{[Ha dato) (un libro) ‘(rosso) φ } {'(a Maria) φ } {GIANNI) φ} IP]] has given a book red to Maria Gianni</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.3 Marked focus in Italian: the right-periphery

If a stress-based approach to focus-movement is assumed for Hungarian, it is also expected to apply in other languages. I will now argue that it applies in Italian as well. However, the two constructions are not identical. First, given that the stress rule in Italian is rightward oriented, the movement of the focused constituent targets the right-periphery. Thus, if the direct object is to be focused in a dative construction, the direct object moves to the right to pick up main stress. This is illustrated in (68).
A: Che cosa ha dato a Maria Gianni?
   *What did John give to Mary?*

B: Gianni ha dato [ [ tv tDP a Maria VP] un libro ROSSO VP]
   *John gave a red book to Mary.*

Focus set: Adj, DP_{DO}

Samek-Lodovici (1996) argues that a right-peripheral focused constituent in Italian moves and right-joins to the VP. I accept this account, however with a proviso. Since movement is not triggered by a syntactic feature, adjunction to VP only happens to place a constituent in sentence final position that was not final otherwise. This is due to the fact that Italian stress is sentence final. Since the trigger for the movement is main stress, a constituent that is stressed does not move. Pereltsvaig (2000) has noted that Samek-Lodovici’s arguments, which propose to show that the focused constituent is in a VP-adjoined A-bar position, do not hold for an object in a transitive construction or for the indirect object in a dative construction. So, contra Samek-Lodovici (1996) I assume that these are in situ.

Contrary to Hungarian, the VP-adjoined position, occupied by the focused constituent, is not going to be parsed outside the innermost intonational phrase despite the fact that it is in an adjoined position. This is so, because in Italian the largest extended projection of the V that is lexicalised is the IP, not the VP, as in Hungarian. This is because the language has obligatory V-to-I independently of focusing. Thus by the mapping rules, VP adjoined constituents are parsed into the core intonational phrase. On the other hand, adjunction to IP is marked by separate intonational phrase brackets.

(69a-d) enumerate the relevant candidates for Italian marked focus. The first candidate involves right-adjunction of DP_{DO} to VP. The second and third candidates have right-adjunction of DP_{DO} to IP. The fourth candidate has left-adjunction of DP_{DO} to IP.
Candidates 1-4 for Italian marked utterance

Focus = DP

1. [(Gianni) (ha dato) (a Maria) (un libro) (ROSSO)]
   [Gianni [ha dato a Maria] [un libro] [ROSSO]]
   Gianni has given to Maria a book red

2. [(Gianni) (ha dato a Maria) (un libro) (ROSSO)]
   [Gianni [ha dato a Maria] [un libro] [ROSSO]]
   Gianni has given to Maria a book red

3. [(Gianni) (ha dato a Maria) (un libro) (ROSSO)]
   [Gianni [ha dato a Maria] [un libro] [ROSSO]]
   Gianni has given to Maria a book red

4. [(Un libro) (ROSSO) (ha dato a Maria)]
   [Un libro [ROSSO] [ha dato a Maria]]
   a book red Gianni has given to Maria

The fifth and sixth candidates (cf. 69b) do not have any syntactic chains. Note that the fifth candidate is in fact parallel to the optimal candidate under the evaluation for marked focus in English.

Candidates 5 and 6 for Italian marked utterance

Focus = DP

5. [(Gianni) (ha dato un libro) (ROSSO) (a Maria)]
   [Gianni [ha dato un libro] [ROSSO] [a Maria]]
   Gianni has given a book to Maria

6. [(Gianni) (ha dato un libro) (ROSSO) (a Maria)]
   [Gianni [ha dato un libro] [ROSSO] [a Maria]]
   Gianni has given a book to Maria

The seventh and the eighth candidates illustrate the possibility that the DP_{IO} is removed from the right-peripheral position, in order to allow for the stressing of the DP_{DO}. This follows the spirit of Zubizarreta’s (1998) p-
movement. In these cases DP_{IO} is adjoined to IP. Note that the counterparts of these candidates are not available in Hungarian. This is because in Hungarian it is the V that intervenes between the left-edge of the intonational phrase and the DP_{DO}. Moving the verb necessarily results in the enlargement of the intonational phrase, as MAP is ranked highest in Hungarian. If so, moving the V to the left would not help, as it would still intervene between the new [IntP] and the DP_{DO}. Movement of the V to the right across the DP_{DO}, on the other hand, is presumably not in the candidate set supplied by GEN, as Italian is a strictly head-initial language.

(69c) **Candidates 7 and 8 for Italian marked utterance**

<table>
<thead>
<tr>
<th>Focus= DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The ninth and the tenth candidates involve movement of the DP_{DO} to a Spec position. In the ninth candidate this is a rightward Spec hosted by the moved V under the Infl domain. In the tenth candidate the DP_{DO} appears in a left-peripheral position, hosted by the moved Infl. This candidate is the counterpart of the optimal candidate under the evaluation for marked focus in Hungarian.
Candidates 9 and 10 for Italian marked utterance

<table>
<thead>
<tr>
<th>Focus=DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Let us see how these candidates fare under the ranking of the prosodic constraints. As (70) shows, all the candidates that have recursive structure or not strictly right-peripheral stress are outperformed by candidates 1, 2 and 9 that have a single intonational phrase layer and right-peripheral stress.

<table>
<thead>
<tr>
<th>Prosody of Italian marked utterance – See (69a-d) for the candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALIGN L</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

The surviving candidates have to be ranked with respect to SYNTAX, as that is the next constraint in the ranking in Italian. Candidates 1 and 2 involve phrasal adjunction, while candidate 9 involves movement to a Spec position. As a result, the latter is outperformed by candidates 1 and 2, which are themselves equally optimal. This is shown in (71).
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(71)  *Italian marked utterance (PROSODY >> SYNTAX)*

<table>
<thead>
<tr>
<th>Focus= DP</th>
<th>PROS.</th>
<th>SYN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>![Gianni φ] {ha dato a Maria φ} {un libro ROSSO φ}</td>
<td>![Gianni has given to Maria a book red](Gianni has given to Maria a book red)</td>
</tr>
<tr>
<td></td>
<td>![Gianni Δφ] ha ![dato tDP V'] [a Maria PP] VP</td>
<td>![un libro rosso Δφ] VP IP</td>
</tr>
<tr>
<td>2</td>
<td>![Gianni φ] {ha dato a Maria φ} {un libro ROSSO φ}</td>
<td>![Gianni has given to Maria a book red](Gianni has given to Maria a book red)</td>
</tr>
<tr>
<td></td>
<td>![[[Gianni Δφ] ha ![dato tDP V'] [a Maria PP] VP] IP]</td>
<td>![un libro rosso Δφ] IP</td>
</tr>
<tr>
<td>3</td>
<td>![Gianni φ] {ha dato a Maria φ} {un libro ROSSO φ}</td>
<td>![Gianni has given to Maria a book red](Gianni has given to Maria a book red)</td>
</tr>
<tr>
<td></td>
<td>![[[Gianni Δφ] ha ![dato [t V tDP V'] [a Maria PP] VP] V'] IP]</td>
<td>![un libro rosso Δφ] V' VP IP</td>
</tr>
</tbody>
</table>

The surviving two candidates have to be ranked under MAP. As I already indicated, candidate 1 wins the overall evaluation (cf. 72). This is so, as in Italian the largest extended projection of the V is the IP. Thus adjunction to IP induces segmentation of the intonational phrase in the prosodic structure. If this is not observed, as in the second candidate, then MAP is violated.
(72) Italian marked utterance (PROSODY >> SYNTAX >> MAP)

<table>
<thead>
<tr>
<th>Focus= DP</th>
<th>PROS.</th>
<th>SYN</th>
<th>MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>![\text{Gianni has given to Maria a book red}](\text{Gianni ha dato a Maria un libro ROSSO})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>![\text{Gianni has given to Maria a book red}](\text{Gianni ha dato a Maria un libro ROSSO})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To summarise, I argued in this section that Italian, similarly to Hungarian, derives marked focus patterns by stress-driven focus movement. In other words, these languages amend the neutral focus pattern in the syntax. This option is unavailable in English, as there SYNTAX is ranked higher than PROSODY. Thus stress shifting will always be preferred to chain formation.

7 Conclusion

The main claim of this chapter was that the three different sets of principles—syntax, prosody and the syntax-prosody mapping—can be represented by three Optimality Theoretic constraints—SYNTAX, PROSODY, MAP—in a higher-level evaluation at the interface between the grammar and the conceptual-intentional system of the mind. From a theoretical perspective, Reinhart’s interface economy in terms of reference set computation is reformulated here as a higher-level evaluation of ranked constraints corresponding to the different modules of the grammar. Note that the proposed model maintains the autonomy of the modules while allowing for interface conditions to affect each of the them.
In the unmarked case, no mismatches arise between the syntactic, the prosodic and the mapping principles. In other words, if one takes the set of candidates that are favoured by SYNTAX, the set of candidates that are favoured by PROSODY and the set of candidates favoured by MAP, then there is a candidate that is present in all three of these sets. In other words, the intersection of these three sets is not empty. In this case, the higher level evaluation at the interface between the grammar and the conceptual-intentional interface is trivial. The candidate that is optimal under all three constraints separately, will be the overall winner.

Marked utterances arise, when there is no candidate that is favoured separately by all three constraints. In these cases, the higher level evaluation determines which marked option is favoured in that language, based on the language-particular ranking of the constraints.

Each higher-level constraint corresponds to a set of (ranked or unranked) violable principles. The ordering imposed by these principles on the candidate set is reflected in the ordering imposed by the corresponding constraint. In particular, I argued that the principle *Structure is relevant in ordering the candidate set under SYNTAX (cf. 73). The relevant principles for MAP are shown in (74), while the ones relevant in PROSODY are given in (75).

\[
(73) \quad *Structure
\]

No structure. (Violated by each node in the structure.)

(cf. Prince & Smolensky 1993)

\[
(74)
\]

a. ALIGN (clause, L; IntP, L)

Align all the left-edges of the largest extended projection of the V with the left-edge of an intonational phrase.
b. ALIGN (IntP, L; clause, L)
   Align all the left-edges of the intonational phrase with the
   left-edge of the the largest extended projection of the V.

c. ALIGN (clause, R; IntP, R)
   Align all the right-edges of the largest extended projection
   of the V with the right-edge of an intonational phrase.

d. ALIGN (IntP, R; clause, R)
   Align all the right-edges of the intonational phrase with the
   right-edge of the the largest extended projection of the V.

(75)

a. ALIGN (utterance, L; IntP, L)
   Align the left-edge of every utterance with the left-edge of an
   intonational phrase.

b. ALIGN (utterance, R; IntP, R)
   Align the right-edge of every utterance, by the right-edge of an
   intonational phrase.

c. RIGHT-ALIGN STRESS (RAS)
   (i) Mark the rightmost phonological word in a
       phonological phrase by phrasal stress.
   (ii) Mark the rightmost phonological phrase in the
        intonational phrase by main stress.
d. **LEFT-ALIGN STRESS (LAS)**

(i) Mark the leftmost phonological word in a phonological phrase by phrasal stress.

(ii) Mark the leftmost phonological phrase in the intonational phrase by main stress.

For the data considered, it was not necessary to involve other possible violable syntactic principles, or to assume a ranking between the mapping principles. As far as the prosodic principles are concerned, I argued for the following language particular rankings.

\[(76)\]

a. **English prosody**

\[
\text{ALIGN (utterance, L; IntP, L) } \leftrightarrow \text{ ALIGN (utterance, R; IntP, R) } \gg \text{ RAS } \gg \text{ LAS}
\]

b. **Hungarian prosody**

\[
\text{ALIGN (utterance, L; IntP, L) } \leftrightarrow \text{ ALIGN (utterance, R; IntP, R) } \gg \text{ LAS } \gg \text{ RAS}
\]

c. **Italian prosody**

\[
\text{ALIGN (utterance, L; IntP, L) } \gg \text{ RAS } \gg \text{ RAS}
\]

\[
\text{ALIGN (utterance, R; IntP, R) } \gg \text{ LAS}
\]

In OT, language variation corresponds to different constraint-rankings. On the basis of extensive data involving unmarked and marked focus patterns in English, Hungarian and Italian, I argued that the following rankings are applied in these languages. As a result, potential mismatches are resolved differently in each language.
(77)

a. English: SYNTAX <> MAP >> PROSODY
b. Hungarian: MAP >> PROSODY >> SYNTAX
c. Italian: PROSODY >> SYNTAX >> MAP

I argued that marked focus constructions in English, Hungarian and Italian are different, because the ranking of the higher-level constraints is different in the languages. In the next chapter I will show that on the basis of the proposed constraints and the proposed constraint-rankings, we can account for the different discourse linking patterns in English, Hungarian and Italian without any further assumptions.
1 Introduction

The utterance in (1) has an unmarked prosodic representation, with right-peripheral stress. Nevertheless, (1) may only have a narrow focus reading, where the focus of the utterance is on the object. Why should this be so?

(1)  a. John has seen HER.
     b. *John has seen HER.

Neeleman & Reinhart (1998) argued that it is easy to account for the ungrammaticality of (1b). If anything, the grammaticality of (1a) is strange. In general, pronouns are discourse-linked. Discourse-linked material is understood here as material already present in the universe of discourse at the time of the utterance and is accessible in Ariel’s (1990) sense. Neeleman & Reinhart (1998: 338) argued that it universally holds that discourse-linked material does not bear stress. Thus, the ungrammaticality of (1b) follows, as the pronoun happens to be in the position where the nuclear stress rule assigns main stress.

In fact, it must be due to some lexical (semantic) property of (English) pronouns that they are interpreted as discourse-linked by default. I argued in Chapter 2 that a similar property is found in certain Hungarian auxiliary-type verbs (cf 2). These verbs, just like (English) pronouns, cannot bear main
stress under a wide focal interpretation.\(^1\)

\[(2)\]  
*Úgy döntött, hogy \textit{AKAR meg változni}.*  
expl. decided that wants VM change-to.  
‘He decided that he wants to change.’

Bolinger (1972) showed that there are English verbs with the same property (cf. 3).

\[(3)\]
\[\begin{array}{l}
\text{a. *In this garden, tomatoes }\text{GROW}. \\
\text{b. *Someone has just told me that my bike was SEEN.}
\end{array}\]

Bolinger (1972) and Erteschik-Shir (1997) argued that the reason why pronouns and these predicates show this behaviour is that they are semantically empty. Here, I will not be concerned with the exact lexical semantic properties of these elements. I simply assume, that semantically ‘empty’ predicates behave as if they were discourse-linked.

Following Neeleman & Reinhart (1998) I assume that the following holds universally.

\[(4)\]  
\textit{Anaphoric interpretation principle:}  
Material is discourse-linked if it is unstressed.

\[^1\] Note that these verbs can also take main stress under a narrow reading, just like pronouns.

(i)  
\textit{AKAR meg változni, csak nem megy neki.}  
\textit{wants VM change-to, only not goes for-him}  
‘He WANTS to change, only he cannot do it.’

(ii)  
Tomatoes \textit{GROW}. They are not cloned.

(iii)  
My bike was \textit{SEEN}. It was not stolen.
If so, the ungrammaticality of (1)-(3) follows. Pronouns and semantically empty predicates are discourse-linked. So, given the *Anaphoric interpretation principle* (cf. 4) they must not bear stress. However, they are in a position that receives a Strong label by the nuclear stress rule.

If the prosodically (and syntactically) unmarked utterances in (1)-(3) do not have a wide focus reading, how does one express wide focus in these cases? The sentences are given in (5). A comparison of (5b) to (5a, c and d) reveals that there seems to be language variation with respect to the way Hungarian and English obtains wide focus readings in these cases. Moreover, it seems to be the case that the variation is parallel to that found for marked focus patterns in Chapter 4. English uses a marked prosodic representation, where stress is not right-peripheral, while Hungarian uses a marked syntactic representation, where the verbal particle and the verb are not adjacent.

(5)  
   a. John has **seen** her.  
   b. Úgy döntött, hogy **meg akar változni**.  
      *expl. decided that VM wants change-to.*  
      ‘He decided that he wants to change.’  
   c. In this garden, **tomatoes** grow.  
   d. Someone has just told me that my **bike** was **seen**.

In sum, pronouns and semantically empty predicates are discourse-linked. By the *Anaphoric interpretation principle* (cf. 4), they must bear a Weak label. Thus, a prosodic or a syntactic operation has to be invoked, to ensure that the nuclear stress rule does not assign stress to them.

In this chapter I will investigate the possibilities available in English, Hungarian and Italian to ensure that material is discourse-linked. The main result of this chapter is that the predictions made by the different rankings
proposed for these languages in Chapter 4 to account for the different ways of deriving marked focus patterns are all born out.

In particular, following Neeleman & Reinhart (1998), I argue in Section 2 that a prosodic operation, destressing applies in English. As expected from the discussion in Chapter 4, Hungarian displays stress-avoiding movement. In particular, a phrase is moved to a Spec position preceding the V, to ensure that the V does not bear main stress (cf. section 3). I argue in Section 4 that in Italian, a separate construction is available to allow for the discourse-linked interpretation of an argument or an adjunct. Cliticisation has precisely that effect. Finally, in Section 5, I show that in the case of V or predicate discourse linking, Italian makes use of prosodic extrametricality resulting from a misaligned syntax-prosody mapping, rather than stress-avoiding movement or destressing.

2 English

Following, Neeleman & Reinhart (1998) I argued that discourse-linked material is unstressed. In the metrical tree system that I adopted in this study, on any level (i.e. prosodic word, phonological phrase, intonational phrase) a node that bears Strong bears the stress on that level. But what about Weak nodes? Do they bear secondary stress or are they unstressed? In line with standard practice in tree-based prosodic phonology on the word level, I assume that they potentially receive secondary stress.²

It is well-known that there are languages that have a unique word stress and no secondary stresses (cf. e.g. Eastern Cheremis in Ingemann & Sebeok 1961). Nevertheless, in many cases there is evidence that the word is fully

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² In the bracketed grid notation, Halle & Vergnaud (1987) offered a different way to deal with the suppression of phonetically unrealised secondary stresses in terms of the operation of Line conflation. As far as I can tell this is equivalent to Prince’s (1976) proposal.
parsed into binary feet. Prince (1976) (reported in Kager 1995) proposed the following analysis for a language like Eastern Cheremis, where main stress falls on the rightmost heavy syllable and there are no secondary stresses on other heavy syllables. He proposed that the foot-structure is present and that Weak feet are unstressed, although in other languages Weak feet bear secondary stress.

\[
\begin{align*}
(6) & & \omega \\
 & & S \\
 & & FW_S \quad FW_W \\
 & & σ_s \quad σ_w \\
\end{align*}
\]

Generalising this state of affairs to larger prosodic constituents, I assume that nodes bearing Weak potentially receive secondary stress. I further assume that at these larger domains it is not entirely a language particular choice whether secondary stress is realised phonetically. If an interface condition, such as the Anaphoric interpretation principle requires that a node be unstressed, the secondary stress on Weak node is not realised in any language.

With this in mind, recall that Neeleman & Reinhart (1998) argued that in English a prosodic operation, destressing, applies to discourse-linked constituents. In the tree-based metrical system adopted here this operation can be stated as in (7).

\[
(7) \quad \text{Destressing} \\
\quad \text{Assign Weak to a node.}
\]

---

3 Main stress falls on the initial syllable if there are no heavies, but this is irrelevant for our present purposes.

4 Compare the Destressing rule in (7) with the Stress strengthening rule in Chapter 2 (34).
Thus in the English example in (8a), the discourse-linked pronoun is labeled Weak. The verb, even though it is not rightmost in its phonological phrase bears a Strong label, and thus main stress. If it were not Strong, as in (8b), then the prosodic representation would not be well-formed, as there would be no main stress. This is so, as in (8b) there is no terminal node bearing S that is only dominated by S-s. As a result of (7), main stress in (8a) is not right-peripheral. Thus (8a) violates the prosodic constraint RAS, as the phrasal stress in the rightmost phonological phrase is not on the rightmost phonological word.

(8)

Recall from Chapter 4 that the ranking proposed for English was SYNTAX <> MAP >> PROSODY. Let me show that the utterance in (8a) is indeed the optimal one in English, under an interpretation where the object is discourse-linked. The relevant interpretation is indicated in the top left-hand corner of the tableau in (9). (9) illustrates the evaluation of the candidates under the first two constraints: SYNTAX and MAP. The candidates in (9) are the following.

The first candidate contains a destressing operation, as in (8a).
In the second candidate, the discourse-linked pronoun is prosodically extrametrical on the right-edge, as the intonational phrase does not contain it. Given that the domain of the nuclear stress rule is the intonational phrase, any material that is not integrated into the intonational phrase, is by definition void of clausal stress and thus discourse-linked.

The third candidate introduces a recursive prosodic structure.

The fourth involves phrasal adjunction of the discourse-linked constituent to ensure that it is not rightmost within the intonational phrase (i.e. the opposite of stress-driven movement).

The fifth and sixth candidates involve what I call ‘stress-avoiding movement’: movement of a phrase to the rightmost position to take up main stress, and thereby save the pronoun from getting main stress by the nuclear stress rule. Candidate 5 involves phrasal adjunction, while candidate 6 involves a chain headed by a phrase in a Spec position. As we shall shortly see, this happens in similar Hungarian cases.
As it is shown in the tableau in (9), candidates 1-3 are optimal under SYNTAX and candidates 1, 4 and 6 satisfy MAP. Candidate 1 is the only candidate favoured by both MAP and SYNTAX, so it wins under the overall evaluation. PROSODY need not be consulted, as there is only one surviving candidate under the joint ranking of MAP and SYNTAX.

Nevertheless, I show in (10) the evaluation of these candidates under the prosodic constraints. Recall that the ranking of the prosodic constraints proposed for English in Chapter 4 was the following: ALIGN (utterance, L; IntP, L) <-> ALIGN (utterance, R; IntP, R) >> RAS >> LAS.
As (10) shows, candidate 1, the overall winner of the evaluation, is not actually optimal under the prosodic ranking. Prosodically, it is a marked candidate, as it does not have right-peripheral stress. This, however, does not entail that the utterance should not have a wide focus reading by economy. It is not the case that prosodically marked utterances always have narrow focus readings. Wide focus readings are blocked, if there is a less marked alternative under the same interpretation. As the tableau in (9) shows, the interpretation here is focus=IP and D-linked=DP<sub.TabControl</sub>. The unmarked English utterance, with right peripheral stress does not have that interpretation, so it is not a member of the candidate set in (9).

In other words, contra Reinhart (1998), I assume that destressing and stress strengthening are both marked operations and therefore both are subject to economy. In fact, in the present proposal, destressing the object or applying stress strengthening to the verb have the same prosodic representations. They are both marked. The latter, but not the former, allows for wide focus readings. This follows, if one assumes that the expressions are not evaluated under the same interpretation. In the stress-strengthening case, wide focus readings are blocked as the unmarked utterance (with right-peripheral stress) is available under that interpretation. Once discourse linking is taken into consideration in the interpretation of the utterances for the evaluation, the unmarked utterance simply does not compete in the

<table>
<thead>
<tr>
<th>PR</th>
<th>Expression</th>
<th>Al.L</th>
<th>Al.R</th>
<th>RAS</th>
<th>LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr1</td>
<td>[(‘John) φ</td>
<td>[(has) (SEEN) (her)φ]&lt;sub&gt;IntP&lt;/sub&gt;]</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>pr2</td>
<td>[(‘John) φ</td>
<td>[(has) (SEEN)φ]&lt;sub&gt;IntP&lt;/sub&gt;] (her)</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>pr3</td>
<td>[(‘(John) φ</td>
<td>[(has) (SEEN)φ]&lt;sub&gt;IntP&lt;/sub&gt;] [(her)φ]&lt;sub&gt;IntP&lt;/sub&gt;]</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>pr4</td>
<td>φ [‘(John) φ</td>
<td>[(has) (her) (SEEN)φ]&lt;sub&gt;IntP&lt;/sub&gt;]</td>
<td></td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>pr5</td>
<td>[(Has) ‘(seen) (her) φ</td>
<td>[(JOHN)φ]&lt;sub&gt;IntP&lt;/sub&gt;]</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>pr6</td>
<td>[(Has) ‘(seen) (her) φ</td>
<td>[(JOHN)φ]&lt;sub&gt;IntP&lt;/sub&gt;]</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>
evaluation illustrated in (9), so nothing blocks the emergence of candidate 1 under a wide focus reading with a discourse-linked object.

In contrast, Neeleman & Reinhart (1998: 335, Ex 59) argue that if stress strengthening applied to the verb (11a), there is secondary stress on the object, whereas if destressing applied to the object (11b), there is stress on the verb, but no stress on the object.

(11) a. Max can only afford seeing cars.
    b. Max can afford seeing her.

In (11a), argueably, there is (phrasal) secondary stress on the object, whereas the object in (11b) is completely void of stress. This may be so, but as I argued above in my discussion of secondary stress, this does not constitute an argument against assigning the same Strong-Weak pattern in the prosodic representation in both cases. The phonetic difference (if present) can be accounted for by the assumption that in (11a) secondary phrasal stress is not suppressed on the object as it is not discourse-linked, while the object in (11b) is unstressed, due to discourse linking. Note that in the approach presented here an operation that has the effect of discourse linking an element may only apply to the element if it bears a Strong label. Otherwise, the secondary stress on the element is automatically suppressed.

Let me briefly return to the point that (1a) is grammatical contrary to expectations. (1a) involves an object pronoun, which is discourse-linked. If so, the Anaphoric interpretation principle seems to be violated, as the discourse-linked pronoun is not unstressed. To the contrary, it bears main stress. It does so, as it is contrastively focused. If it were not stressed, the Stress-focus correspondence principle would be violated. Thus, the grammaticality of (1a) follows if we assume that the Anaphoric interpretation principle and the Stress-focus correspondence principle are not on a par. Rather, if a conflict arises between the two the Stress-focus correspondence principle takes preference. Why should this be so, rather than the other way around for example, is a
question that should ideally receive an answer from our understanding of discourse and information packaging. I leave the issue open here.

3 Hungarian

How does discourse linking happen in Hungarian? Given the discussion in Chapter 4, one would expect that a syntactic ‘repair’ mechanism is invoked. There is indeed an operation, stress-avoiding movement, that ensures the discourse-linked interpretation of certain material. However, given the verb-initial nature of the Hungarian VP, this operation may only apply to discourse-link verbs. Postverbal (and preverbal topic) phrases have a Weak label. This may be realised as secondary stress or not, depending on the information status of the element.5

(12) \[\{\text{\"XP V}_\phi\} \{t V \ldots t X P \ldots \phi\} \text{IntP}\]

Recall from Chapter 2 that there is a class of auxiliary-type verbs in Hungarian that take an infinitival complement, and which cannot take nuclear main stress (cf. Komlósy 1992).

---

5 See Appendix B to Chapter 2 for more discussion of discourse-linked postverbal phrases in Hungarian.
One such verb is *fog* ‘will’. It is shown in (13a) that this verb cannot surface sentence-initially. (13b) illustrates that a lower constituent, in this case the particle of the lower verb, may move to the sentence-initial position to pick up main stress. Thus it seems that Hungarian seems to violate syntactic constraints in order to ensure that the V is labeled Weak, rather than shift the stress. This falls out from the proposed ranking for Hungarian.

The tableau in (14) illustrates that the candidate involving stress-avoiding movement to a Spec position (cf. 1st candidate) and the candidate involving stress-avoiding movement to an adjoined position (cf. 5th candidate) and the candidate involving destressing (cf. 2nd candidate) outperform the others with respect to MAP. (Note that the second candidate is the overall winner under the evaluation of object D-linking in English.) The third candidate contains extrametrical material on the left. The fourth candidate involves an extra intonational phrase layer to ensure that V1 is not aligned with the left-edge of the innermost IntP. These both violate MAP.
The surviving candidates have to be compared under the prosodic constraints. This is illustrated in (15). Only the first candidate survives the prosodic ranking, as the second and fifth candidates both involve at least two \([\text{IntP}]\) brackets that are not aligned with the phonological phrase bearing main stress. Thus, the first candidate is the overall winner, no matter how it fares with respect to SYNTAX.
The first candidate violates LAS once as the phonological phrase bearing main stress is not aligned with the higher segment of the intonational phrase. RAS is violated three times: twice by the phonological phrase intervening between the main stress-bearing phonological phrase and the two right-hand intonational phrase boundaries; and once by the left-aligned stress within the phonological phrase bearing main stress. Candidate 2 violates LAS four times. The phonological phrase bearing main stress is separated from the left-edge of the segments of the intonational phrase by one plus two phonological phrases. The violations on candidate 5 are similar.

At this stage, the following prediction is made. Verbs, such as the Hungarian equivalent of English *arrive*, should behave as Hungarian stress-avoiding verbs do. Under a wide focus reading, they should trigger movement of a constituent to the preverbal position. This is correct as (16) shows. The DP argument of the V appears preverbally under wide focus.
(16) Q: Mi történt?
   What happened?
   a. A: #ÉRKEZETT vonat.
      arrived train
   b. A’: VONAT érkezett.
      train arrived

To summarise, I have shown in this section that a V, which would bear main stress in an unmarked utterance, may be discourse-linked in Hungarian by moving a constituent in front of it to a Spec position. As a result, the V will not be leftmost in its phonological phrase, as the element preceding it is phrased in the same phonological phrase, given that it is the left-edge of syntactic phrases that is aligned with the left-edge of phonological phrases in Hungarian (cf. Chapter 2 Section 4). This is in contrast, to English, where a DP occupying the unmarked main stress position is discourse-linked by the prosodic operation of destressing.

4 Italian

4.1 Prosodic extrametricality

Recall that in Italian RAS is ranked high among the prosodic constraints, and is never actually violated. Italian main stress is always right-peripheral. So the operation of destressing, just as the operation of stress strengthening cannot apply in Italian. So, how does Italian mark discourse-linked material? As I will now show, Italian discourse-linked material is not part of the intonational phrase. As a result, the clausal stress rule does not apply to these and these are void of clausal stress. At the same time, within the intonational phrase, stress is strictly right-aligned. Placing an element outside the intonational phrase where the stress rules operate has the effect of the destressing operation, but crucially, without the knock-on effect that
places a S label on the sister node. This is illustrated in (17a) compared to the English case in (17b). The 0 label on the discourse-linked material shows that the stress rules simply do not operate in the dislocated material. By the *Anaphoric interpretative principle* in (cf. 4), unlabeled material, which is devoid of stress, is discourse-linked.

\begin{align*}
(17) & \quad a. \quad [\{WS_φ\}_{\text{IntP}} \quad \{0_φ\}] \\
& \quad b. \quad [\{S \quad W_φ\}_{\text{IntP}}]
\end{align*}

But how does Italian ensure that discourse-linked material is prosodically separate from the rest of the string? As we will now see there are actually two ways to do so. One way to destress a constituent in Italian is to dislocate it syntactically. In what follows, I will show that clitic right-dislocation\footnote{Antinucci & Cinque (1977) showed that clitic left-dislocation is on a par with clitic right dislocation in Italian. However, Rizzi (1997) argued that clitic left-dislocation, at least in constructions that involve a left-peripheral focus behave differently, as here the clitic doubled phrase is a topic. In this work I leave this issue open. If it turned out that Rizzi's (1997) suggestion is on the right track, this could be treated as follows. At least in those cases where a left-dislocated phrase is a topic, one may assume that it is adjoined to IP as Anagnostopoulou (1994) suggested. In this case, the ranking proposed for Italian would favour the prosodic representation in (i) in the case of left-dislocation.} is a

\begin{align*}
(i) & \quad [\text{IntP} \, θ]\, [\text{IntP} \, Φ Φ \ldots θ]
\end{align*}

In Italian, (i) would supply the required topic interpretation under the assumption proposed by Williams (1997) that the topic is the element that is prosodically most prominent after the focus (but compare Chapter 6 Section 3). I briefly investigate the prosodic, syntactic and pragmatic effects of topics
syntactic construction that serves this end. I assume a non-movement analysis for these constructions (cf. Cinque 1990; Anagnostopoulou 1994). It will be apparent from the discussion that syntactic dislocation is unavailable for destressing the VP or the predicate. In this case, the so-called left-peripheral focus construction emerges to ensure that the predicate is unstressed. I will argue that this is a result of misalignment between the syntactic structure and the prosodic structure.

4.2 Clitic right-dislocation

The example in (18) involves so-called right-dislocation (RD) of certain constituents. Calabrese (1993), and Antinucci & Cinque (1977) note that more than one phrase may undergo RD. If this is the case, the right-dislocated constituents may surface in any order with no pragmatic or syntactic difference. In all cases, material that undergoes RD is given or old information, i.e. discourse-linked.

(18) Maria ha dato un LIBRO, a Carlo.
Maria has given a book to Carlo.

Following Cinque (1990)’s and Anagnostopoulou’s (1994) analysis of clitic left-dislocation (CLLD), I take right-dislocated constituents to be base-generated outside the syntactic clause, the IP. I further assume that they are not arguments of the verb, but correspond to the arguments inside the IP, which are themselves clitics or empty pronominals. Right-dislocated phrases are adjoined to IP.

Cinque (1990: 62-63) shows that CLLD is not sensitive to weak islands, does not show subjacency and does not licence parastic gaps. On the basis of these data he argues that CLLD is not an instance of A-bar movement or in Chapter 6, but a closer study is left for future work.
empty operator movement, rather it is base-generation of the clitic pronoun in the IP and of the coindexed dislocated phrase outside the IP. Thus, A-bar binding but not antecedent government (in the sense of Rizzi 1990) holds between the base-generated dislocated phrase and the clitic.

Given an analysis where dislocated phrases are adjoined to IP, it is expected that right-dislocated constituents may surface in any order. This is illustrated in (19).

(19) a. Ha portato GIORGIO,, il vino,, ieri.
    b. Ha portato GIORGIO,, ieri,, il vino.

Giorgio brought the wine yesterday.
(modified from Antinucci & Cinque, 1977:122)

Given that in Italian PROSODY is ranked highest, and within the prosodic constraints RAS is high, the syntactically right-dislocated phrases will be not integrated into the intonational phrase at the prosodic representation. Thus the full representation of (18) is (20). I will shortly demonstrate in more detail that this is indeed the candidate that wins the evaluation under the proposed ranking.

(20) \[
[ \, \phi_W \quad \phi_S \quad \text{IntP} \, ] \quad \phi_0
\]
\[
[ [ \text{Maria ha dato un LIBRO a Carlo} ] \]

Maria has given a book to Carlo.

(20) correctly predicts that at least the first right-dislocated constituent is preceded by an obligatory intonational pause. Given that the right-dislocated phrase is outside the intonational phrase, the clausal stress rule does not operate on it. The Anaphoric Interpretation Principle (cf. 4) derives that the interpretation of dislocated material is discourse-linked. Precisely this has been claimed by Antinucci & Cinque (1977).
The tableau in (21) shows that clitic right dislocation is available in Italian to ensure that a constituent is discourse linked. The relevant candidates are the following.

The three candidates illustrate that a phrase which is doubled by a thetamed marked clitic is adjoined to IP. Other syntactic representations involving clitic right-dislocation are possible but not considered here. Anagnostopoulou (1994) argued that the dislocated phrase has to attach higher than the clitic for the dependency between them to be well-formed. Given the standard assumption that the clitic is in I, any syntactic representation where the dislocated phrase is lower is ruled out by semantic reasons. They have different prosodic structures. In the first candidate the right-dislocated element is prosodically extrametrical, i.e. it is not integrated into the intonational phrase. The second and third candidates integrate the phrase into the main intonational phrase, or into a recursive intonational phrase respectively.

7 The dislocated phrase may be adjoined higher than IP, at least in Greek, as Tsimpli (1995) showed. Syntactic representations where the dislocated phrase is in a Spec position rather than adjoined are not considered either. These would be ruled out as they are disfavoured by SYNTAX. Note in addition that I assume throughout that given the availability of clitics in the Italian lexicon, they must be used to mark discourse-linked status. Also, I take the clitic to be a functional element that does not change the set of lexical items L relevant for drawing up the candidate set.
As (22) illustrates, integrating the syntactically dislocated material prosodically is disfavoured by PROSODY. This is so because this results in violations on RAS. The first candidate violates ALIGN (utterance, R; IntP, R) as part of the syntactic structure is not parsed into prosodic units.

(22) Prosody of Italian CLRD

<table>
<thead>
<tr>
<th>Focus: unspecified</th>
<th>D-linked: unspecified</th>
<th>A</th>
<th>RAS</th>
<th>A</th>
<th>LAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr1</td>
<td><em>(Maria)</em> {gli (ha dato)) (un LIBRO)* (a Carlo)*</td>
<td><img src="image1.png" alt="image" /></td>
<td><img src="image2.png" alt="image" /></td>
<td><img src="image3.png" alt="image" /></td>
<td><img src="image4.png" alt="image" /></td>
</tr>
<tr>
<td>pr2</td>
<td><em>(Maria)</em> {gli (ha dato)) (un LIBRO)* (a Carlo)*</td>
<td><img src="image5.png" alt="image" /></td>
<td><img src="image6.png" alt="image" /></td>
<td><img src="image7.png" alt="image" /></td>
<td><img src="image8.png" alt="image" /></td>
</tr>
<tr>
<td>pr3</td>
<td><em>(Maria)</em> {ha dato)) (un LIBRO)* (a Carlo)*</td>
<td><img src="image9.png" alt="image" /></td>
<td><img src="image10.png" alt="image" /></td>
<td><img src="image11.png" alt="image" /></td>
<td><img src="image12.png" alt="image" /></td>
</tr>
</tbody>
</table>
Only candidate 1 survives, so it does not have to be evaluated under MAP and SYNTAX.\footnote{Note that candidate 1 is in fact suboptimal both under SYNTAX and under MAP.}

To sum up, in Italian, any constituent can be marked as given information. A clitic (or pro) appears inside the IP, the actual overt phrase is adjoined to IP. The main intonational phrase contains the predicate and its arguments. Right-dislocated constituents are outside the core intonational phrase. They do not form their own intonational phrase. The clausal stress rule does not operate on them, so, they are by definition discourse linked. It follows that the verb or the VP cannot be discourse linked in this way, as it is not possible to base generate it outside the clause.

4.3 Left-peripheral focus: the third way

It is documented in the literature (cf. Samet-Lodovici 1996, Rizzi 1997, Antinucci & Cinque 1977, Pinto 1997, Frascarelli 1997) that it is not only right-peripheral or string-medial elements that can be the focus of their utterance. The following examples are also grammatical, with left-peripheral focus.

\begin{itemize}
\item \textbf{(23)} A: Chi ha telefonato?
\begin{itemize}
\item \textit{Who phoned?}
\item B: GIANNI, ha telefonato.
\begin{itemize}
\item \textit{JOHN phoned.}
\end{itemize}
\end{itemize}
\item \textbf{(24)} A: Chi ha telefonato a Pietro?
\begin{itemize}
\item \textit{Who phoned Peter?}
\item B: GIANNI, ha telefonato a Pietro.
\begin{itemize}
\item \textit{JOHN phoned Peter.}
\end{itemize}
\end{itemize}
\end{itemize}
A: Chi e arrivato?
   Who arrived?
B: GIANNI, e arrivato.
   JOHN arrived.

A: Che cosa ha mangiato Piero?
   What did Peter eat?
B: La PIZZA, Piero ha mangiato.
   Peter ate the PIZZA.

Note that an obligatory pause follows the focused element in the preverbal position. I would like to follow Samek-Lodovici’s insight that the presence of the pause indicates that the material that follows is interpreted as if it was right-dislocated. Samek-Lodovici (1996) proposes that the post-focal material is in fact right-adjoined to IP, in other words, he argues that left-peripheral focus constructions involve syntactic movement of the remnant IP into a position following the left-peripheral focus, which he assumes is right-adjoined to VP. I would like to analyse the data differently. I will return to some problems with Samek-Lodovici’s analysis in Section 5.

Given that in the analysis presented here the interpretative rules (anaphoric and focal) do not directly refer to syntactic structure, it is possible to have a situation where prosodic extrametricality is disjoint from syntactic dislocation. In the sentences in (23-26) the context questions indicate that the whole IP is discourse linked, with the exception of the focal element. One way to achieve this interpretation is to move the focal element into a left-peripheral position, place the right-edge of the intonational phrase boundary right after it, making use of syntactic movement and of the marked syntax-phonology mapping. This derivation will accordingly violate SYNTAX and MAP. The material remains prosodically extrametrical, which places violations on the prosodic constraint ALIGN (utterance, R; IntP, R). As a
result, the postfocal material is discourse linked by the Anaphoric Interpretation Principle.

As (27) shows the relevant candidates are the following. The first and the third candidates involve syntactic chains; the DPO occupies a left-peripheral adjoined, or Spec position. The second candidate does not involve syntactic chains. Rather, it has extrametrical material on the left.

(27) The left-peripheral focus construction in Italian (Candidates 1-3)

<table>
<thead>
<tr>
<th>Focus: DPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-linked: IP</td>
</tr>
</tbody>
</table>
| 1 | \{[(La PIZZA) φ] IntP\} \{(Piero) φ\} \{(ha mangiato) φ\} 
\{[La pizza DP]\} [[Piero DP] ha [mangiato tDP VP] IP] IP |
| the pizza Piero has eaten |
| 2 | \{(Piero) φ\} \{(ha mangiato) φ\} \{[(la PIZZA) φ] IntP\} 
| Piero has eaten the pizza |
| 3 | \{[(La PIZZA) φ] IntP\} \{(ha Piero) φ\} \{[mangiato] φ\} 
\{[La pizza DP]\} [[Piero DP] ti [mangiato tDP VP] IP] IP |
| the pizza has Piero eaten |

The comparison of these candidates under the prosodic constraints is given in (28). It is born out by the ranking proposed earlier that the second candidate is suboptimal in Italian prosody: it violates ALIGN (utterance, L; IntP, L). Note that the syntactic representation of the third candidate is the counterpart of the Hungarian focus construction.
The surviving candidates have to be ranked with respect to SYNTAX. As is shown in (29), candidate 1 outperforms candidate 4, as adjunction is preferred over movement to a Spec position.

The only remaining relevant candidate is the one involving left-peripheral focus followed by an intonational break and prosodically extrametrical material. This candidate is admittedly not optimal under MAP, but this need not concern us, as it is the only available relevant candidate at this stage.
4.4 Three different focus constructions

The results obtained in this section, and the results of Chapter 4 Section 6 put together provide a unified account of (marked) focus in Italian. In particular, I accounted for the three different focus patterns in Italian.

As (30) illustrates, Italian has three different focus patterns: right-peripheral focus (30a), string-medial focus (30b) and left-peripheral focus (30c) (cf. Samek-Lodovici 1996).

(30)

a. [‘(Gianni)φ] {(ha dato) ‘(a Maria)φ} {(un libro) (ROSSO)φ} intP
   Gianni ha [dato tDP a Maria VP] [un libro rosso DP] VP
   Gianni has given to Mary a book red

b. [‘(Gianni)φ] { (gli (ha dato)) (un libro) (ROSSO)φ} intP],, {(a Maria)φ}
   [Gianni gli ha [dato [un libro rosso DP] VP] VP] [a Maria DP]
   Gianni to-her has given a book red to Mary

c. [((Un libro) (ROSSO)φ) intP],, {(Gianni)φ} {(ha dato) (a Maria)φ}
   [ Un libro rosso DP] [Gianni ha [dato tDP a Maria VP] VP] VP
   a book red Gianni has given to Mary

In particular, adopting Samek-Lodovici’s (1996) analysis, I argued that the right-peripheral focus construction (cf. 30a) is either the unmarked focus in Italian, or it is the result of rightward adjunction of the focused phrase to VP. In addition, I argued, that this latter construction is available to focus a constituent that would not otherwise be focused, as it would not receive main stress under neutral intonation.

Samek-Lodovici (1996) argued that the string-medial focus (cf. 30b) is in fact an epiphenomenon. It is the result of (clitic) right dislocation of a
constituent that is discourse-linked. This construction also serves the purpose of allowing for V-focusing in Italian.

The left-peripheral focus construction (cf. 30c) was argued to be an instance of predicate discourse linking. Thus the term ‘left-peripheral focus construction’ is in fact a misnomer. Since it is not possible to base generate the predicate outside its clause, it cannot be discourse-linked in a similar way to arguments and adjuncts. This construction allows for the discourse linking of the predicate, as here the predicate is prosodically extrametrical, and thus void of clausal stress.

5 Other analyses of Italian focus

5.1 Against a remnant movement analysis

Having argued that left-peripheral focus in Italian can be analysed as leftward movement of the focus and prosodic extrametricality of the following material, let me now argue against the treatment of left-peripheral focus in terms of ‘remnant IP’ extraposition, due to Samek-Lodovici (1996).

Although often disregarded, remnant movement violates the c-command condition on movement. The focused constituent, which adjoined to IP,\(^9\) will not c-command its trace any longer if the ‘remnant IP’ moves to an even higher position. It is also worth noting that IP-movement in general is not frequently attested in the world’s languages, if at all.

Samek-Lodovici’s analysis predicts that a left-peripheral focus construction cannot involve postfocal NPIs, and that extraction should be ungrammatical from the postfocal domain. This is because the postfocal

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\(^9\) Note further that in Samek-Lodovici’s (1996) analysis it is only in the case that the remnant IP moves further to the right that the focused constituent is assumed to adjoin to IP. In all the other cases, focused constituents adjoin to VP.
Chapter 5: Discourse linking

phrase has been moved into a position which c-commands the focal element. The moved domain is an island, and the focal NPI cannot license another NPI in it, because of lack of c-command. Impossibility of post-focal extraction has been argued to be false by Luigi Rizzi (p.c.). He gave the following examples.

(31)

a. ?Ecco un uomo a cui credo che QUESTO dovreste dire.

   *Ecco un uomo a cui lo ho sempre creduto che dovreste parlare.

The other prediction seems to be born out. It is shown in (32). A focused negative polarity item (NPI) is unable to license an NPI in the postfocal domain.

(32)

a. NULLA, ho detto a Maria.

   *NULLA, ho detto a nessuno.

(Samek-Lodovici: 1996)

However, compare (32b) with (33). (33) is the Dutch equivalent of (32b). (33) is also ungrammatical. However, in the case of (33) the ungrammaticality cannot be attributed to the lack of a c-commanding licenser for the NPI, since the sentence in (33) has undoubtedly right-branching syntactic structure. So, it could be the case that (32b) is ungrammatical for a different reason as well, and not because of the lack of a c-commanding antecedent.
On the basis of the discussion above I would like to conclude that left-peripheral focal elements move to the left-periphery in syntax. The misaligned mapping ensures that they are at the right-edge of their intonational phrase. This renders postfocal material void of clausal stress, and thus discourse-linked. Given that information with respect to pragmatic information status is read off the prosodic structure, it is unnecessary that this movement be driven by a focus feature, or that the position targeted by the movement would be a designated [Spec, FocusP] position. (See Chapter 3 for more discussion.)

5.2 Italian and [+F]

Rizzi (1997) offers an analysis for the left-peripheral focus construction in Italian. The analysis is in line with Bródy’s (1995a) analysis of Hungarian. Rizzi argues that sentences, such as (34) involve a [+F]-marked constituent la pizza ‘the pizza’ that moves overtly to [Spec, FP].

(34) LA PIZZA, Gianni ha mangiato ieri.
the pizza Gianni has eaten yesterday

However, as Antinucci and Cinque (1977) and Samek-Lodovici (1996) describe in detail, Italian has a right-peripheral focus construction as well. As (35) shows, this cannot be understood as focus in situ, as English focus, because the focused constituent is not in the unmarked position. Compare (35) to (36), the unmarked utterance.
(35) Ho dato a Maria la PIZZA

(36) Ho dato la pizza a Maria.

Given a feature-driven analysis, the obvious way to analyse the data is to assume that in (35), similarly to (34), the DP la pizza ‘the pizza’ is marked [+F] and is attracted to [Spec, FP]. The focused constituent in (35) targets the same Focus head as the focused constituent in (34).\(^{10}\) In the left-peripheral focus construction, the focus moves to [Spec, FP] as Rizzi (1997) argued. In the right-peripheral case the same happens, and the preceding material, the remnant IP, fronts as well. This is reminiscent of Kayne’s (1998) analysis of English focus. The remnant IP moves to a position preceding F, for instance to [Spec, WP] as in Kayne (1998). The trigger for such a movement is unclear. Especially so, as we know from (34) that the language allows for the remnant IP to remain in situ as well. Let us assume that there is a pragmatic difference between the two cases that may account for movement the remnant IP in (35) to some appropriate phrase.

As I argued in Section 4, pragmatically, the utterance in (35) is the unmarked one, whereas (34) is marked in the sense that the postfocal part is interpreted as discourse-linked. If so, any trigger for the remnant IP in (35)

\(^{10}\) Alternatively, one may assume that the left-peripheral and the right-peripheral focus in Italian target two separate Focus heads. This could only be maintained if there was a semantic or pragmatic difference between the two focus positions. However, as I will discuss in detail in the next chapter, left-peripheral and right-peripheral foci are not different pragmatically. Rather it is the interpretation of the rest of the utterance that differs in the two cases. If so, the assumption that left- and right-peripheral foci target different positions amounts to nothing more, but the restatement of the problem.
must be of the sort like [+neutral] in Koopman & Szabolcsi (1998) that ensures the neutral word order and pragmatic status is regained.

For the sake of the argument, let us assume that such a trigger exists, and that it ensures that the remnant IP moves to a prefocal position in (35), but not in (34). Given that the prefocal part is moved, it should be an island for any further movement. However, Samek-Lodovici (1996) explicitly claims that *wh*-extraction and right-peripheral focus can co-occur.

(37) Cosa ha detto GIANNI?
   *what has said Gianni*
   What did GIANNI say?

   (Samek-Lodovici 1995: 35, Ex 68b)

(38) Chi lo ha detto A GIANNI,, il segreto?
   *who cI DO has said to Gianni the secret*
   Who told the secret to GIANNI?

   (Samek-Lodovici 1995:35, Ex 70)

In (37) the subject appears postverbally, so it cannot possibly be in situ in an antisymmetric analysis. Thus, there are two possible analyses for (37): One, that gives up the generalisation that A-bar moved phrases are islands; two, an analysis that assumes that *wh* extraction happens prior to remnant movement and possibly prior to focus movement. They both run into the same empirical problem. Let me illustrate this here starting with the first attempt, the one that gives up the generalisation that moved phrases are islands.

In contrast to right-peripheral focus (cf. 37) Rizzi (1997) observed that left-peripheral focus is incompatible with *wh*-extraction (cf. 39). He argued that focus and *wh* targets the same position. This explanation is not tenable under the analysis presented here, as the focused constituent is assumed to be in the same position in the left and right-peripheral cases.
Let us assume that the derivation of the grammatical (37) goes as follows (cf. 40). The focused constituent moves to [Spec, FP]. The remnant IP moves to [Spec, WP] immediately above FP. The wh-element moves out of [Spec, WP] to [Spec, CP].

\[ (40) = (37) \] 
\[ \text{wh-extraction in a left-peripheral focus construction should also be grammatical.} \]

Given the coexistence of left-peripheral and right-peripheral focus construction in Italian, remnant movement to [Spec, WP] has to be optional (cf. 34 and 35). If so, then nothing prevents the derivation in (41), where the focused element moves to [Spec, FP], the remnant IP stays in situ, and the wh-element is extracted to [Spec, CP].

\[ (41) = (39) \] 
\[ \text{Let me show here that the analysis that does not give up the generalisation that moved phrases are islands faces the same empirical problem.} \]

The derivation in (42) accounts for the possibility of wh-movement in a right-peripheral focus construction. In (42), in addition to the landing site of the remnant IP, an immediate landing site is provided for the fronted wh (cf. intermediate t; marked in bold in 42).

\[ (42) = (37) \] 
\[ \text{Let me show here that the analysis that does not give up the generalisation that moved phrases are islands faces the same empirical problem.} \]
However, this analysis fails to account for Rizzi’s (1997) observation that left-peripheral focus is incompatible with \textit{wh}-extraction. The derivation in (43) should be allowed just as well as (42) is. The only difference being that in this construction W does not attract the remnant IP overtly. Recall that such (apparent) optionality of remnant IP movement is independently motivated by the coexistence of left-peripheral and right-peripheral focus in the language.

\begin{equation}
(43) = (39) \Rightarrow \text{[CP Cosa] [WP [FP GIANNO [IP t_1 ha detto t_1]]]}
\end{equation}

It is of course possible to account for the incompatibility of \textit{wh}-extraction and left-peripheral focus by assuming that \textit{wh}-extraction is blocked if W is weak, but this seems nothing more than the description of the data.

To conclude, a feature-driven analysis can account for a two-way parametrical difference, but a ‘mixed’ language such as Italian seems to necessitate ad hoc assumptions.

6 Conclusion

In this chapter I showed that the ranking proposed for English, Hungarian and Italian to account for the different startegies in focus marking extends to the marking of discourse-linked status. Here too, there are essentially three different possibilities available in the grammar, a prosodic, a syntactic and one involving a misaligned mapping. The first, destressing, applies in English. Hungarian features stress-avoiding movement, while Italian has a separate syntactic construction, clitic right dislocation to allow for the discourse-linked interpretation of an argument or an adjunct. The predicate, however, cannot be clitic dislocated, due to independent reasons in the grammar. In this case, I argued the so-called left-peripheral focus construction emerges. I concluded the chapter with a short discussion of other analyses of Italian focus available in the literature.
CHAPTER 6

CONCLUSION

In this chapter I enumerate the main assumptions and summarise the results obtained in this study (Section 1). I also provide two short sections both of which point to directions further research might take. From an empirical perspective, this study might be extended to other languages, such as Turkish and Basque (cf. Section 2). From a theoretical perspective, an initial investigation of another pragmatic information status, namely topic, suggests that prosodic conditions alone are not always sufficient to account for certain properties of pragmatically ‘charged’ syntactic constructions (Section 3).

1 Evaluation of the results

In this work I have sought to describe the different ways languages express focus and discourse linking and to explain why languages use exactly these ways. I gave an explanatory account of focus in three languages: Hungarian, English and Italian.

The work was based on the assumption that focus in the grammar is marked prosodically, by main stress. Another crucial assumption was that discourse linking is marked by the lack of stress.
(1) **Stress-focus correspondence principle:**
The focus of a clause is any syntactic constituent that contains the main stress of the intonational phrase corresponding to the clause.

(Following Reinhart 1995:62)

(2) **Anaphoric interpretation principle:**
Material is discourse-linked if it is unstressed.

(cf. Neeleman & Reinhart 1998: 338)

In addition, I assumed the notion of interface economy proposed by Reinhart (1995). Reinhart argued that optional operations in the grammar, such as stress shifting operations and quantifier raising at LF, are marked in the precise sense that they represent an increased processing load. As a result, they are only ever performed if they derive an interpretation that would not otherwise be available.

The main results of this work were the following. First, by reducing the case of the Hungarian focus construction to the assumption in (1), the scene was set for a unified account of the representation of focus in the grammar. Second, by providing an explicit description of the syntax-phonology interface and the nuclear stress rule in the different languages, I obtained a full typology of possible realisations of focus and discourse linking in the grammar.

Recall Figure 1 from Chapter 1, the proposed architecture of the grammar from the perspective of focus and discourse-linked status marking.
Following Neeleman & Reinhart (1998) I argued in Chapter 2 that prosodic information is available at the interface between the grammar and the conceptual-intentional system. In particular, there is no need for pragmatic information in the syntactic computation. I argued extensively in Chapter 3 that it is conceptually preferable not to assume the presence of syntactic features such as [+Focus], as these consistently violate Chomsky’s (1995) Inclusiveness condition and because once economy and the direct availability of PF information at the conceptual-intentional interface is assumed, which cannot be avoided, the presence of the [+Focus]-feature is in fact superfluous.
I also argued that once prosodic information is available at the interface, it is not unexpected that prosodic considerations would trigger syntactic movement (cf. Chapter 3). In particular, I argued that the Hungarian focus construction involves stress-driven movement (cf. Chapter 2).

The bulk of this thesis was concerned with the attested language variation in constructions involving marked focus and discourse linking. Reinhart’s (1995) interface economy consisting of reference set computation was reinterpreted as an Optimality Theoretic evaluation at the interface.

I proposed that marked focus or discourse linking is the result of a mismatch between the prosodic representation, the syntactic representation and the syntax-prosody mapping principles (cf. Chapter 4 Section 2). I argued that the mismatch is resolved in a different way in different languages; in fact, it may be resolved in different ways in different constructions of the same language.

Based on extensive data from English, Hungarian and Italian I proposed that the choice between the different ways of resolving the mismatch is not parametric. Rather it is best accounted for by assuming that the modules of the grammar are represented as ranked constraints at a higher level evaluation at the interface. This is shown in Figure 3.
The interface between the grammar and the conceptual-intentional systems

Figure 3

Note that this evaluation at the interface only really effects utterances with marked focus or with discourse-linked material. Utterances whose syntactic and prosodic representations are unmarked and which moreover satisfy all the mapping principles, are unmarked and hence do not have a trivial evaluation. Thus the motivation behind Reinhart’s interface economy, that it only effects optional operations, is maintained in the present proposal, as unmarked expressions have a trivial evaluation and only those...
expressions undergo a more complex evaluation at the interface that are marked from a prosodic, syntactic or mapping perspective.

2 Turkish and Basque

Turkish and Basque are suitable candidates for extending the empirical coverage of the analysis presented in Chapters 2 and 4. These languages are reasonably strict OV languages, with most heads being final. It appears to be the left-peripheral edge that is relevant for the syntax-phonology mapping. They also seem to have left-peripheral stress patterns; however, this is far from being a definite claim.

As far as Turkish is concerned, the following claims by Erguvanli (1984) suggest that a common treatment of neutrally focused constituents and of contrastively focused ones might be on the right track.

‘In Turkish, under normal intonation, the sentence stress occurs on the constituent just before the verb and thus marks the focus.’

(Erguvanli 1984:34)

‘It should also be noted that there is a distinction between focus in unmarked orders and focus in marked orders. The focus position is the same, but there is a difference in the semantic and pragmatic nature of the focused constituents. Neutral focus refers to the element that conveys neutral information in a sentence with an unmarked order, which is the element immediately to the left of the verb, thus neutral focus often coincides with indefinite NPs, specifically [-animate, -definite] D0s, etc. A marked order produced by a shift in the ordering of the definite NPs places contrastive focus on the NP immediately before the verb.’

Erguvanli (1984:37; my italics)

1 There is, in fact, a proposal for a similar treatment of Basque by Arregi (2001).
In Basque, according to Ortiz de Urbina (1995, 1999) and many others, contrastively focused constituents appear in the immediately preverbal position. (3a) shows a neutral sentence from standard Basque, while (3b) contains a contrastively focused element.

(3)

a. Jon herri honetara aurten etorri da
   John this town this year come has
   ‘John came this year to this town.’

b. Jon AURTEN etorri da herri honetara
   ‘It is this year that John came to this town’
   (Ortiz de Urbina 1995: 214-5)

In fact, Ortiz de Urbina (p.c.) informs me that in the Basque dialect of Leikoto, neutrally focused and contrastively focused constituents are both immediately preverbal, just like in Turkish. However, according to Miriam Uriba-Etxebarria (p.c.), this is not necessarily the case in other Basque dialects.

If the analysis of Chapters 2 and 4 could be extended to Turkish and Basque, this would lend further support to the treatment of the syntax of focus from a prosodic perspective.

3 On the notion TOPIC and its encoding in the grammar

In this study I investigated the grammatical realisation of focus and discourse linking. A natural extension of the study would be to explore the
grammatical realisation of topics. All the more so, as topics seem to bear some resemblance to foci and they are generally, but not exclusively (cf. Reinhart 1981), discourse-old. The following is a preliminary discussion, which points to the direction that to account for the grammatical realisation of topic one has to take into consideration not only prosodic and syntactic, but also purely pragmatic or discourse factors.

I first clarify what I mean by the notion topic. I follow Reinhart (1981), who claims that the sentence topic (hereafter topic) is what the utterance is about. Although all utterances have a discourse topic, the sentence topic may be not overtly spelt out in the utterance. In this case it agrees with the topic of the previous utterance.

But what is the relationship between this notion of topic, and the so-called topics in an English left-dislocation construction?

(4) (As for) John,, I like him.

This construction is used in English to introduce a new topic, in other words to mark a topic switch. In (4), we see the identification of a topic and statement about that topic in one single utterance. The first intonational phrase, which contains the dislocated phrase, introduces an element which is in some sense *new* in the discourse; at least its topic status is new to the hearer. This element then becomes the topic of the part of the utterance that follows it. The second intonational phrase refers to this topic and tells the hearer some new information *about* it. In other words, the dislocated constituent is the *focus* of its own intonational phrase, hence a *possible* topic of any further (part of the) utterance (cf. Williams 1997). It is the result of some sort of discourse principle, possibly Relevance (cf. Sperber & Wilson 1995), that once a new topic is introduced in such a complex way, it will necessarily be the topic of the following (part of the) utterance.

Thus I agree with Williams (1997) that so-called English topics are subfoci, or *secondary foci* rather than topics. On the other hand, I disagree
with his argumentation that derives the order of the so-called topic and the rest of the utterance from the rightward orientation of the English stress rule. He claims that secondary foci precede primary foci because the normal stress pattern in English assigns more prominence to the rightmost stress. I propose instead that the order of the topic and the focus follows from discourse principles. In particular, I make the following hypothesis\(^2\).

\[(5)\] A syntactically marked topic precedes the focus of the utterance.

The main argument against Williams’ suggestion that topic-focus order follows the Weak-Strong pattern of the English stress system comes from Hungarian. In Hungarian, certain constituents can undergo left-dislocation. This construction has been termed a contrastive topic construction by Szabolcsi (1981). The interpretation of these constructions is similar to the English left-dislocation construction. Given that the Hungarian stress rule is leftward oriented, if Williams’ (1997) argumentation was on the right track, one would expect that Hungarian topics appear on the right of the core clause. This is not the case, as is shown in (6).\(^3\)

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\(^2\) The proposal is in line with much research in the so-called Prague School, see Haji ová, Partee & Sgall (1998) for a recent example. Similar claims have also been made by Prince (1981). See also Lekakou (2000) for a similar claim concerning Greek.

\(^3\) Note that (3b) is grammatical with an interpretation where Marit ‘Mary-acc’ is afterthought.
(6) a. Marit, azt nem ismerem.
   Mary-acc that-acc not know-I
b. *Azt nem ismerem, Marit.
   that-acc not know-I Mary-acc
   ‘As for Mary, I don’t know her.’

An analysis based on discourse considerations such as (5) accounts for both the Hungarian and the English case. In both languages two intonational phrases are formed, which is indicated by a break after the dislocated constituent. The stress rule applies in both intonational phrases. The focus defined by the first intonational phrase becomes the discourse topic of the second intonational phrase. On the discourse level, what we find is in effect the introduction of a new topic, or the indication of a topic switch, or the indication of a restriction on the set defined by the topic (cf. contrastive topic).

This discourse effect can be illustrated in Italian as well. In the following example we see that the introduction of a new topic by restricting a set known from previous discourse (i.e. the Joneses) is possible by placing the new topics in a clitic left-dislocated construction, or as primary right-peripheral foci, but not in a clitic right-dislocation construction.

(7) A: Cosa pensi dei Jones?
   What do you think of the Joneses?
   B: Il marito, l’adoro. Ma la moglie, la odio.
   The husband, I adore (him). But the wife, I cannot stand (her).

(8) A: Cosa pensi dei Jones?
   What do you think of the Joneses?
   B: (*L’)Adoro il MARITO. Ma (*la) odio la MOGLIE.
   The husband I adore, but the wife I cannot stand.
Note that the constructions in (7) and (8) are syntactically left-dislocated constructions. Their prosodic structure, however, does not involve phonological phrases that are not integrated into an intonational phrase. Rather, parallel to the English left-dislocation structures, two intonational phrases are formed.

If topics are really secondary foci, it seems unnecessary to assume a TopicP position for these. One might assume that they sit in a Secondary FocusP position. However, note Williams’ (1997) argument against such a position, who shows that there is no competence restriction in introducing more levels of embedded foci. Thus, tertiary foci are possible, as ‘topics’ of secondary foci etc. etc. Note that there are arguments against assuming the existence of a single (Primary) FocusP to start with (cf. Chapter 3).

In Chapter 5 I reported that Antinucci & Cinque (1977) claim that (clitic) left dislocated material is interpreted as discourse-linked. I mentioned there that this seems to contradict, at least partially, Rizzi’s (1997) analysis, who argues that left-dislocated constituents are topics. In particular he assumes that topics occur in two distinct positions, one immediately preceding left-peripheral focus, one immediately following it.

(9) Force Top* Foc Top* Fin IP

I propose to resolve this apparent contradiction as follows. There seems to be a difference between left-dislocated material that precedes a left-peripheral focus, and other left-dislocated material. It is only the first that has an obligatory topic interpretation. Other left-dislocated elements are obligatorily discourse linked, and thus possible topics.

If so, alongside the obligatory topic-focus order hypothesised in (5), another generalisation can be made concerning the pragmatic information status of elements in left-peripheral syntactic positions.
Material that precedes a left-peripheral focus in Italian must be a topic. It cannot be ordinary discourse-linked material.

I would like to introduce the following ‘topic-test’. Epithets are not possible topics, given that they are referentially dependent on previous discourse. Thus Williams’ analysis predicts that epithets cannot occur in left-dislocated constructions in English. This prediction is born out.

A: What about John?
B: *(As for) the idiot, I fired him.

Similarly, Italian epithets cannot appear in left-dislocation preceding a left-peripheral focus either. This is in line with the generalisation in (10), which states that whatever precedes a left-peripheral focus in Italian must be a topic.

Ho visto Gianni.

A: have-I seen John
B: *Lo sciemo,, quando l’hai visto?

the idiot when him have-you seen

Rizzi (2000) has noted the following restriction on the placement of adverbs in the left-periphery. An adverb such as rapidamente ‘quickly’ may undergo left-dislocation, followed by an intonational break in a neutral sentence (cf. 13). This is not possible if a left-peripheral focus is involved (cf. 14). The data suggests that this adverb, like epithets, does not lend itself to topic interpretation. However, it is possible to render the sentence grammatical by providing a discourse context where the adverb is an appropriate topic (cf. 15).
(13) Rapidamente, hanno fatto i compiti.
‘Quickly, they did the homework.’

(14) ??Rapidamente, che cosa hanno fatto?
‘Quickly, what did they do?’

(15) Gianni mi ha detto che hanno fatto alcune cose lentamente e altre rapidamente. Ora, io vorrei sapere: rapidamente, che cosa hanno fatto?
‘Gianni told me that they did some things slowly and others quickly. Now, I would like to know: quickly, what did they do?’

(Rizzi, 2000 Exs. 51-52)

To summarize, on the one hand I accept Williams’ (1997) arguments that topics appearing in the English left-dislocation construction are secondary foci. As a result, the possibility of an analysis of this construction in terms of [+Topic]-feature is doubtful. On the other hand, I argued that Hungarian left-dislocation containing contrastive or new topics suggests that the ordering of topic and focus does not follow from prosodic characteristics. Rather I proposed, in line with e.g. Hajiová, Partee & Sgall (1998) and Prince (1981), that the obligatory topic-focus order follows from discourse considerations. In addition, I proposed that, at least in Italian, the proposed ordering restriction is a biconditional: not only do topics precede foci (cf. 5), but left-peripheral foci may only be preceded by topics (cf. 10).
4 Concluding remarks

The aim of this thesis was to provide a unified account for focus marking in English, Hungarian and Italian. I argued that the Stress-focus correspondence principle (4) and the Anaphoric interpretation principle (5) hold in all three languages. I proposed a tentative architecture of the grammar from this perspective. I revealed that the architecture predicts a three-way typology of focus and discourse linking. I further argued that Reinhart’s (1995) interface economy consisting of reference set computation should be reinterpreted as an Optimality Theoretic evaluation of higher-ranked constraints corresponding to the different modules of the grammar at the interface between the grammar and the conceptual-intentional systems.

The thesis provides a case against the widely-held assumption that pragmatic notions such as focus are encoded in the syntactic computation by a [+Focus]-feature and a corresponding functional Focus head.
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