The homogeneity of Hungarian ‘focus position’ effects

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ABSTRACT

A variety of constituent types can appear in what is generally called ‘Focus position’ in Hungarian, producing various interpretations. One way to deal with this variety is to posit more than one functional projection in place of the single position traditionally identified (as in Szabolcsi 1997). This paper argues, however, that characteristic semantic procedures identified by Szabolcsi for certain kinds of constituent in fact underpin all the readings triggered by ‘Focus position’, which should therefore be maintained as a single position. Some of the properties of a grammatical approach which can capture this idea are outlined. The proposed approach aims for a maximally simple interface between syntactic, semantic and phonological structure, incorporating many of the advantages of Steedman’s (2000,to appear) Combinatory Categorial Grammar, but also departing from the latter in significant ways.

1. HUNGARIAN ‘FOCUS POSITION’

Linear order in the Hungarian main clause can be represented by the following template[1]:

(1) (Topic*) (Quantifier*) (Focus) V (XP*)

Detailed descriptions of each of the syntactic slots in the template can be found in (amongst others) É. Kiss (1987,1994), Vogel & Kenesei (1987). This paper will concentrate on only one of these: the unique (non-recursive) pre-verbal position usually termed ‘Focus’. Some analysts (e.g. Kálmán *et al.* 1986, Szabolcsi 1997) have argued that this in fact contains two separate positions. Thus, Szabolcsi’s (1997) version of (1) splits the Focus position into PredOp (for ‘Predicate Operator’) and Focus, the former being the position of the restricted set of quantifiers which appear immediately preverbally (rather than in the Topic or Quantifier positions), as well as being the unmarked position of bare object nominals and certain verbal prefixes[2].

One aim of the present paper will be to argue that Focus position is, after all, a single syntactic slot. Furthermore, it will be argued that this slot relates to a single, consistent interpretational procedure in the

[1] An asterisk signifies that the relevant position may be iterated.

[2] Szabolcsi (1997) is non-committal as to the precise syntactic nature of this distinction. She suggests PredOp and Focus could be different specifier positions on a single FP projection, or may relate to separate functional projections.

construction of semantic representations. This in turn originates in the semantics of the unstressed verbs which combine with XPs appearing in Focus position. The semantic interpretations of these verbs must therefore be suitably underspecified to combine with a variety of constituents and produce the observed range of effects on the interpretation of sentences.

Such a perspective entails that the so-called Focus position is not merely the surface position of focused constituents. It is therefore important to distinguish clearly between the syntactic slot and the discourse notion(s) of focus. To this end, I shall henceforth refer to the syntactic position (arbitrarily) as *Foc*.

1.1. The range of items in *Foc*

This section gives a brief descriptive overview of the kind of constituents found in *Foc* and associated effects on semantic interpretation[3].

While word order alone is not sufficient to distinguish the three pre-verbal positions in (1), they are still distinguishable in surface structure, once phonological indicators are taken into account. The items I assume to occupy *Foc* are those which are found immediately preceding a destressed verb (Topic and Quantifier positions are followed by stressed verbs). As such, my inventory of items appearing in *Foc* encompasses the occupants of both Focus and PredOp in Szabolcsi's (1997) schema (and their equivalents in related theories). The principal constituent types are listed in (2) and discussed in turn below.

(2) a. Identificational foci
 b. 'Verb modifiers', including
 i. verbal 'prefixes'
 ii. bare object nominals
 c. Certain quantifiers (Szabolcsi's (1997) 'counters')

1.1.1. Identificational focus

The common notion that Hungarian has a 'focus position' obscures the fact that only a particular kind of focus reading is associated with this position; the focused constituents found in *Foc* do not exactly match with the common definition of focus assumed in most theories of information structure. The usual definition of focus is based on the notion of the non-presupposed part of a sentence. Thus, this kind of focus, termed 'information focus' by É. Kiss (1998), can be identified as the part of a sentence which answers a (real or implied) *Wh*- context question.

(3) [What did Fred eat?]
 Fred ate the beans.

[3] One kind of effect not explored here is the interaction of certain *Foc* elements with verbal aspect readings (Kiefer 1994). While a proper investigation of this is beyond the scope of this paper, see section 5 for brief related comments.

The information focus in (3) is therefore *the beans*. An information focus prompts an update of the hearer's discourse model, but carries no necessary implications about any other entities in the context. Information foci in Hungarian carry a certain kind of stress or accent (Roberts 1998), but are not restricted to a particular position.

The kind of focus found in *Foc*, however, is what É. Kiss (1998) calls 'identificational focus' (see also Vallduví & Vilkuna's (1998) 'kontrast', as opposed to 'rheme'). This carries an inherently contrastive reading which has been described as 'exhaustive listing' and 'identification by exclusion'. The effect of identificational focus is to single out the focused item in contrast to the contextually available set of possible alternatives (an idea formalised in Rooth's (1992) 'alternative semantics' model), with the effect that the truth of the sentence containing the focused item implies the falsehood of any sentence which differs only in the replacement of the focused item with some other item. This meaning is best conveyed in English using the cleft construction (see É. Kiss (1998) for the comparison of English clefts and Hungarian *Foc*). The following example from É. Kiss (1998:251) involves a test (credited to Donka Farkas) which demonstrates how Hungarian *Foc* hosts identificational foci:

(4) A: Mari egy kalapot nézett ki magának.
Mary a hat.ACC picked out herself.DAT
'It was a hat that Mary picked for herself.'
B: Nem, egy kabátot is ki nézett.
No a coat.ACC also out picked
'No, she picked a coat, too.'

This piece of dialogue (like its English translation) demonstrates the 'identification by exclusion' effect of *Foc*. Not only is the inhabitant of *Foc* (*egy kalapot*) identified as the thing picked out by Mary; it is also part of the meaning of the sentence that nothing else was picked out by Mary. Speaker B's reply confirms this intuition. The fact that negation is used here felicitously shows that *egy kalapot* is no mere information focus in speaker A's statement: since *egy kalapot* appears in *Foc* it cannot even be true that Mary picked out a hat among other things.

1.1.2. 'Prefixes' and bare object nominals

Unlike most XPs, which appear in *Foc* only when carrying an identificational focus reading, 'verbal modifiers' (VMs), including so-called verbal 'prefixes' and bare object nominals, appear in *Foc* in the unmarked case. They are not, however, restricted to appearing only in *Foc*: they may also surface post-verbally in certain circumstances. Indeed, the interaction of 'prefixes' with the verb has been described as a single lexical unit made up of two syntactically independent parts (Ackerman & LeSourd 1997; É. Kiss 1994). Despite this potential independence, when in *Foc*, they seem to enter into a close structural relationship with the verb, as is characteristic of items in *Foc* (prefix VMs are even represented in Hungarian orthography as part of the verb, when they appear pre-verbally). Thus, VMs when pre-verbal are stressed and are always followed by a destressed verb, in accordance with my criteria for the identification of *Foc* elements.

This structural closeness is reflected in the compound-like meanings which result from the appearance of VMs in *Foc*. This is clearest in the case of prefix VMs, which semantically combine with verbs in a variety of ways, from the transparently compositional (5a) to the idiosyncratic (5b) (in this respect they are similar to English verbal particles, ranging from transparent combinations like *pull out* to the entirely unpredictable *egg on* or *take off* 'imitate').

(5) a. ki-szalad
out-runs
'S/he runs out'

b. be-rúg
in-kicks
'S/he gets drunk'

Prefix VMs, then, are clearly in some sense incorporated into the verb, producing complex predicate meanings of various kinds, and this is reflected in the compound-like structure of *Foc* in relation to the verb.

Bare object nominals in *Foc* also combine with the verb to produce complex predicate interpretations, of a slightly different, more consistently predictable nature. Note the following example and the comment on it from Kiefer (1994:444): "The correct translation of [(6)] would be something like 'be engaged in doing something', as in 'be engaged in letter-writing' rather than 'be writing a letter'."

(6) Pisti levelet ír.
Steve letter.ACC write
'Steve is writing a letter.'

This relationship is more like true noun incorporation, as is common in languages such as West Greenlandic (Van Geenhoven 1998). The term 'incorporation' has been applied to the position of Hungarian bare object nominals by the likes of É. Kiss (1987) and Kiefer (1994), and the structure has been likened to incorporation in other languages by Cohen & Erteschik-Shir (2000). This reflects the fact that in both meaning and structure, bare object nominals in *Foc* clearly seem to form a unit with the verb.

1.1.3. Modified numeral quantifiers

Not all quantifiers can appear in all syntactic positions in Hungarian. Szabolcsi (1997) details the different constraints involved in the positioning of quantifiers. Her PredOp position (which is in my terms merely a manifestation of *Foc*) can host only a restricted set of quantified noun phrases: specifically, those containing modified numerals, such as *more than six men, fewer than six men, exactly six men*. To this, one might add unmodified numerals like *six men*. According to Szabolcsi, the latter may only appear in PredOp if the head noun is destressed. However, it is uncontentious that such phrases may appear as identificational foci and since Szabolcsi gives no way of structurally distinguishing the two, the stress difference between simple and modified numerals may amount to nothing more than a difference in the possibilities of focus projection.

In Szabolcsi's view, different quantifiers occupy different positions, as heads of different functional projections, according to the semantic properties of the quantifier. The advantage of such an analysis for Szabolcsi is that it relates the semantic properties of the quantifiers in the different positions to the fact that scope in Hungarian is mostly determined by the linear order of constituents. When each successive position is a separate projection dominating the next, this relationship is straightforwardly captured in terms of c-command.

Note that, while Szabolcsi's approach purports to explain the link between linear order and scope in Hungarian, it does so at the cost of ignoring the expression of information structure by linear order (the use of an FP projection for identificational focus is an essentially descriptive, rather than explanatory, move under Szabolcsi's analysis. Work by Erteschik-Shir (1997,1999), however, argues that information structure and scope are related to a much greater degree than is usually assumed, leaving the way open for a possible integration of both with linear order in Hungarian. This idea will be taken up in section 3.2.

The particular, definitive function of PredOp quantifiers, as identified by Szabolcsi, is 'counting'. This is to some extent inherent in the meaning of the modified numeral quantifiers that may appear in PredOp, but note that, for at least some of these, there are two ways in which they can be used, corresponding demonstrably to two different positions in Hungarian[4]. This is illustrated in (7) (Szabolcsi's example 54), in which the post-verbal position of the 'prefix' *félre* in (7b) shows that *Foc* (Focus or PredOp, in Szabolcsi's terms) is filled by the quantified noun phrase (see section 2). In (7a), however, the prefix is pre-verbal, so the quantified phrase must be in a position preceding *Foc*.

(7) a. A: Több, mint hat diákunk félreértette a kérdést.
more than six our-students aside.understood the question
B: Lehet, hogy még másolkat is találsz.
is-possible that further others.ACC also find.2SG
A: 'More than six of our students [Quantifier position] misunderstood the question.'
B: 'Maybe you will find others, too.'

b. A: Több, mint hat diákunk értette félre a kérdést.
*B: Lehet, hogy még másolkat is találsz.
A: 'More than six of our students [*Foc*] misunderstood the question.'
*B: 'Maybe you will find others, too.'

The meaning contrast that this relates to is shown in the felicity of speaker B's reply. When the quantified phrase is not in *Foc*, it refers to a particular group of more than six students; a group known to speaker A even though she may be vague about the precise number involved at the time of speaking. It is about

[4] As will become clear in section 4, the notion of 'syntactic position' need not imply functional projections, or any other particular aspect of any formal syntactic theory. For present purposes, by 'different positions' I mean only that there are distinct structural and meaning relations between the verb and the constituent in question.

this known group that speaker A provides the information that they misunderstood the question. This is demonstrated by B's ability to refer to 'others' in his reply. In (7b), with the quantified phrase in *Foc*/PredOp, its semantic contribution is quite different. The infelicity of B's referring to 'others' in this case shows that the quantified phrase does not refer to a particular group of students who happen to number more than six. Rather, speaker A seems to be speaking about the situation of students' having misunderstood the question and uses the quantifier to indicate the number involved in this situation. While it is possible to refer to students 'other than' those in a specific group, it is not possible to have 'others' above and beyond the quantity described by *more than six*, since, as a quantity, this has no upper limit.

The difference in quantifier meaning here clearly relates to some kind of difference in the speaker's perspective: saying something about a group of students (albeit a vaguely described one), as opposed to saying something about the situation of students' misunderstanding questions. Put in these terms, this variation in perspective seems closely related to some notion of Topic-Comment structure. Szabolcsi (1997), meanwhile, argues that the special character of her PredOp items stems from a a fundamental difference in perspective of a semantic kind, at the level of procedures for evaluating truth conditions. The juxtaposition of these notions of perspective is already very suggestive of a link between Szabolcsi's PredOp and the interpretation of focus. These issues and the relationships between them are taken up in section 3. First, however, I review the structural evidence for believing that PredOp quantifiers and the other expressions listed in section 1.1 do in fact share a single position.

2. THE STRUCTURAL UNIFORMITY OF *Foc*

The surface indicators of the existence and nature of *Foc* are both syntactic and phonological. As will become clear below, I assume that the two kinds of structure work in tandem, at a single derivational level. That is, I do not assume the common generative theorists' position that phonological structure is merely the result of a mapping process from an independently derived syntactic surface structure (see, for example, Selkirk 1984; Truckenbrodt 1999). Such issues are, however, essentially independent of the question of the homogeneity of *Foc*. For the sake of clarity, I here separate the phonological evidence for this from the evidence from word order. For the outline of an approach which attempts to integrate the two, see section 4.

2.1. Phonological evidence

Foc is distinguished from other pre-verbal elements by its phonological structure: the item in *Foc* carries a 'primary stress' and, uniquely, causes the destressing of the verb that follows it (Quantifier position also carries primary stress, but precedes a stressed verb).

The precise nature of this 'primary stress' is debatable. For Szendrői (2000), it is the nuclear stress of the sentence, as determined by metrical principles, while Rosenthall (1992) and Roberts (1998) identify it as an H^*+L (or possibly H+L^*) pitch accent, which is not unique to *Foc*, but seems to appear on post-verbal information foci as well. Another strand of the literature, following Kálmán (1985), argues that 'neutral' sentences have a similar degree of stress distributed over every major constituent throughout the sentence and that the special feature of the stress on *Foc* is not its own phonological strength, but its ability to 'eradicate' the stress on subsequent constituents (notably the verb). These viewpoints may be to some extent all compatible; the last two in particular seem to coincide insofar as 'neutral' sentences are likely to be effectively 'all (information) focus', with the exception of Topic elements, whose phonology would have to be separately accounted for (and Rosenthall's (1992) instrumental phonetic results do suggest that Topic stress is different in character).

In any case, the ability of the pre-verbal *Foc* element to apparently 'usurp' the verb's stress (or stressed position) makes it seem that *Foc* in some sense forms a unit with the verb at the phonological level. This notion is common in the literature on Hungarian, at least since Varga (1983), but is rarely considered in any detail, let alone related to the interpretation of *Foc*. Vogel & Kenesei (1987) argue the *Foc*–verb relationship is in fact an instance of a more general rule of phonological phrasing in Hungarian, whereby each phonological phrase begins with a primary stress and any subsequent constituents within the phrase are unstressed (hence Hungarian phonological phrase stress would be parallel to word-level stress, which is consistently word-initial). I shall assume this characterisation of Hungarian phonological phrasing as a suitably simple working model, although it should be noted that the evidence for it is not completely clear (Vogel & Kenesei produce putative sandhi evidence for such phrasing, but this is not accepted by the native speakers I have consulted).

Whatever its exact nature, the bond between *Foc* and verb seems particularly tight. Nothing may intrude between *Foc* and verb, with the exception of certain particles which may follow identificational foci (such as the negator *nem* and *sem* 'neither') following a focused item. These stressless particles may be viewed as affixes on the verb and the focused XP, respectively, and therefore even they do not necessarily represent the interruption of *Foc* and verb.

The ability to enter into a phonologically-signalled unit with an unstressed verb is something shared by all and only the kinds of expressions which I argue belong to the single syntactic position *Foc*. The Topic and Quantifier positions, in contrast, are always followed by a stress-bearing verb or other stress-bearing constituent.

2.2. Syntactic evidence

Evidence from surface word order interactions also supports the idea that *Foc* is a single position. Identificational foci and the constituents attributed to a separate PredOp position are in effect in complementary distribution, strongly suggesting that they do in fact compete for just one position. For example, the presence of an identificational focus prevents a VM from appearing in its unmarked pre-verbal position.

Consider again the example (4), repeated below as (8). Note the position of the 'prefix' *ki* in speaker A's statement, where the verb follows an identificational focus, compared to its position in speaker B's contribution. Note that this complementary distribution provides a test for whether a pre-verbal item really is in *Foc*: if a VM remains pre-verbal, other pre-verbal elements must be in Topic or Quantifier position (in this way, speaker B's line in (8) illustrates the fact that XPs suffixed with *is* 'too' always appear in Quantifier position, not *Foc*).

(8) A: Mari egy kalapot nézett ki magának.
Mary a hat.ACC picked out herself.DAT
'It was a hat that Mary picked for herself.'
B: Nem, egy kabátot is ki nézett.
No a coat.ACC also out picked
'No, she picked a coat, too.'

3. THE INTERPRETATION OF *Foc*

3.1. Two procedures for the interpretation of arguments

The generalisation that I wish to draw concerning the interpretation of items in *Foc* is that all such items are interpreted in some sense internally to the predicate of the sentence. I use the term 'predicate' in the sense of Strawson (1964), whereby predication is a function from topics (or 'subjects of predication') to propositions; in other words, a predicate provides some putative information about its topic. The notion of 'topic' is independent of any particular grammatical relation.

It is clear in what sense prefix VMs are interpreted internally to the predicate, since they contribute directly to the meaning of the verb. The interpretation of incorporated bare object nominals is similarly 'predicate-internal', in the sense that the bare nominal is interpreted as part of a complex predicate which it forms with the verb.

Identificational foci and PredOp quantifiers are less obviously related to the notion of predicate-internal interpretation. However, Szabolcsi's (1997) discussion of her PredOp position (under the current analysis a manifestation of *Foc*) suggests that this notion is precisely what is required to explain semantic distinctions between items in *Foc* and those in other positions in the Hungarian sentence. If Szabolcsi's arguments are accepted, all that remains is to show that they relate also to identificational focus readings, in order to maintain a homogeneous analysis for all the elements here claimed to be in *Foc*.

Szabolcsi, building on work by Ben-Shalom (1993), argues that there must be two different basic procedures available for the verification of the truth value of a sentence with respect to any given (NP/DP) argument. In Szabolcsi's words:

> The basic distinction that I wish to make is between DP denotations that contribute an entity as a target of predication and DP denotations that operate on the denotation of the predicate in the manner of generalised quantifiers. (Szabolcsi 1997:123)

This amounts to the difference between the following two strategies, or procedures. On the one hand, establish first the (set) denotation of a subject of predication and then check each member of this set for the property described by the predicate. On the other hand (the 'generalised quantifiers' approach), first establish the denotation of the predicate and then verify that the denotation of the argument is a subset of this. The latter strategy is the one that Szabolcsi associates with the interpretation of PredOp elements. In other positions, arguments are said to be interpreted according to the other strategy, that is they contribute subjects of predication.

3.2. Identificational focus and PredOp

Szabolcsi's 'generalised quantifier' interpretation (as opposed to the alternative, 'subject of predication' interpretation) provides a link between PredOp quantifiers and VMs which is defined precisely in terms of interpretation 'within' the denotation of the predicate.

For Szabolcsi, of course, PredOp is a different position to Focus, the position of identificational foci. Her main reason for assuming this is the very fact that identificational foci "receive an exhaustive interpretation, while DPs in PredOp do not receive any "extra" interpretation" (1997:149). Having assumed a structural distinction, Szabolcsi does not investigate 'Focus' any further for similarities or contrasts with other positions, on the grounds that its "additional semantic function [...] is irrelevant to the present concerns" (122). It is my contention that the semantic function of identificational focus is in fact closely related to the function that Szabolcsi proceeds to attribute to PredOp quantifiers; indeed, they appear to be manifestations of the same basic process and are at times indistinguishable one from the other. Furthermore, I suggest that both are derived from the very interpretational procedure that Szabolcsi identifies as characteristic of PredOp.

Recall that Szabolcsi analyses PredOp quantifiers as 'operating on the denotation of the predicate' and that the precise operation that she identifies is one of 'counting' the elements of a set denotation (or the atoms of a plural individual denotation). Consider how close this is to the notion of 'identification', which, of course underpins identificational focus. Conversely, identificational focus involves a particular kind of counting: it asserts the singularity of the item in *Foc*, in the context of the relevant predicate. While PredOp quantifiers identify how many elements are involved (in a certain way) in a predicate, identificational foci identify which one of a set of contextual possibilities is involved.

When viewed in these terms, it is clear that the two operations have a great deal in common. Most obviously, both involve at least the identification of a contextually salient set of objects and the listing of the members of that set in order to perform some operation on them. If there are assumed to be different operations involved, then the nature of the operation employed can be seen to be determined by the nature of the constituent in *Foc*. A PredOp quantifier, being a modified numeral, prompts the enumeration of the members of this set. An identificational focus, on the other hand, always denotes some object which (though it may be almost any kind of noun phrase or even an adverbial expresion) is individuated in the mind of the speaker by contrast with other, comparable objects. The operation prompted by the placement of such a constituent *Foc* is therefore one of the identification of a particular element within the set in question and the consequent exclusion of the other set members.

However, it may not be necessary even to assume two different operations in this way: the counting operation might be seen as nothing but a particular kind of identificational focus. Arguably, the assertion of a numerical value involves the same process of identifying a single member of a contextual set: in this particular case, the set of all numerical values. The apparent difference between counting and identificational focus then boils down to the generality and universality of the (infinite) contextual set employed in counting. If the sense of exclusive contrast is less strong with the counting operation, this is perhaps only because the set of numerical values is not tied to specific contexts: being commonplace, 'background' information, the potential alternatives provided by this set are typically less salient than the members of a set which the hearer must construct in context.

Given the conceptual similarities between identificational focus and Szabolcsi's counting operation, it is no surprise that in certain circumstances there appears to be a considerable degree of overlap between them: a fact that should clearly lead to the question of whether they aren't in fact superficial manifestations of one basic operation. Examples of such overlap can be found among Szabolcsi's own examples.

One such case is the nature of collective readings of items in *Foc*. Szabolcsi notes that PredOp quantifiers can have a distributive or collective reading. Unlike quantifiers in any other position, PredOp quantifiers take on a particular meaning in conjunction with the collective reading, "which has the flavor 'It took as many/few as *n* [NP] to VP'." (Szabolcsi 1997, 128). Szabolcsi appears to assume that this is merely an idiosyncratic reading of 'counting' quantifiers and does attempt to explain it. Under the current analysis, it makes perfect sense, since it is simply a point at which 'counting' and identificational focus become indistinguishable: this meaning involves both identifying a number and the process of contrasting something with the other members of a set of alternatives. These alternatives are presumably numbers previously thought more likely (by virtue of being lower or higher). In other words, this is a case in which (a subset of) the set of numerical values happens to become more salient in the context, thus bringing to the surface the common basis of the PredOp enumeration and identificational focus operations. The structural consequences of this are clear: if the essential features of both PredOp and identificational focus can be present in the same constituent, they cannot rely for their realisation on separate surface syntactic positions.

A similar point can be made in connection with example (7). A's statement in (7b) can be read as involving an identificational focus, even though this example is intended by Szabolcsi to illustrate the effect of a PredOp quantifier. The 'counter' *More than six of our students* can be read as being set in contrast to other contextual possibilities. According to the placement of pitch accent the sentence could be read in three ways, contrasting with alternatives like *LESS than six of our students*, or with alternatives like *More than THREE of our students*, or with the likes of *More than six of our TEACHERS*. Note that in each case, the identificational focus readings pattern with Szabolcsi's PredOp meaning with regard to the infelicity of speaker B's response. This is because (7b) does not show ambiguity between PredOp and focus meanings—rather, every identificational focus reading is a kind of predicate operator reading.

Note how this example illustrates another important common feature between PredOp quantifiers and identificational foci: both require the verb they precede to be 'presupposed' ('background', or 'thematic' in the sense of Steedman (to appear)). This opens up an apparent contradiction: I have argued, based on Szabolcsi's analysis of PredOp, that identificational foci are interpreted 'internally' to the denotation of the predicate. The notion of focus, however, implies new information. How can the denotation of a focus element be found within the denotation of a presupposed predicate, let alone exclusively in this context, as appears to be the case in Hungarian?

This question points up the particular qualities of identificational focus, as opposed to information focus. Recall that the interpretation of identificational focus involves accessing a contextually salient set of alternatives, from which the focused item is identified, to the exclusion of all the other members of the set. Notice that this set must itself be presupposed, at least through a pragmatic process of accommodation, in order to be available at this stage in interpretation. For such a set to be known (or created via accommodation) requires further that the rest of the proposition be presupposed—you cannot pick something out (that is, identify it) without knowing the situation in which it is to be sought.

This point is also made by Erteschik-Shir (1997), in her 'f(ocus)-structure' analysis of identificational focus (which she calls 'restrictive focus'), when she notes that identificational focus has elements of both topic and focus in its interpretation. Erteschik-Shir argues that a wide array of phenomena frequently attributed to purely syntactic factors can be captured in terms of f-structure (which is, broadly speaking, the application of information structural values like 'topic' and 'focus' to sentences), including scope readings and numerous constraints on *Wh*-movement. With regard to scope, the basic idea behind Erteschik-Shir's theory is that topics take wide scope, while foci have only narrow scope[5]. Erteschik-Shir's work therefore opens up a possible link between the current observations regarding the interpretation of Hungarian word order phenomena and other crucial elements of the grammar. This avenue seems promising particularly in the light of the fact that Hungarian scope is determined to a large extent in terms of linear surface position (hence the common observation that Hungarian "wears its LF on its sleeve"; see Hunyadi (1986), É. Kiss (1987), Szabolcsi (1997), amongst others).

Note, however, that Erteschik-Shir's f-structure, developed principally around English, is a post-syntactic level of representation (feeding semantic interpretation) such that f-structures may cut across syntactic surface structures. Such a schema seems less coherent when discussing a language like Hungarian, where surface positions (hence, presumably, surface syntax) seem to directly relate to information structural values in many cases. The existence of languages like Hungarian in this sense argues for a more direct interface between syntax and semantics; one in which information structural values find expression, but not independently of either side of the interface. A proper characterisation of such an interface is a matter for future research (for a preliminary outline, see section 4), but I believe that the analysis of *Foc* position, when approached as in this paper, offers insights into what this might involve.

Consider again the generalisation argued for above, that what all uses of *Foc* have in common is the fact that the item in *Foc* is somehow interpreted 'within', or 'in terms of', the denotation of the predicate. This fits well with Szabolcsi's (1997) identification of PredOp as a position which is interpreted by a particular procedure, such that it is never a subject of predication. It also meshes with Erteschik-Shir's characterisation of information structure, with 'Focus' always found within a (Strawsonian) predicate and not necessarily contiguous with it. Furthermore, this generalisation seems to be quite directly reflected in the surface structure of *Foc* (as long as phonological cues are taken seriously as indicators of structure). These observations, taken together, suggest a direct mapping of syntax to a suitably broad, underspecified semantic representation. The notion of syntax here is Montagovian, insofar as syntactic configurations necessarily encode semantic reflexes. The kind of meaning dealt with, however, is clearly non-Montagovian, in concentrating not necessarily on truth-conditional meaning as such, but also on the different possible procedures involved in interpretation. These procedures relate to different 'per-

[5]In order to maintain this claim, Erteschik-Shir introduces the notion of 'subordinate' topics and foci, which will not be discussed here. Note, however, that the suggested relationship between information structure and scope is supported by strategies used to disambiguate scope. Topic intonation can ensure a wide scope reading (see Büring 1997), while fronting a constituent, a near-universal strategy for topicalisation (Primus 1991), is used both in natural languages and in various man-made logical systems to force wide scope readings.

spectives' in establishing truth values, which can, at least under certain circumstances, be equated to the elements of a theory of information structure, such as Erteschik-Shir's f-structure.

This view entails the simplification of the interface in two major ways. First, syntactic structures become simpler than those proposed in accounts like Szabolcsi (1997). Note that if there is any substance to Erteschik-Shir's claims about the scope of f-structure-based explanations, many of the complexities of syntax in most syntactic models would in any case be rendered unnecessary. Even if Erteschik-Shir's claims turn out to be unsupportable, the syntax will be relatively simple, since structure is only posited where necessary to encode quite broad semantic distinctions. The collapsing of Szabolcsi's two positions Focus and PredOp into the single position *Foc* is an example of this.

Note that this simplification of the syntax comes at the cost of increasing the role of inference in the derivation of meaning representations. Rather than assuming that every subtle distinction in meaning must correspond to a separate structural configuration (such as a new functional projection), a variety of meanings can be extracted from a single structural relation, if a variety of distinct items appear in this relation. Thus, the inhabitant of *Foc* is always an item interpreted in terms of an established predicate denotation, but the final manifestation of this may vary from the simple creation of complex verbal meanings to the production of 'counting' quantifier or identificational focus readings, according to the kind of constituent that is in *Foc*.

The point is made clearer if syntactic relations are thought of as (triggers of) processes in the creation of meaning. In order to account for a variety of outputs, one may either suppose a variety of processes, or a single process whose results are sensitive to differences in input. It seems correct to me to propose the latter tack in the analysis of a phenomenon like Hungarian *Foc*, since the surface evidence points so strongly towards the idea that this is a single structural phenomenon. Unlike Szabolcsi's (1997) view of the syntax, the approach that I am advocating captures the idea that the different meaning effects associated with *Foc* seem to share a common root in certain semantic procedures. Meanwhile, there is still room for the full range of observed effects on the final meaning, given that the input is heterogeneous.

At the same time, the architecture of the grammar in general is simplified by removing layers of structure like Erteschik-Shir's f-structure. If the distinctions crucial to Erteschik-Shir's analyses can be related directly to surface structural matters, f-structure need not be separately stated at its own level of the grammar, but the insights which the theory of f-structure may have to offer are not thereby lost.

4. THE REPRESENTATION OF *Foc*

4.1. A single level of structure

The main thrust of the approach argued for here is that surface syntactic structures may encode instructions regarding the semantic procedures to be employed in interpreting sentences (at least where Hungarian *Foc* is concerned). While I refer here to syntactic structures, it is clear that phonological cues play a role in determining the relevant structural configurations. I assume this may happen at a single syntactic level of structure, in a similar way to that proposed in recent work on English by Mark Steedman (2000,to appear) in Combinatory Categorial Grammar (CCG).

CCG allows alternative constituent structures to be applied to the same string, essentially as a result of combining lexical items in different orders. For example, a basic SVO sentence may have the conventional 'VP' structure [S[VO]], but it may alternatively have the structure [[SV]O] , by a different derivation based on the same lexical items. Steedman brings phonological information into CCG syntactic derivations in two important ways. Pitch accents assigned to certain lexical items reflect the information status (theme or rheme, roughly comparable to notions like topic/presupposed and focus) of those items. Boundary tones, which are a property of strings rather than lexical items, signal the edges of constituents and thereby determine which of the available CCG derivations of a given sentence applies. By combining in a constituent with an accented item, other lexical items can take on its theme/rheme status, creating entire constituents which are marked as theme or rheme. In effect, then, Steedman's model assigns different syntactic structures to sentences with different information structures (and correspondingly different intonational structures).

In general terms, this kind of model reflects the arguments made above, relating to the structure and interpretation of Hungarian *Foc*, for the simplification of the grammar that can result from relating surface structures as directly as possible to semantic outcomes and thus reducing the number of derivational levels required. More specifically, the flexible, combinatory syntax of CCG potentially offers a natural way of directly encoding the procedural distinction identified by Szabolcsi (1997) (as discussed in section 3.1). This distinction could be described in terms of the order in which the denotation of different lexical items is established, so it relates well to a grammatical framework which allows different orders of combination syntactically. The connection to Steedman's work seems particularly appropriate since the surface signals of *Foc* are in part phonological. It should be noted, however, that other frameworks could share the advantages of CCG, were phonological cues built into them in some appropriate way.

Note, however, that Steedman's model, as it stands, is not entirely appropriate to the facts of Hungarian surface structure. As described in section 2, *Foc* and the verb it precedes form a unit which shows up in phonological structure and in the impossibility of anything but certain particles intervening between the two. At least in the case of identificational focus, this clearly contradicts the notion from Steedman's CCG that items wrapped together in a single constituent share an information structural value. Rather than being either all theme or all rheme, the unit formed of identificational focus plus verb contains both the 'rhematic' focus and the 'thematic' verb (recall that these verbs are necessarily presupposed). One possible solution, allowed by Steedman's theory, is to posit a silent (H) intonational boundary, thus keeping the information structurally different elements apart. However, this is a distinctly *ad hoc* strategy, which flies in the face of quite strong surface evidence. Furthermore, it would destroy any parallelism between identificational foci and other uses of *Foc* and therefore is clearly incompatible with my approach.

In fact, Steedman's theory seems generally somewhat at odds with the notion of word order that is based on information structure, in languages like Hungarian. The expression of information structure by reordering seems to make redundant, if not even preclude, any link between constituency (above the level of the 'moved' constituent itself) and information structure. The connection between information structure values and higher-level constituents such as [SV] or [VO] seems therefore more useful in relatively fixed word order languages like English—and is quite possibly restricted to them.

Instead, as proposed above, I propose the abandonment of fixed information structural primitives such as theme and rheme and in their place I propose a more direct link between surface structures and procedures for semantic interpretation. One mechanism for doing this might be to link the syntactic 'type raising' operation of CCG directly to such procedures. This has some intuitive basis: the idea of an argument 'looking for a predicate in order to create a complete sentence' provides a reasonable description of both CCG type-raising at the syntactic level, and the status of topics in information structural terms. Within the proposed type of framework, information structural values might be seen as the result of certain processes of inference produced by the interaction of semantic procedures and the kinds of linguistic expressions they are applied to.

Specifically, any expression in *Foc* must be subject to a particular semantic procedure: as suggested by Szabolcsi for her PredOp position, such an expression can only be interpreted in terms of the (pre-established) denotation of a predicate. This is signalled by the structure of *Foc*, which forces the relevant expression into a special kind of unit with the verb. When the expression in *Foc* has a property-like denotation, as with a 'prefix' VM (whose independent meaning would be that of a directional adverb) or a bare object nominal, it is straightforward to interpret the *Foc* element in terms of the meaning of the predicate: the *Foc* element is incorporated into the meaning of the verb itself, just as the 'incorporation' structure suggests.

When the expression in *Foc* denotes an individual (or, more accurately, a set of individuals), the effect of seeking an interpretation in terms of the predicate denotation is necessarily different. In this case, the establishing of truth values requires an appreciation of the individual's role in the wider situation. In other words, it cannot be simply absorbed into the verb's denotation; rather, there must be an accessible denotation available, constructed out of the denotation of a verb and an understood or overt topic (in the sense of 'subject of predication'). This is why the verb is necessarily presupposed when appearing with an identificational focus or a modified numeral quantifier. Now recall that Strawsonian predication is a matter of offering putative information about a topic. In this case, 'finding an interpretation for an expression X within the denotation of the predicate' becomes a matter of *identifying* X as (putatively) the correct expression out of all available possibilities to fill the missing role in an otherwise presupposed piece of information relating to the given topic. Identificational focus readings and the effects of Szabolcsi's PredOp follow from from this, as outlined in previous sections.

4.2. A sketch of a possible formal analysis

As a first step towards representing my analysis of *Foc* in a grammar, I propose that the source of the effects of *Foc* should be located in the difference between a stressed and an unstressed verb. Whereas noun phrases may appear stressed in any position, including the non-*Foc* pre-verbal Quantifier position, an unstressed verb is only possible when following—and combining with—*Foc*. Furthermore, ascribing the source of the construction to properties of the verb fits with the view that *Foc* items must be interpreted within the denotation of the predicate. Note also that Van Geenhoven's (1998) analysis of the incorporation of bare object nominals (following Carlson (1977)) treats the semantic translations of incorporating verbs as the source of incorporation effects. Van Geenhoven proposes that verbs can have two forms, non-incorporating and incorporating. In Hungarian, this distinction is supported by a surface indicator:

the presence or absence of stress on the verb, corresponding to the absence or presence of *Foc*, respectively. In terms of representation in a lexicalist grammar such as CCG, this means that unstressed verbs must have a special kind of lexical entry, separate to their stressed equivalents, which could prompt the relevant effects. I tentatively suggest that the unstressed verb has a syntactically and semantically type-raised form, which—in conjunction with the placement of phonological boundary tones—can be used to force a reading in which the constituent in *Foc* can only establish its denotation in terms of the denotation of the predicate.

Without going into the the details of a CCG analysis, I shall now give an example, in semi-formal terms, of how my analysis of Hungarian pre-verbal syntactic positions might be represented in a grammar[6]. Since certain phonological information is crucial to the analysis, I minimally indicate the location of phonological boundaries, using the symbol %, and I follow a convention of the Hungarian literature in marking the identificational focus (in *Foc*) with preceding inverted commas, as a reminder that phonological stress falls here and not on the verb[7]. Consider the simple transitive sentence in (9).

(9) Jánost % “Mari szereti %
John.ACC Mary loves
‘It’s Mary that loves John.’

Interpretation proceeds as follows. Denotations are assigned to phonological phrases; that is, only after a phonological boundary encountered (note that this maintains a certain parallel with Steedman (to appear), insofar as the process of ‘wrapping up’ sub-constituents into phonological phrases delivers important semantic results). Once the first phonological boundary is encountered, the noun phrase *Jánost* is assigned an individual[8], subject of predication denotation. A similar process would also apply to XPs in Quantifier position, raising the possibility that sentences may have multiple topics.

Returning to the example (9), we have a topic (a subject of predication) awaiting some property (some putative information) to be predicated of it. Given the accusative case marking on *Jánost*, this property must be such that the topic stands in a certain relation to some event (this might be handled by some kind of prototypical thematic roles in an event-based semantics, as in Dowty (1991)[9]). Moving on in the sentence, note that the use of phonological boundaries, in delimiting the domain of the assignment of

[6]The following discussion is presented in left-to-right terms and it may be that a ‘dynamic grammar’ approach which takes account of the incremental processing of sentences (for example, the approach of Kempson *et al.* (to appear)) would be a particularly appropriate framework for dealing with languages like Hungarian. However, I intend my informal analysis to be compatible with any framework that encodes a certain amount of information about the directionality of linear relationships between lexical items, as does CCG.

[7]See Rosenthall (1992) for a full analysis of Hungarian intonation, based on instrumental phonetic analysis.

[8]As Szabolcsi (1997:125) points out, every noun phrase may have to have a set denotation at some level, but at the representational/procedural level subjects of predication count as (singular or plural) individuals.

[9]Ronnie Cann has suggested (personal communication) that an event-based semantics can be used to derive a typological distinction between ‘predicate constructive’ languages like English in which verbs subcategorise for their thematic roles and ‘case constructive’ languages (cf. Nordlinger 1998) in which a verb denotes a simple set of events, leaving open the number and thematic properties of its arguments. In the latter type, case-marked XPs do not merely fill a slot in the denotation of the verb; rather each independently brings a good deal of semantic structure to the final interpretation of the sentence. It is tempting to see a parallel here with the procedural distinction drawn by Szabolcsi: English-type languages in a sense

denotations, prevents *Mari* from gaining any denotation separately from the verb which it is phonologically attached to. Instead, it must be considered alongside the verb, *szereti*. As a reflex of its destressed surface form, this verb will have a type-raised syntactic form (ensuring it cannot begin a phonological phrase) and a corresponding semantic translation. In accordance with the analysis pursued above, this type-raised semantic form will in a rather literal sense 'raise the verb over its (*Foc*) argument', such that the denotation of the verbal predicate is established prior to the interpretation of *Mari*.

I hope to have shown by this tentative sketch that suitable mechanisms exist by which the insights of Szabolcsi (1997) regarding different procedures in interpretation can be tied directly to surface indicators of structure. The details of such an account all remain to be established by future research. It is worth noting at this stage that the semantic translation of unstressed verbs will need to involve a high degree of abstraction of the kinds of constituents that such verbs might combine with, since a huge variety of constituents may appear in (*Foc*): not only definite, indefinite and particular quantified NPs, but also the prefix VM particles, bare object nominals and even adverbial phrases. While this degree of abstraction is likely to be possible on the semantic level, it would certainly require considerable adjustments to the syntactic mechanisms of a framework like CCG.

5. CONCLUSIONS

This paper represents a preliminary attempt to draw together a number of issues that arise from a close consideration of the relationship between the surface manifestations of a syntactic position and the range of interpretations associated with it. The basis of my analysis of Hungarian has been to follow Szabolcsi (1997) in proposing that different procedures involved in establishing semantic interpretations can be indicated in syntactic structure. I have gone beyond Szabolcsi's claims, however, in the range of phenomena that I associate with particular the procedure of establishing a constituent's interpretation in terms of the denotation of a predicate. In so doing, I have been led to a notion of surface structure which connects more directly to (underlying) semantics. I believe that the kind of approach I have outlined in this sense has more explanatory potential than Szabolcsi's rather arbitrary association of a semantic procedure with a particular functional projection, whose position with regard to the verb is apparently quite coincidental. This may even prove to have cross-linguistic implications, given the well-known observation that syntactic focus positions cross-linguistically tend to cluster around the verb, in different ways (see Kidwai (1999)).

I have also suggested that (at least some) information structural values may be reducible to inferences ap-

'begin with the predicate denotation' (a phrase reminiscent of the process that I have argued applies to structures involving *Foc*), whereas 'case constructive' languages 'begin with argument (or adjunct) denotations' (which reminds one of the role of subjects of predication as I have taken it from Szabolcsi's work). If such a parallel can be shown to have any substance, it might lead to an interesting variant of the analysis in this paper, whereby Hungarian would be a 'case constructive' language, but one which uses the *Foc*+verb construction to ape the 'predicate constructive' language type, via a process of type-raising the (unstressed) verb. In this way the verb would become after all the 'starting point' for interpretation. Since (according to my assumptions) this kind of type-raising operation may be represented directly in the syntax, such an approach may even lead to an analysis of typological variation in which the strong relationship between rich morphological case marking and the expression of information structure by word order turns out to be based not only in functional motivations, as is commonly assumed, but also at least partly in a fundamental semantic distinction.

plied to the results of certain interpretational procedures. Connections between the notion of predication and information structure, and on the other hand between predication and the semantic procedures taken from Szabolcsi, suggest that this may be the case. Such a perspective opens up the interesting possibility that Erteschik-Shir's (1997) information structurally based analysis of scope and movement constraints may be used within a syntactic representation, rather than superimposed on one.

Much, of course, is missing from my analysis of Hungarian. Most obviously, I have concentrated only on the pre-verbal positions in the Hungarian sentence, leaving aside the question of the interpretation of post-verbal constituents. This question requires careful consideration of the relationship between notions of topicality that relate to presupposition and the special qualities of syntactic Topics, and how both of these relate to topics as subjects of predication. Another important aspect of the Hungarian data which I have not addressed in this paper is the interaction of the use (or avoidance) of *Foc* with different aspectual readings of the predicate. There is reason to believe that focus and aspect readings can be related, and quite possibly in terms of the kind of differences in 'perspective' which are offered by the different semantic procedures discussed in this paper (note that both aspect and focus have been related to notions of 'foreground' and 'background'; see Erteschik-Shir (1997:236) and Hopper (1982), for example).

Irrespective of the success of any formal approach to Hungarian structure and meaning resulting from this work, the approach taken highlights a number of important relationships between aspects of grammar that are typically treated in isolation. I believe this constitutes a challenge to construct theories which accommodate such links; something that frameworks which involve many autonomous derivational levels may fail to do.

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