

references at the beginning of this section). Some proposals suggest that contrasts and incorporated objects occupy the same position, although others argue they do not.

<sup>8</sup> Szabolcsi (1981, p. 519) notes that contrastive and noncontrastive themes, both of which appear in TOP, differ prosodically. This detail has been ignored for lack of additional data, but if confirmed there would still be a structural distinction between [K:+] and [K:-] themes. Also, as in the case of Finnish, we have simplified our analysis of Hungarian somewhat. Not all thematic phrases appear in TOP, only those that are "topics" (i.e., links—see note 3).

<sup>9</sup> Not all order combinations of the thematic phrases are shown. As noted in note 3, the choice between left- and right-periphery has to do with whether the affected thematic element is a link or tail. Also, peripheral nonsubject arguments bind clitics that appear attached to the verb in IP.

<sup>10</sup> Postiting that a tensed verb can appear in a clause-peripheral adjunction slot is unusual within certain syntactic frameworks. In fact, most frameworks give the tensed verbal string a sort of pivotal nature in the clause and, in fact, this is what motivates the different analyses for (19d) and (20). But (20) can be assimilated to (19d) once the belief in the pivotal nature of tensed verbs is forsaken. The revised analysis of (20) can be defended even within a transformational framework. See Vallduví (1992b) for additional arguments for this analysis. Also, at first blush one would expect the right-peripheral object *el nen* in (23) to bind a clitic attached to the verb *portarrem*. The clitic, in fact, is optional. The optionality of the clitic is due to the fact that the hosting verb does not appear in I, but a full account of the facts would take us far beyond the scope of this chapter.

<sup>11</sup> The idea that Catalan and other Romance null-subject languages are verb-subject (VS) and do not require the existence of a preverbal subject slot is argued for in a number of works (see Adams, 1987; Contreras, 1991; Solà, 1992; Vallduví, 1993, *inter alia*).

<sup>12</sup> Given that, as noted, quantificational elements other than (interrogative and non-wh) contrasts may appear in the specifier of IP, it remains to be seen whether this structural slot is in Catalan a correlate of kontrast or of a larger category like "quantificational operator" that encompasses kontrast. Vallduví (1992c) assumes the latter is the case.

<sup>13</sup> How the clashes between interpretative categories are resolved is an open question. One possibility is to propose that interpretive feature values are ranked in some hierarchy. Higher ranked values take priority over lower ranked values in the competition for structure. If a given phrase XP is associated with two values, say [Rh:-] and [K:+], it should ideally be associated with two distinct realizations, but given the scarcity of structure this is often not possible. In case of a clash, only the higher ranked value succeeds and the lower ranked value will remain unrealized or will be realized through some subsidiary means. This suggests, for instance, that in Catalan [Rh:-] is ranked higher than [K:+], whereas in Finnish [Rh:-] is ranked lower than [K:+].

## FOCUS, THE FLOW OF INFORMATION, AND UNIVERSAL GRAMMAR

CRAIG ROBERTS

Department of Linguistics  
The Ohio State University  
Columbus, Ohio

### 1. INTRODUCTION

A number of important issues in contemporary syntactic theory, including the syntactic status of notions like Focus and Topic, depend on the relationship between syntactic structures and various functional considerations which constrain the design of those structures. Apart from the presumably compositional conveyance of the literal (truth conditional) content of an utterance, many, if not all, of these functions appear to revolve around the way in which the flow of information in utterances is organized. And the latter in turn is apparently designed to respect the character and limits of human cognitive function, the way in which we optimally receive, process, and organize the information which is literally conveyed. For example, Focus is generally conceded to be a conventionally encoded way of picking out a distinguished constituent (or constituents) in a sentence, which constituent plays a special role with respect to the immediate discourse context of the utterance of that sentence. In the past decade, there has been a great deal of work in a broad range of languages on the role of Focus in the determination of everything from operator scope and anaphora to word order; Topic is said to play a similar type of functional role in discourse, and has also stimulated a good deal of syntactic speculation and analysis.<sup>1</sup>

With respect to Focus, two languages which are often compared are Hungarian and English. English, it is generally agreed, marks the Focus of an utterance pro-

sodically, while Hungarian is said to have a special preverbal syntactic position into which Foci are moved on the surface. Examples like the following pair are often adduced in support of this claim:

- (1) Who did you invite?  
I invited JOHN.
- (2) *Ki hivtal meg?*  
who invite-2sg PFX  
'Who did you invite?'  
*Jánosot hivtam meg.*  
John invite-1sg PFX  
'I invited John.'

The capital letters in (1) indicate prosodic prominence. In (2), the direct object, *János*, is in the special preverbal position said to be reserved for Foci. There is also a preverbal Topic position in Hungarian. However, preverbal Foci, unlike Topics, trigger an inversion of the relationship between the verb and its separable prefix, if it has one. In (2), the fact that the separable prefix *meg* follows the verb argues that *János* is indeed the Focus of the utterance, wh-elements like *ki* in the question also occur preverbally and trigger the verb-prefix inversion; hence, they are said to be obligatorily Focused in this language.

Most authors (see section 3 below) appear to assume that the Foci in examples like these and in a range of other languages realize some kind of language universal. Recently, Brody (1990), among others, has claimed that English and Hungarian both realize a universal syntactic feature [+FOCUS], requiring a constituent which bears it to be raised to the Specifier of a Focus Projection where the feature can be licensed, Hungarian Foci raising at SS, English only at LF. However, others, including Valluví and Vilkuna (this Volume), argue that examples like (1) and (2) involve two distinct kinds of Foci, and that it may be that some languages do not realize both kinds. But to date, no one has proposed an adequate set of criteria for determining whether a set of phenomena in any two languages both deserve the name Focus; often the criteria offered appear to be merely rough translational equivalence, and the relevant literature is generally recognized to be a terminological minefield. Hence, I think it fair to say that currently there is no consensus about either the role of Focus in universal grammar or its functional character.

Interest in the relations between syntactic structures and communicative functions has, of course, a long history in the linguistic literature. Consider, for example, the treatment of passive constructions in human languages. The notion of *voice* was sometimes considered a primitive category in traditional, nontransformational grammars. In transformational theories in the 1960s and 1970s, considerable effort was expended to try to determine the character of a universal trans-

formation of Passivization, again considered more or less a primitive process. Chomsky (1981) reflected a growing consensus when he argued that "the notions 'passive,' 'relativization,' etc., can be reconstructed as processes of a more general nature, with a functional role in grammar, but they are not 'rules of grammar.' We need not expect, in general, to find a close correlation between the functional role of such general processes and their formal properties, though there will naturally be some correlation" (p. 7). He reviews the properties of passives in various languages and concludes,

The category that is commonly called 'passive' may not constitute a natural class, either within or across languages. Syntactic passives are unlike lexical passives, and in languages as closely related to English as German, syntactic passives seem to behave differently and may involve a rather different rule structure. In other languages, what might be translated as passive in English has still different properties. (p. 120)

Citing Romance impersonal passives, Classical Arabic lexical passives, and the well-known passive-like construction in Navajo, he points out that even within the same language, Italian, there are apparently distinct types of passive constructions.

Though it is most likely correct that these constructions don't form a single natural class from a purely syntactic point of view, there is, of course, a sense in which they do form a natural class, as reflected in the tendency to intertranslate them, i.e., they all play similar functional roles, perhaps a single role. Here is how this role is often characterized: The thematic role which is usually realized as subject of the verb in the active voice is not so realized; the demotion of the usual subject has the effect of promoting the thematic role usually realized as object of the verb to the highest element in a hierarchical structure on the verb's arguments (e.g., grammatical relations or obliqueness), whether or not the promoted thematic role is morphologically or otherwise marked as subject. Although such a characterization may be descriptively adequate, in that it is, perhaps, an adequate description of how the function served by passive-type constructions is realized in the mapping between the thematic structure of a passivizable verb and the syntactic structure of which it is head, the proper characterization of the function itself is a bit different. The function seems to be one of organizing the flow of information in the utterance so that the discourse entity realized by the object in the active voice is more prominent informationally than that which would be realized by the active subject. If we are talking about the entity associated with the patient thematic role, especially if we intend to continue to talk about that entity, then discourse rules involving, for example, Centering (see references in Joshi, Prince, and Walker, in press) dictate realizing this entity as the most prominent argument of the verb, in the interest of felicity. In a given language, any syntactic construction or operation which realizes this discourse function may then be said to be a Passive construction or operation. But no *grammatical* universal is said to underlie

such constructions or operations across different languages. Rather, in order for a language to be communicatively adequate, its design must permit some way of making particular arguments more prominent in the sense outlined. Passive, characterized as above, is only a unitary notion from a functional point of view.

As a necessary precondition to understanding the grammatical reflexes of Topic or Focus, we need first to show that these are unitary notions from a functional point of view. But even more fundamental, I submit that in order to provide adequate characterizations we need to have a better understanding of the character and structure of the discourse in which such functions are said to operate. To accomplish this, we need a unified pragmatic theory which is sufficiently rigorous to provide clear definitions of the relevant notions, a theory in which the relevant functions play a natural role in regulating the flow of information, and one which permits us to use these well-defined notions to make predictions about felicity in discourse. Only in the context of such a general theory can we hope to develop an explanatory account of Topic or Focus, either within utterances or through discourse. The theory of Information Structure which is developed in Roberts (1996a) is intended to be such a unified pragmatic theory, and among other things it is intended to facilitate the analysis of phenomena related to Focus and Topic. In this theory, rather than defining functional primitives like these at the sentential level cross-linguistically, a notion of Information Structure is defined, conceived of as a structure on information at the discourse level. Various lexical items and aspects of relevant syntactic constructions carry presuppositions about the role of the denotation of the constituent in question in the Information Structure at that point in discourse. It is these specific presuppositions, and not primitives of syntactic structure *per se*, which directly relate syntactic structure to the flow of information in discourse. In section 2, I will briefly outline this theory and illustrate its utility by sketching the analysis of English prosodic focus developed in more detail in Roberts (1996a).

Given this framework for discussion, I will turn in section 3 to consider the cross-linguistic comparison of Focus. Rooth (1996) questions whether a universal characterization of Focus can be given at all, let alone cross-linguistic generalizations about its realization. The ways in which Focus is reportedly realized cross-linguistically are quite varied, involving prosody, morphology, and/or a variety of syntactic constructions, usually involving displacement. This calls to mind the distinction between the presumably universal functional character of passive constructions and the different syntactic constructions used to realize that role in various languages. A similar claim might be made about Topic. In fact, I suspect that Topic *is* like Passive in this respect, a suspicion strengthened by the fact that Passivization can be regarded as one way of making a functional Topic more prominent syntactically, as suggested by the characterization of Passive offered above.<sup>2</sup> Focus appears to realize a very different kind of role in discourse from that of Topic, one so fundamental to discourse cohesion that it has similar reflexes

in all human languages. I will illustrate this claim by comparing Hungarian and English, arguing that many previous comparisons miss the mark in that they fail to investigate the possibility that the phenomena in examples like (1) and (2) may serve functional roles which are nonidentical but yet are more closely related than the "two kinds of Focus" theories would predict. Further, I will argue that Hungarian does seem to realize the same notion of Focus which is realized prosodically in English, and that it does so with essentially the same means (i.e., prosodic prominence).

Moreover, it appears that cross-linguistically, there is a (near-)universal association between a notion of Focus and prosodic prominence, a fact which strongly suggests that there is a language universal involved. Though no firm conclusions can be drawn without a great deal more empirical work than would be possible here, in section 4 I will briefly explore one possible candidate for such a language universal, and draw some preliminary conclusions on the basis of the exploration reported here.

## 2. INFORMATION STRUCTURE AND FOCUS

### 2.1. A Framework for Pragmatic Analysis

Most linguists interested in pragmatics explain the type of phenomena of interest here—word order, topicalization and various "stylistic" constructions, prosody, and related issues about anaphora and scope—in terms of what is often called the *information structure* of sentences. Among those who take this general approach are the Prague School theorists (e.g., Vachek, 1964, 1966; Dane, 1968; Fribas, 1964, 1971, 1972, 1981; Sgall, 1984; Vachek, 1964, 1966; Dane, 1968; Fribas, 1964, 1971, 1972, 1981; Sgall, 1984; Hajicova, and Paněvová, 1986; Halliday, 1967; and Vallduví, 1992, 1993). The information structure of a sentence is generally characterized as a variation of sentential structure along certain parameters to modulate the presentation of the information imparted by the sentence in such a way as to relate that information to prior context. The factors in that relationship are characterized in terms of primitive functional roles, such as theme or rheme, focus or (back)ground, topic or link, old or new, etc. These primitives and the correlated information structure of sentences are then used to explain the roles of factors like those noted above.

This section briefly outlines a different conception of how to view the role of syntactic structures in the flow of information; see Roberts (1996a) for a more detailed presentation and arguments for various features of the proposal. In this approach, rather than define primitives of information structure at the sentential level, information structure is conceived of as a structure on information at the discourse level. The only structures at the sentential level are syntactic and prosodic. Pragmatic phenomena such as Focus and Topic are characterized via the

structure over information in a discourse, including a characterization of the dynamics of information revision. The principal connection between a sentence and the information structure of the discourse in which it occurs is via conventionally conveyed presuppositions: Various lexical items and syntactic constructions, including distinguished syntactic positions and prosodic aspects of sentential structure, carry presuppositions about the role of the denotation of a constituent in the Information Structure at that point in discourse. I will illustrate this briefly below with English prosodic focus.

The proposed theory of Information Structure draws on three strands in the literature on discourse. The first of these would characterize discourse as a language game, structured primarily by question/answer relations; see Wittgenstein (1953, 1974), Stenius (1967), Hintikka (e.g., 1973), Lewis (1979), L. Carlson (1983). The second strand focuses on a view of language use as fundamentally intentional, reflecting the goals and plans of the interlocutors; see the papers in Grice (1989) and the work on Planning Theory in Artificial Intelligence, e.g., the papers and references in Cohen, Morgan, and Pollack, 1990. The third strand is Stalnaker's (1979) claim that the principal aim of conversation is communal inquiry, sharing information; (i.e., interlocutors attempt to extend their **common ground** to include more information). In Stalnaker's theory, the common ground is characterized as a set of propositions, those which all the interlocutors assume or believe to be true; each proposition is a set of worlds (intuitively, those in which the proposition is true). The intersection of the common ground at any given point is the **context set**, the set of worlds in which all the propositions in the common ground are true (technically, the intersection of the common ground); the context set is the set of candidate worlds for reality according to the common ground. The more information, i.e., propositions, in the common ground, the smaller its intersection, the context set.

Drawing on these three strands, in the theory of Information Structure to be outlined, language is a game of intentional inquiry. Discourse is organized around a series of conversational goals and the plans, or strategies, which conversational participants develop to achieve them. Here are the principal elements of a discourse game:

- (3) **Principle Elements of a Discourse Game**
- **Goals:** to come to agree on the way things are in the world (i.e., to maximize the **common ground** of the interlocutors, thereby reducing the **context set** to a singleton set, the "actual world") (Stalnaker, 1979).
  - **Rules:** constraints on interlocutors' linguistic behavior. Two kinds:
    - conventional: proper linguistic rules (e.g., syntactic rules, compositional semantic rules, etc.)
    - conversational: not linguistic; follow from rational considerations in view of the goals of the game (e.g., Grice's maxims)

- **Moves:** Linguistic behaviors which respect the Rules and are classified according to their relationship to the goals of the game:
    - **set-up moves:** questions; these set up immediate goals (to answer the question)
    - **pay-off moves:** assertions, the answers to questions; these achieve the established discourse goals
- Each move has both **presupposed content** and **proffered content** (for questions, a set of alternatives; for assertions, what is asserted)
- **Strategies:** ways of sequencing moves, in view of their logical relations, to achieve accepted goals

Moves, on the interpretation I will give them, are not speech acts, but the semantic objects which are used in speech acts: A speech act is the act of proffering a move. Like Stalnaker, I assume that the denotation of an asserted utterance is a proposition, a set of possible worlds, and that their function is to add to the common ground. I assume a fairly standard semantics of questions in which they denote a set of propositions, roughly the alternative possible (direct) answers to the question; see Hamblin (1973). What is novel here is the way in which questions contribute to the information structure of the discourse. Like Carlson (1983), I take questions to establish the goals which guide the interlocutors' inquiry. The main goal of the game is to maximize the amount of shared information about the way things are (i.e., the interlocutors' Common Ground). We can characterize this goal itself as that of addressing a question, the Big Question: *What is the way things are?* We attempt to arrive at an least partial answer to the Big Question by asking or implicitly addressing subquestions and organizing these into logically constrained strategies of inquiry.

If a setup move, or question, is accepted by the interlocutors, this commits them to a common goal, finding the answer, choosing among the proffered alternatives. The accepted question becomes the immediate topic of discussion, which I also call the **question under discussion**. One may address a question by either answering it, partially or completely, or by asking or implicitly raising another question whose answer would itself help to answer the original question. Roughly, an **answer** to a question is a proposition which entails the truth or falsity of one of the propositions in the question's denotation.<sup>3</sup>

A principle of Relevance encodes a strong form of commitment to the goals in discourse; this commitment is closely related to the commitment involved in having a plan according to Planning Theory: Relevance requires that whatever we say address the most immediate question under discussion. A move addresses a question in one of two ways, corresponding to the taxonomy of types of moves in a language game:<sup>4</sup> If the move itself is a question, it is a subquestion of the question addressed. If the move is an assertion, it must give at least a partial answer to

the question. Assertions/answers, if accepted by the interlocutors, are payoffs, in which the interlocutors achieve their immediate goals, answering the question under discussion. The payoff of an accepted answer is addition of the information which it contains (its denotation) to the Common Ground, bringing the interlocutors closer to knowing which world is the real world.

Crucially, not all the goals in discourse, the questions under discussion, are explicit. Rather, just as we quite often infer interlocutors' domain goals on the basis of their behavior and what we know about the situation, so we often infer that a certain question under discussion is being assumed.

The formal definition of Information Structure is as follows:

(4) The information structure for a discourse  $D$  is a tuple,

**InfoStr<sub>D</sub>** =  $\langle M, Q, A, <, \text{Acc}, \text{CG}, \text{QUUD} \rangle$ , where:<sup>5</sup>

$M$  is the set of (setup and payoff) moves in the discourse.

$Q \subseteq M$  is the set of questions (setup moves) in  $M$ , where a question is a set of propositions.

$A \subseteq M$  is the set of assertions (payoff moves) in  $M$ , where an assertion is a set of possible worlds.

$<$  is the precedence relation, a total order on  $M$ ;  $m_i < m_k$  iff  $m_i$  is made/uttered before  $m_k$  in  $D$ ; the order of any two elements under  $<$  will be reflected in the natural order on their indices, where for all  $m_i, i \in N$ .

$\text{Acc} \subseteq M$ , is the set of accepted moves.

**CG** is a function from  $M$  to sets of propositions, yielding for each  $m \in M$  the common ground of  $D$  just prior to the utterance of  $m$ . Further, we require that:

- a. for all  $m_k \in M$ ,  $\text{CG}(m_k) \supseteq \bigcup_{i < k} \text{CG}(m_i)$ ,
  - b. for all  $m_k \in M$ ,  $\text{CG}(m_k) \supseteq \{m_i : i < k \text{ and } m_i \in \text{Acc} \setminus Q\}$ , and
  - c. for all  $m_k, m_i \in M$ ,  $i < k$ ,
    - i. the proposition that  $m_i \in M$  is in  $\text{CG}(m_k)$ ,
    - ii. if  $m_i \in Q$ , the proposition that  $m_i \in Q$  is in  $\text{CG}(m_k)$ ,
    - iii. if  $m_i \in A$ , the proposition that  $m_i \in A$  is in  $\text{CG}(m_k)$ ,
    - iv. if  $m_i \in \text{Acc}$ , the proposition that  $m_i \in \text{Acc}$  is in  $\text{CG}(m_k)$ ,
    - v. for all propositions  $p \in \text{CG}(m_i)$ , the proposition that  $p \in \text{CG}(m_i)$  is in  $\text{CG}(m_k)$ , and
    - vi. whatever the value of  $\text{QUUD}(m_i)$ , the proposition that that is the value of  $\text{QUUD}(m_i)$  is in  $\text{CG}(m_k)$ .
- QUUD**, the questions-under-discussion stack, is a function from  $M$  (the moves in the discourse)<sup>6</sup> to ordered subsets of  $Q \cap \text{Acc}$  such that for all  $m \in M$ :
- a. for all  $q \in Q \cap \text{Acc}$ ,  $q \in \text{QUUD}(m)$  iff
    - i.  $q < m$  (i.e., neither  $m$  nor any subsequent questions are included), and
    - ii.  $\text{CG}(m)$  fails to entail an answer to  $q$  and  $q$  has not been determined to be practically unanswerable.

- b.  $\text{QUUD}(m)$  is (totally) ordered by  $<$ .
- c. for all  $q, q' \in \text{QUUD}(m)$ , if  $q < q'$ , then the complete answer to  $q'$  contextually entails a partial answer to  $q$ .

This is a static version of Information Structure, one which globally characterizes an entire discourse. It could instead, were space permitting, be given a dynamic formulation, permitting us to retain the results about presupposition and anaphora of Heim (1982), Kamp (1981), Groenendijk and Stokhof (1990) and other literature on dynamic interpretation. On that view, the meaning of an utterance (of whatever mood) is a Context Change Potential, or an Update function on contexts (i.e., a function from Information Structures to Information Structures).

In (4),  $M, Q, A, <$ , and  $\text{Acc}$  should be self-explanatory. Constraints (a) and (b) on the value of the  $\text{CG}$  function for any move guarantee that the common ground will be monotonic, preserving information contributed earlier and that the common ground includes all those previously accepted moves which are not questions (i.e., the previously accepted assertions, in keeping with Stalnaker's characterization of what it is to accept an assertion). Clause (c) is intended to capture the fact that at any given point in the discourse, the interlocutors have complete information about the information structure itself, including what moves have been made, which were questions (and which assertions), which were accepted, what was in the common ground at the point a given move was made, and what questions were under discussion at that point.

The set of questions under discussion at a given point in a discourse is modeled using a push-down store,  $QUUD$ , which I will call the **QUUD stack**. Intuitively, for a given move  $m$ , the function  $QUUD$  yields the ordered set of all as-yet unanswered but answerable, accepted questions in  $Q$  at the time of utterance of  $m$ . When we accept a question, we add it to the top of the stack. Its relationship to any question previously on top will be guaranteed by a combination of Relevance, entailing a commitment to answering prior questions, and the logical constraint (d) on the way that the stack is composed. To see how  $QUUD$  works, consider the simple and rather excessively explicit discourse (5). This example presupposes a model with only two individuals, Hilary and Robin, and two kinds of foods, bagels and tofu. I assume that each of the questions in the discourse (5) is accepted by the interlocutors:

- (5) 1. Who ate what?
- a. What did Hilary eat?
    - a<sub>i</sub>. Did Hilary eat bagels?
 

Ans(a<sub>i</sub>) Yes.
    - a<sub>ii</sub>. Did Hilary eat tofu?
 

Ans(a<sub>ii</sub>) Yes.
  - b. What did Robin eat?

- b<sub>i</sub>. Did Robin eat bagels?  
 Ans(*b<sub>i</sub>*) No.  
 b<sub>ii</sub>. Did Robin eat tofu?  
 Ans(*b<sub>ii</sub>*) Yes.

This entire discourse realizes a strategy to answer the first question, move (5.1); the questions involved stand in simple entailment relations, as reflected in the indentation hierarchy in the layout of the discourse. So, answering (a<sub>i</sub>) or (a<sub>ii</sub>) hence yields a partial answer to (a); answering (b<sub>i</sub>) or (b<sub>ii</sub>) yields a partial answer to (b); and answering (a) or (b) hence yields a partial answer to (1). Since partial answerhood is transitive, answering (a<sub>i</sub>), (a<sub>ii</sub>), (b<sub>i</sub>), or (b<sub>ii</sub>) yields a partial answer to (1). Intuitively, it is partly because of these facts about entailment that (5) realizes a successful strategy for answering (1).<sup>7</sup> And it is just these facts that make the QUD stack for (5) satisfy clause (d) in the definition of QUD, which basically requires questions higher on the stack to be subquestions of lower, previously required questions on the stack.

As each question in (5) is asked, it is added to the QUD stack, with (1) on the bottom. When a subquestion is answered, for example, (a<sub>i</sub>), that question is popped from the stack and the answer added to the common ground. When (a<sub>i</sub>) and (a<sub>ii</sub>) have been answered, the common ground then entails the answer for (a), which is popped as well; when both (a) and (b) have been answered in this way, the common ground yields the answer for (1), which is popped, too, leaving the QUD stack empty (insofar as this discourse comes out of the blue).

In view of what I said earlier about how questions structure discourse, we also want to guarantee that all of the nonquestion moves, i.e., the assertions in a discourse are at least partial answers to accepted questions, and that in fact each is a (partial) answer to the question under discussion at the time of utterance. This will follow from the way that Relevance is defined within the framework of information structure. Suppose we define the **question under discussion** as in (6):

- (6) The **question under discussion** at the time of a move  $m = last(QUD(m))$ , i.e., the last question in the ordered set  $QUD(m)$ .

- (7) A move  $m$  **addresses** a question  $q$  iff  $m$  either introduces a partial answer to  $q$  ( $m$  is an assertion) or is part of a strategy to answer  $q$  ( $m$  is a question).

Then we can define Relevance as follows:

- (8) A move will be **Relevant** in the Information Structure of the discourse in which it occurs iff it addresses the question under discussion at the time it is proffered.

There are a number of advantages of the theory so briefly sketched here. One is that it is formalized, and hence fully explicit, predicting which are well-formed discourses and which are not. It is my firm conviction that such standards can be

adhered to in pragmatics as in other areas of linguistics, though of course, as in those other areas, formalism is only valuable as it serves those ends, and not as an end in itself. Another virtue of this approach is that in equating discourse goals to (semantic) questions, and so relating the intentional structure of discourse to the nature of the language game *per se*, it explains why and how questions (and sequences of questions) are so often used to express or establish discourse goals and plans, and also explains how the questions one can ask at any given point in time are limited by the discourse goals or plans at that point in the conversation, given interlocutors' commitment to developing discourse plans. The theory is intended to have broad implications for pragmatic theory, with the envisioned applications including not only the semantics and pragmatics of questions and answers, and a general theory of anaphora (Kamp, 1981, Heim, 1982, Roberts, in press), but also speech acts, Gricean meaning<sub>im</sub> and conversational implicature (Roberts, 1996b; van Kuppevelt, 1996), rhetorical relations in discourse, and a variety of mechanisms for maintaining coherence and focus in discourse. Hence, Information Structure is intended to provide a general, integrated framework for pragmatic analysis, in the interest of stronger, more predictive, and less *ad hoc* accounts of the relevant phenomena.

Information Structure as it is characterized here is the interface between the linguistic faculty and more general cognitive processing. Assume that the function of the linguistic faculty is to provide information for cognitive processing and storage. Then the way that we structure discourse, Information Structure, is motivated and constrained both by the nature of the output of the linguistic faculty and by the rational requirements and limitations of human cognition. Information Structure so conceived isn't a part of our linguistic competence *per se* (e.g., it is not an aspect of anything like a Universal Grammar). However, if we assume that there is a Universal Grammar of some sort and that different peoples have the same basic cognitive faculties in other respects, and if we assume that language plays the same basic role(s) cross-linguistically, we would expect the InfoStr in (4) to be the same for speakers of all languages. One might say that it represents a set of interrelated cognitive universals pertaining to the language game.

In keeping with this perspective, Information Structure is about information, not about speech acts or the structure of the sentences which realize those acts; e.g., it is *not* a discourse grammar. Like assertions, questions are abstract sets of propositions. And just as some propositions are not explicitly asserted, but instead are added to the common ground through common experience of the interlocutors or by entailment, so questions are not always explicitly asked in a discourse, but are quite often only accommodated by cooperative interlocutors to satisfy their presupposition by a speaker. In English, at least, Roberts (1996a) argues that an utterance invariably contains conventional clues as to the nature of the question that it addresses, making it much easier to infer that question should it be implicit. These clues are in the form of a conventional presupposition (e.g., in En-

glish) associated with prosodic focus. In the next section, I turn to the discussion of the role of prosodic focus in Information Structure.

## 2.2. Focus in Information Structure

In this section, I will first present in greatly abbreviated form the theory of English prosodic focus proposed in Roberts (1996a). Then, in section 2.2.1, I will address a proposal made independently by several authors, that there are two kinds of focus in the world's languages, arguing that this claim, while founded on useful observations about the different roles played by particular focal mechanisms in particular languages, is misleading.

### 2.2.1. ENGLISH PROSODIC FOCUS

Let me first briefly sketch what I mean by English prosodic focus. I will make the following, somewhat simplified assumptions about the prosodic phonology of focus in English:<sup>8</sup>

- (9) **The Phonology of English Prosodic Focus**
  - a. There is at least one intonation phrase per sentential (or sentential-fragment) utterance.
  - b. There is at least one focused subconstituent (possibly nonproper) per intonation phrase. This **focused constituent** is marked with the feature [Focus] in the syntax, freely assigned.
  - c. There is at least one pitch accent per focused constituent, associated with the head stress foot of one of the prosodic words within a subconstituent. This subconstituent is generally the rightmost argument of the head of the focused constituent, if there are any arguments, and the head otherwise. (The potential for placement of pitch accents within the phonological word in English is distinctive.)
  - d. Every pitch accent must be associated with material in (the prosodic correlate of) a focused constituent.
  - e. The string-final pitch accent in the focused constituent is assigned the most prominent stress in the corresponding intonation phrase (cf. the Nuclear Stress Rule for English).

English prosodic focus as defined in (9) may be more or less narrow or wide (see Ladd, 1980), and most subsequent work); that is, the focus feature may be associated with a relatively small constituent (narrow), or it may encompass increasingly more inclusive constituents, even the entire sentence. For example, in (10), we have the possibility of focusing any one or more of the constituents indicated by an underline, so long as the chosen foci do not overlap:

- (10) Jenna visited several public gardens
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

In each possible selection of Focus in (10), the nuclear stress will fall on the rightmost word; so in all the possible multiword foci for this example, it will fall on *gardens*.

The theory of English prosodic focus which I will propose is, basically, that each utterance, of whatever mood, is associated with a set of alternative propositions on the basis of its prosody, while each question is similarly associated on the basis of its wh-elements. The prosodic focus presupposes that these two sets of alternatives are the same. First, we define the notion of a Focus alternative set; (11) is inspired by the alternative sets of Rooth (1985, 1992):

- (11) **Focus alternative sets<sup>9</sup>**

The focus alternative set corresponding to a constituent  $\beta$ ,  $\|\beta\|$ , is the set of all interpretations obtained by replacing all the  $F$ -marked (focused) and wh-constituents in  $\beta$  with variables, and then interpreting the result relative to each member of the set of all assignment functions which vary at most in the values they assign to those variables.

The Focus alternative set is reminiscent of Jackendoff's (1972) *presupposition* associated with an utterance; this was derived by lambda abstracting on the  $F$ -marked constituent(s) in the utterance. For example, in (10), if *Jenna* is  $F$ -marked, then the resulting abstract is  $\lambda x [x$  visited several public gardens], denoting a set of individuals which is also the Focus alternative set for that example.

We can define a closely related set of alternatives for interrogative clauses. The set of  $Q$ -alternatives corresponding to an utterance is derived by abstracting on any wh-elements in an utterance, instead of on its prosodically focused constituents. (12) is a modification and generalization of the  $Q$ -alternatives of von Stechow (1989):

- (12) **The  $Q$ -alternatives corresponding to utterance of a clause  $\alpha$ :**

$Q\text{-alt}(\alpha)$ , =  $\{p: \exists u^{i-1}, \dots, u^{i-n} \in D[p = |\beta|(u^{i-1}) \dots (u^{i-n})]\}$ , where  $\alpha$  has the logical form  $wh_{i-1}, \dots, wh_{i-n}(\beta)$ , with  $\{wh_{i-1}, \dots, wh_{i-n}\}$  the (possibly empty) set of wh-elements in  $\alpha$ , and  $D$  is the domain of the model for the language, suitably sortally restricted (e.g. to humans for *who*, non-humans for *what*).

I assume that this alternative set is the question denoted by an interrogative clause (cf. Hamblin 1973):

- (13) **The denotation of an interrogative clause ? $\alpha$ ,  $|\text{?}\alpha| = Q\text{-alt}(\alpha)$ .**

Note that the denotation of an interrogative clause is a set of propositions, i.e., a question. We may think of a question as an alternative set of possible (direct) answers (Rooth, 1992).

The interpretive content of English prosodic focus is a presupposition about the relationship of the utterance to the Information Structure of the discourse in which it occurs:

- (14) Move  $\beta$  is congruent to a question  $Q$  (a set of propositions) iff  $Q = \|\beta\|$ , the focus alternative set of  $\beta$ .

- (15) **Presupposition of English prosodic focus in an utterance**  $^*\beta$ , where  $^* \in \{ ? \text{ (interrogative)}, \cdot \text{ (assertional)} \}$ :  
 $\beta$  is congruent to the question under discussion at the time of utterance.<sup>10</sup>

Note that if the question under discussion in (15) is introduced by explicit utterance of an interrogative clause  $?a$ , then (15) together with (13) entail that  $\|\beta\| = Q\text{-alt}(a)$ . By way of illustration, consider (16), in which (16b) is generally regarded as a felicitous answer to the question in (16a).

- (16) a. Who did Mary invite?  
 b. Mary invited [Archibald]<sub>F</sub>.

By the definitions in (11) and (12), the  $Q$ -alternative set corresponding to the question (16a), shown in (17a) is the same set of propositions (those expressed by *Mary invited*  $d$ , for  $d$  some individual) as the Focus alternative set for the answer in (16b), shown in (17b):

- (17) a.  $Q\text{-alt}(?Who\ did\ Mary_F\ invite) = \{m\ invited\ u: u \in D\}$   
 =  
 b.  $\|\text{Mary invited} [\text{Archibald}]_F\| = \{m\ invited\ u: u \in D\}$

This means that (16b) is congruent to (16a), and hence the presupposition of the prosodic focus in the answer (16b) is satisfied. This is not the case in either of the sequences in (16a) + (16c) or (16a) + (16d), in which the answers are prosodically infelicitous, as predicted by (15):

- (16) a. Who did Mary invite?  
 $Q\text{-alt}(?Who\ did\ Mary_F\ invite) = \{m\ invited\ u: u \in D\}$   
 b. Mary invited Archibald<sub>F</sub>.  
 $\|\text{Mary invited} [\text{Archibald}]_F\| = \{m\ invited\ u: u \in D\}$   
 c. Mary invited<sub>F</sub> Archibald.  
 $\|\text{Mary invited}_F\ \text{Archibald}\| = \{m\ V'd\ a: V\ \text{is a two-place relation on } D\}$   
 d. Mary<sub>F</sub> invited nobody.  
 $\|\text{Mary}_F\ \text{invited}\ \text{Archibald}\| = \{u\ invited\ a: u \in D\}$   
 $Q\text{-alt}(16a) = \|\{(16b)\} - \|\{(16c)\}, \|\{(16d)\}\|$

And (15) is designed to account for felicity in sequences of questions, as well, such as the fact that (18b) is a felicitous follow-up question to (18a), while (18c) and (18d) are not:

- (18) a. [Who invited who]<sub>F</sub>?  
 $Q\text{-alt}(?Who\ invited\ who) = \{u\ invited\ u': u, u' \in D\}$   
 b. Who did Mary<sub>F</sub> invite?  
 $\|\text{?Who did Mary}_F\ \text{invite}\| = \{u\ invited\ u': u, u' \in D\}$   
 c. #Who did Mary invite<sub>F</sub>?  
 $\|\text{?Who did Mary invited}_F\| = \{m\ V'd\ u: u \in D, V\ \text{is a two-place relation on } D\}$   
 d. #Who<sub>F</sub> did Mary invite?  
 $\|\text{?Who}_F\ \text{did Mary invited}\| = \{m\ invited\ u: u \in D\}$   
 $Q\text{-alt}(18a) = \|\{(18b)\} - \|\{(18c)\}, \|\{(18d)\}\|$

Accounts of a number of other interesting Focus-related phenomena in English can be based on (15), as developed in Roberts (1996a); these include an account of Association with Focus in which it follows straightforwardly from the nature of Information Structure, the principle of Relevance, and the prosodic presupposition in (15).

For our purposes here, the main point is the way in which the effects of English prosodic focus are captured in terms of presuppositions about the information structure of the context in which an utterance occurs. This illustrates the more general claim about how to capture sentential contributions to information structure which I made in the first section: In this framework, various lexical items, aspects of prosodic structure, and syntactic constructions, or distinguished positions within syntactic constructions, carry presuppositions about the role of the denotation of the expression or constituent in question in the Information Structure at that point in discourse. It is these presuppositions, and not primitives of the syntactic structure *per se*, which relate syntactic structure to the flow of information in discourse.

In Roberts (1996a), contrastive focus is argued to be a subtype of the general Focus characterized above (i.e., in examples where alternative answers to the same, often implicit question under discussion are entertained, sometimes one being rejected and an alternative proposed). For example, in the English *JEAN fixed the lasagna, not ALEX*, one can view the contrastively stressed constituents as Information Foci offering alternative answers to the presupposed question *Who fixed the lasagna?* Culicover and Rochemont (1983) argued that contrastive focus is distinct from the more general notion of Focus only in that the kind of context which triggers it is marked. And see Schwarzschild (1994a, 1994b) for arguments that the core notion underlying Focus *is* that of contrast; this is one way of under-



standing the Alternative Semantics for Focus of Rooth (1985, 1992, 1996). I also argue that corrective focus is a special case where the question under discussion is itself metalinguistic, a question about what someone meant to say. Similarly, I offer a theory of Association with Focus (see Jackendoff, 1972; Rooth, 1985, 1992) in which it follows from (a) the characterization of prosodic focus just given, (b) the nature of Relevance, as defined in (8), and its role in domain restriction generally (see Roberts, 1995), and (c) the tripartite structure and meaning of operators such as *only*. Although space does not permit me to reproduce this argument here, it amounts to a demonstration that Association with Focus is simply a corollary of the proposed theory of Focus within Information Structure. Hence, the theory of prosodic focus encoded in (15) is intended to be fully general, and prosodic focus, at least, is argued to be a unitary phenomenon in English.

### 2.2.2. Two KINDS OF FOCUS?

In the literature on Focus, it is sometimes claimed that there are two distinct types of Focus, and though terminology differs in the descriptions offered and those descriptions tend to be fairly vague, there is at least a partial convergence on their characters. One type, called Presentational Focus by Horvath (1986) and Kenesei (1996), Information Focus by Kiss (1995d, 1996a), and Rheme by Vallduví and Vilkuna (this Volume), is characterized in terms which are compatible with the way that I have characterized English prosodic focus in the previous section. The examples given to illustrate it often use the question/answer paradigm; and it is said to be the "new information" in an utterance (Kiss), and "what is asserted rather than presupposed . . . [having] to do with the dynamics of text structure or else of discourse representations or information states" (Vallduví & Vilkuna, this Volume, p. 80). I'll adopt the term **Information Focus** to refer to this type. The other notion of focus is less obviously unitary, but generally has something to do with the traditional notion of contrastive focus: it is called Contrastive Focus by Horvath and by Kenesei, Operator Focus by Kiss, and Kontrast by Vallduví and Vilkuna; I'll call it **Operator Focus** for convenience. Operator Focus is supposed to operate over a recognized domain, picking out a single entity from that domain which is asserted to be the unique bearer of any properties predicated of it. According to Kiss, it is contrastive because it involves "contrasting the subset of a set of alternatives for which the predicate holds with the complement subset for which the predicate does not hold." All the authors except Horvath appeal to the formal semantic work on Focus stemming from Rooth (1985, 1992), and argue that Operator Focus is the "operator" defined by Rooth, which they apparently view as having the properties which he attributes to English *only*: what this seems to mean is that such Foci carry the implication that the constituent so marked is not only an answer to the question under discussion, but an exhaustive

answer. It is no coincidence that much of this work stems from Hungarian linguists, since the distinguished Focus position in Hungarian does, in fact, have these properties, as I will outline in section 3.

If we assume that there are two types of Focus, without specifying what their relationships might be (Kenesei, 1996, even claims that English Focus *in situ* cases are "ambiguous" between a contrastive Focus interpretation and a "presentational" interpretation), this gives rise to problems in explaining the fact that both types of Focus involve prosodic prominence, at least in English and arguably in Hungarian, as well (see next section). If their functions are truly independent, we might expect, instead, that they would be realized utilizing quite different mechanisms. It is quite clear that many languages, including both English and Hungarian, have either special constructions or distinguished syntactic positions (or perhaps special morphological markings) for a particular type of Focused constituent, one associated with exhaustiveness. While it may be important to distinguish the general notion of Information Focus from various more specialized roles played by particular Focused constituents in particular languages, there appears to be insufficient evidence from a pragmatic or semantic point of view for the reification of a Focus Operator *per se*. Rooth (1992), and von Stechow (1994, 1995) following him, do use an operator ~ to annotate the level of phrase structure at which Focus is interpreted, Chomsky-adjoining this operator to a node which dominates the focused constituent. The operator itself is given an argument, a variable of the same type as the phrase it adjoins to, and coindexed (possibly across discourse) with the constituent whose focus semantic value will provide the contrast set. But this operator itself has no implication of exhaustiveness. And Rooth notes that it is not essentially syntactic, and that given the lack of syntactic constraints on the relation between two contrasting phrases, which may even occur in utterances from different speakers, its annotation may properly belong to the discourse level, rather than to phrase structure.

Further, note that in Rooth's work on English Association with Focus, it is not the Focus itself which is an operator in the sense assumed by these authors. Rather, various operators, including *only* but also *even*, various adverbs of quantification, negation, etc., are sensitive to focus in that the prosodic focus of the utterance in which they occur plays a role in determining the intended domain for the operator; in terms of the theory of English prosodic focus in section 2.1, this domain is the Focus Alternative Set determined by the prosodic focus. Recent work in this vein in Rooth (1992), von Stechow (1994, 1995), Schwarzschild (1994a, 1994b), and Calcagno (1996), as well as Roberts (1996a), also argues that the phenomenon of Association with Focus is essentially pragmatic, a question of domain restriction arising out of the general discourse function of Focus. The Focus Alternative Set, then, is the recognized domain for Operator Focus alluded to by Kiss, Kenesei, and Vallduví and Vilkuna. Any construction which involves exhaustive

Focus, then appears to be an instance of Information Focus, which also implicates exhaustiveness.

Of course, there are other constituents bearing narrow prosodic focus which might be called Contrastive Foci without being involved in Association with Focus, but I claimed in the previous section that these can be analyzed as a species of Information Focus. More importantly, Information Focus, like the Operator or Contrastive Focus characterized by Kiss et al., is also based on a contrast among members of an alternative set, the Focus Alternative Set; it thus differs from "Operator Focus" only in failing to implicate exhaustiveness. Hence, there is an intimate relationship between Information Focus and contrast, with what is usually called Contrastive Focus, at least in English, arguably a subtype of Information Focus. I suspect that this is true in the other languages examined by Kiss, Kenesei, and Valluví and Vilkuna, though there is too little data in their articles to make a determination.<sup>11</sup> However, in the next section, I will argue that it is true for Hungarian, one of the languages addressed by all these authors.

Suppose that Operator Focus is, in fact, a subtype (or -types) of Information Focus. This might suggest that there is fundamentally one type of Focus. This seems plausible, in view of the discussion in section 2. The type of presupposition associated with English prosodic focus serves an important cohesive function in discourse, tying an utterance to the question presupposed to be under discussion. Having something like this function is so central to keeping track of what we take the question under discussion to be, and hence to helping keep track of the QUD and the InfoStr of which it is part, that it is at least plausible to assume that it is always, or nearly always, realized in human languages. Let us use the term *Information Focus* to refer to this functional universal. The Information Focus of an utterance is a distinguished constituent, whose marking indirectly, via its role in determining the Focus Alternative Set of the utterance, presupposes the question under discussion, giving cohesion to discourse:

- (19) An **Information Focus** in an utterance is a constituent whose value is permitted to vary in determining the Focus Alternative Set for the utterance; by extension, the denotation of such a constituent.

All Information Foci are new in the sense that they propose a new answer to the question at hand; but they may also be old in one of the senses of Prince (1992), that is, either familiar in the discourse at hand (Discourse Old), or to the interlocutors (Hearer Old, generalized to the Common Ground). In order to determine whether a given syntactic construction or other mechanism in a language serves to identify Information Foci, we must look at the felicity in various discourse contexts of utterances which involve that mechanism; the determination cannot be made on the basis of utterances in isolation.

### 3. FOCUS ACROSS LANGUAGES: HUNGARIAN AND ENGLISH

In this section, I will discuss and illustrate what it means to compare Focus across languages. In section 3.1 I will very briefly review the syntactic literature on Focus in various languages, and some of the related proposals for syntactic universals, casting doubt on the universals proposed to date. In section 3.2, I will present a fairly detailed discussion of Hungarian and English Focus, a comparison which is partly intended to illustrate the utility of a framework such as that outlined in section 2 in facilitating cross-linguistic comparisons. Within such a framework, one can use the notion of Information Focus like that in (19), or define related and similarly precise notions, for a more careful comparison of phenomena in different languages. Finally, although this comparison illustrates how the often confused terminology about Focus can lead to incorrect conclusions about its universal status, it also provides evidence that Information Focus is, in fact, encoded in the prosodic patterns of utterances in both languages.

#### 3.1. Contemporary Syntactic Literature on Focus

Although there is a large contemporary literature on phenomena involving Focus, Topic, etc., and their syntactic reflexes, there doesn't yet seem to be any consensus about the relationship of these phenomena to Universal Grammar. There are two broad traditions into which much of this literature falls, both of which stem from a basically sentential perspective: Some authors primarily explore the pragmatic functions of Focus and Topic in particular syntactic constructions; note that not all these authors are committed to a functional approach to syntax itself. Among those who adopt the pragmatic perspective are Halliday; the Prague School; Prince, Ward and Birner; Gunde; Reinhart; and Portner and Yabushita (see the references for these authors in the bibliography). On the other hand are authors who concentrate on how aspects of sentential structure (in a language or languages, or in language) constrain the expression of Focus or Topic, often making appeal to syntactic universals. Among those who focus on syntactic matters are Culicover and Rochemont, Bresnan, the Hungarian linguists interested in Focus, and Ertreschik-Shir; a number of other authors in this group will be mentioned below. Some of those who focus on syntactic matters assume or argue for syntactic universals associated with Focus, such as a Focus grammatical relation, a Focus operator, a Focus projection in phrase structure, or a Focus level of syntactic structure. Others, notably Rochemont and Culicover (1990), do not make such an assumption, but instead attempt to account for the way in which Focus is reflected syntactically by appeal to syntactic objects, principles, and processes whose existence and character are argued for on independent grounds. Apart from

the use of a [Focus] feature to mark the Focused constituent, there is nothing in their account which is *ad hoc* to the analysis of Focus.

Other things being equal, the latter type of approach appears to be preferable, on grounds of simplicity and perspicuity. If one would argue that this approach is not adequate to capture important generalizations about the syntax of Focus in something like a Universal Grammar, it is important to have a clear sense of what the relevant criteria are for comparing diverse phenomena in different languages; i.e., we must first argue that the phenomena concerned do all, in fact, realize the same, or nearly the same, notion of Focus. Note that translational equivalencies are not adequate proof of identical function; e.g., it was partly on the basis of such equivalencies that the original claims about the status of Passive in Universal Grammar were founded. A formal pragmatic theory of discourse, like the theory of Information Structure in section 2, should prove valuable in providing criteria of comparison cross-linguistically, permitting significantly more contentful claims. Without such criteria, one may be comparing apples and oranges, or more likely, oranges and tangerines. Of course, if the phenomena in different languages play merely similar roles, it is plausible to argue that they reflect a functional universal Focus, just as Passive-like constructions are now thought to do across different languages.

There has been relatively little work on the specifics of the relationship between syntactic structure and discourse. Vallduví (1992, 1993, this Volume) is one of the few who considers in detail both the pragmatics of functions like Focus and the ramifications of Focus-related phenomena for the organization of the syntax. He addresses a number of these phenomena in several languages by positing a new level of representation at the sentential level, Information Structure, in which the level of representation at the elemental level, a universal inventory of functional sentence is partitioned into the elements of a universal inventory of functional constituents—Focus, Link, and Tail, which are associated with consistent pragmatic roles. However, he does not offer a set of necessary and sufficient criteria to determine whether particular constituents in distinct languages do indeed all play the same role in discourse, though in Vallduví (1993) and in Vallduví and Engdahl (1996) a number of languages are surveyed from this perspective. Erteschik-Shir (in press) also proposes a level of representation called Focus Structure, but it is intended to replace the level of LF in a GB-style syntactic theory, and does not appear to be functionally analogous to Vallduví's Information Structure. She does not present a theory of the pragmatics of the functions Focus and Topic, and the primary justification for the proposed level of representation is syntactic.

There are a number of other proposals for syntactic universals pertaining to Focus, proposals which attempt to accommodate the behavior of Focus in syntactically very diverse languages from a number of apparently unrelated language families. Kiss (1995b) offers a useful summary of some of the recent syntactic literature on the subject, from which a number of the facts and references cited

here are drawn: the reader is referred there for further discussion and references. Though phenomena in many different languages have been treated under the unified terminology of Focus, and there are clearly translational relationships between them, these phenomena are syntactically diverse. In many languages, it is said that a focused constituent is displaced, generally moved to a preverbal position in the sentence, resulting in a filler-gap structure. These languages reportedly include Akan (Schachter, 1973); several Bantu languages (Givón, 1975), among them Aghem (Walters, 1979) and Kikuyu (Clements, 1984);<sup>12</sup> Basque (de Rijck, 1978; Ortiz de Urbina, 1995); Bulgarian (Rudin, 1986); Hausa (Schachter, 1973) and several other Chadic languages (Tuller, 1992), including Bade, Podoko, Kanakuru, and Tangale; Hungarian; Ilonggo (Schachter, 1973); Quechua (Mysken, 1995); Somali (Svolacchia, Meru, and Pugitelli, 1995); and Yoruba (Awobuluyi, 1978). In some languages this displacement is obligatory, in others, such as Finnish (Vilkuna, 1995), Greek (Tsimpf, 1995), and Korean (Choe, 1995), it is optional. Yet other languages leave focused constituents *in situ*, as is common in English.

Brody (1990) attempts to give a unified account of *in situ* and displaced Focus languages by assuming that, like wh-elements, all Foci must be moved to a designated landing site, usually the specifier position of a functional Focus projection. In some languages, including some of those cited in the previous paragraph as involving filler-gap dependencies, this movement takes place on the surface (e.g., before S-Structure), while in other languages, such as English, it only takes place at a more abstract level like LF. Horvath (1995) argues that Brody's account is descriptively inadequate for several languages. For example, in Aghem (Walters, 1979), the designated focus position in S-Structure follows and is adjacent to the verb (or a verb + noun compound), so that positing a functional projection at the appropriate level while accounting for adjacency and linear order for the attested scope possibilities (at LF) is problematic. And in Kikuyu (Clements, 1984), focus-marked phrases may appear in at most one of two distinct structural positions ("landing sites"); in Brody's theory, this would require multiple instantiations of the same functional head, a phenomenon which is otherwise unattested.

Catalan Focus is also, it seems to me, problematic for Brody's approach to Focus. According to Vallduví (1992, 1993), the Focused constituent(s) in Catalan are all and only those which remain in their base-generated positions after any link constituent has been preposed to the matrix sentence and any tail constituent has been postposed: "In Catalan all and only the overt material in the core clause (except weak proforms) is interpreted as focus. In other words, ground [i.e., link and tail] elements may not remain within the core clause and focal elements may not be detached away from it" (Vallduví, 1993: 12). Hence, the Focus of the sentence is identified by virtue of the fact that it is the sole material remaining in an unmarked sentential middlefield. If this characterization is correct, then it is a

member of a third class of languages, those for which there is a distinguished position for Focused constituents, but which show no evidence that those constituents are displaced from canonical base-generated position.

There are at least two significant problems with the claims about Focus in various languages cited above. One derives from the conceptual and terminological problems already illustrated in section 2.2.2. In the syntactic literature it is sometimes clear that what one person calls Focus (or Topic), another would not.<sup>13</sup> Hence, an adequate comparison of "Focus" across languages would have as prerequisite a careful sifting of the claims to determine which functional notion a given syntactic phenomenon was said to realize. The other is that many of the accountants cited draw on linguistic data from secondary (or even tertiary) sources; fieldworkers' questions are typically inspired by the theories of language which they bring to their work, so that often in using their data one comes across burning questions, from the point of view of one's own theory, which they simply don't address. One such question which is relevant for most of the languages mentioned in this section is what role, if any, prosody plays in the realization of Focus. That is, even though a language, like Kikuyu, has a displaced Focus, does that mean that there is no prosodic reflex of Focus, as well? Gundel (1988) claims that in addition to whatever other (optional or obligatory) means a language may provide to indicate Focus (her *comment*), it is almost universally prosodically marked. But few of the authors in the syntactically oriented literature examine the role of prosody in Focus. The two problems are closely related. If Gundel's claim is correct, then what are the authors cited claiming when they say that Focus is marked in a given language by movement, and then only optionally? For the languages which are said to encode Focus optionally, there is no indication in what I've read of what that really means: Is the optional Focus in a given language more or less the same function as the Information Focus encoded by English prosodic focus? Or is it more like what some authors call "contrastive focus" (said by some to be a subcase of Focus, by others to be nonoverlapping, but generally not held to be coextensive with Focus), or yet some other notion? Is this true optionally, or is the type of Focus reflex in question actually obligatory given a particular context? Rather than try to address such questions at the general level, I will now turn to consider more concretely how Focus works in Hungarian, arguing that it is more complex than it initially appears to be and comparing it to the expression of Focus in English.

### 3.2. Hungarian Focus and English Focus

#### 3.2.1. HUNGARIAN

Hungarian<sup>14</sup> is a relatively free word order language. Much of the current literature characterizes it as verb-initial with unordered arguments following (although

Horvath, 1981, provides arguments that it is basically SVO). Hungarian has at least three distinguished preverbal positions which may be filled by certain types of phrasal constituents. Two of these are generally called the Topic and Focus, and they occur in that fixed order. I'll use the term **H-Focus** to refer to the immediate preverbal position, in order to avoid prejudging its relation to the functional notion of Information Focus discussed in the previous section. Interrogative phrases, NPs with *csak* 'only', and negated expressions occur obligatorily in the H-Focus position. Its categorial status is in dispute; Horvath (1981) treats it as a left sister of V under V'; Kiss (1987) argues that it is [Spec,S']; Kiss (1995c) argues that it is [Spec,VP]; and Horvath (1995) argues that it is [Spec,IP]. Brody (1990) argues that it is [Spec,FP], FP a syntactic Focus functional projection, and he is followed in this assumption by Kiss (1995d) and Szabolcsi 1997).

Quantified noun phrases (NPs) may move to a distinct position preceding the H-Focus position and following Topic: this is sometimes viewed as adjunction to the maximal projection in which the H-Focus occurs (e.g., by Kiss, 1987). Only in this position, which I'll call Quantifier position, can quantified NPs take wider scope than H-Focused constituent(s), since the relative word order of (non-Left Dislocated) preverbal constituents in Hungarian corresponds to their logical scopes relative to each other and to any constituents which occur postverbally. Postverbal and Left Dislocated constituents both take narrow scope with respect to the Topic, Quantifier, and H-Focus preverbal positions, but among at least the postverbal constituents, surface order doesn't correspond to relative scope.

Szabolcsi (1995, 1997) distinguishes not three, but four types of preverbal constituent in Hungarian. The following schema shows their place in basic Hungarian word order. They are as shown in the linear order (from left to right) in which they are realized on the surface; an asterisk signifies that the constituent in question can be iterated:<sup>15,16</sup>

Topic*	Quantifier*	{H-Focus}	Verb	Postverbal*
		{Pred-Op}		

Semantically, DPs occurring in the Quantifier position have only distributive interpretations, while those in the other positions can apparently have either collective or distributive interpretations. As noted in the introduction, the presence of an H-Focused constituent, as opposed to only a Topic and/or Quantified NP, is consistently correlated with the location of the verb relative to any verbal modifiers which may be present. In particular, there is a class of separable prefixes which precede the verb unless there is a constituent in H-Focus; in that case, the verb appears on the surface immediately following the H-Focus, so that the surface order is *H-Focus-Verb-PFX*. In accounts which assume an FP, or Focus projection, with the H-Focus taken to be [Spec,FP], it is assumed that the verb moves via Head movement out of the verb phrase (VP) to F.<sup>17</sup> In fact, in such

analyses this movement is assumed to occur whenever there is an H-Focus, although it is only evident when there is a Verb modifier. For convenience, in what follows I will use the term *Verb Raising* to describe this reordering of Verb and Modifier, though I prefer to remain neutral about how it is derived. The Pred-Op includes the preverbal verb modifiers discussed in Kiss (1987), among other places, along with a class of quantificational DPs/NPs which can only occur in this position when preverbal (Szabolcsi 1995, 1997). Sentential negation immediately precedes the Verb. Otherwise, H-Focus and Pred-Op are in complementary distribution in the immediately preverbal position, and both trigger Verb movement. According to Szabolcsi, the H-Focus can be constituent negated, but Pred-Op cannot.

There is another semantic test for whether a given preverbal constituent is in H-Focus position. Alone among the preverbal constituents in Hungarian, H-Foci imply exhaustiveness; the denotation of the H-Focus constituent is the only (or, if plural, the maximal) entity which has the property in question. This is illustrated by the following example involving displacement to H-Focus, from Kiss (1995d), after Szabolcsi (1980, 1981):

- (20) *Nem JANOS kapott jelest, hanem JANOS ES MARI (kapott jelest).*  
 not got A+ but and got A+  
 a. 'Janos didn't get an A+, Janos and Mari did.'  
 b. 'It's not that it was Janos who got an A+; it was Janos and Mari (who got A+).'

If we translated (20) as in (20a), it might be taken to express a logical contradiction, since the second clause entails the negation of the first. But (20) can be true in Hungarian.<sup>18</sup> Szabolcsi (1981) argued that what is being negated in the first conjunct of (20) is not the proposition that Janos got an A+, but an exhaustiveness entailment that he was the only individual who did so. In this respect, as noted by Szabolcsi and others since, the interpretation of Hungarian examples involving H-Focused constituents is more like that of English cleft sentences, which also seem to involve exhaustiveness (e.g., the English translation of (20) in (20b) can be true as well). Szabolcsi (1994), following suggestions by Kenesei (1986) and a proposal in van Leusen and Kálmán (1993), argues that exhaustiveness is not solely due to an entailment, but involves a presupposition, as well. We might say that an utterance containing an H-Focus presupposes that the property predicated of the H-Focus has a non-null extension (i.e., there is some individual who has this property). It then asserts that the denotation of the H-Focus is the maximal group of individuals who have that property.

As Horvath (personal communication), Kiss (1996a), Kenesei (1996), and Válduví and Vilkuna (this Volume) all argue, H-Focus status should not be identified with Information Focus in Hungarian. This is illustrated by the examples in (21).

In each of (21b)–(21d), the alternative (direct) answers to (21a), the Information Focus is the direct object *János*, corresponding to the accusative wh-element *kit* in the question:

- (21) *Kit hivtal meg?*  
 who invite PFX  
 'who did you invite?'  
 b. *János hivtam meg.*  
 invite-1sg PFX  
 'I invited John (and nobody else).'  
 c. *Meg-hivtam peldaul János.*  
 PFX invite-1sg for-example  
 'I invited John, for example.'  
 d. *(Peldaul) János meg-hivtam.*  
 for-example PFX invite-1sg  
 'I invited John, for example.' (i.e., 'among others')

The reply in (21b) has the Information Focus *János* in H-Focus position, as evidenced by the placement of the verb *hivtam* before the prefix *meg*. In (21c), *János* remains *in situ* postverbally; note the occurrence of the prefix before the verb. In (21d), *János* is preverbal but the verb is *in situ* following the verbal prefix. Since the verb is not raised, *János* cannot be in H-Focus; and it is not of the appropriate NP type to occur in the Quantifier position. Hence, it can only be either in Topic position or Left Dislocated.

In the translation of (21b), exhaustiveness is suggested by the possible continuation *and nobody else*. But neither Hungarian postverbal constituents, as in (21c), nor Topics or Left Dislocated constituents, as in (21d), carry the exhaustiveness implicature; this is suggested by the parenthetical *peldaul*, 'for example', in those examples, indicating that there may be others who went to the concert. These examples illustrate the relationship between exhaustively interpreted H-Foci and the completeness of an answer which contains them. When the Information Focus is not in H-Focus, and hence possibly non-exhaustive, the answer may be incomplete. Since exhaustive H-Focus generally yields a complete answer, and since incomplete direct answers are common and felicitous in the languages I'm familiar with, we would expect that many direct answers in Hungarian, those which are incomplete, would involve placement of the Information Focus of the utterance in either postverbal or Left Dislocated position, instead of in H-Focus.

I note, however, that there is some dissension among the Hungarian speakers I've consulted with about the range of acceptability of postverbal Information Foci. Kiss (1995d, 1996a, personal communication) suggests it is a fairly normal pattern, and at least one other linguist I consulted seemed to think it acceptable as well, at least in the examples I suggested, whereas others found it only marginally

acceptable, or acceptable only in imperatives or relatively marked contexts. Horvath (1981: 134) says that, "Hungarian, just as well as English, does permit emphatic stress freely, on any constituent in a sentence. [But] . . . in Hungarian—unlike the case in English—the interpretation resulting from an emphatically stressed constituent appearing in any position other than the "pre-V" node [her H-Focus position] can only be a "metalinguistic" one, that is, one involving a correction of the mispronunciation of a constituent, or even of an arbitrary subpart of a constituent, by another speaker." Kiss (personal communication) says that the postverbal Focus does involve some sense of "contrast." But in the context given for (21c) above, there is no hint of either correction or of an intended contrast between János and some other individual. This example was perfectly acceptable to my informant; however, she also consistently preferred that subject Information Foci occur preverbally, instead of postverbally. Anna Szabolcsi (personal communication) reported that postverbal Focus was only really natural in imperatives (a use first discussed by Hunyadi, 1981), where it may suggest that the Focused constituent is not exhaustive; for her, use of the postverbal option was rare otherwise, and always accompanied by a marked intonation pattern. But even she offered some examples where postverbal Foci were acceptable in non-imperatives without any implication of contrast, among them (21c) as a reply to (21a), noting that for her, the example would not be felicitous without the modifying *pedlaul* 'for example', to enforce its nonexhaustiveness.

The fact that postverbal Information Foci are at least marked, and for many speakers pretty much unacceptable, leaves Left Dislocation and/or Topic as possible positions for nonexhaustive Information Foci. But there are limitations on the use of Left Dislocation, too. Some informants suggested that it carried a strong implication of contrast, rather like English contrastive (Topicalized) Topics. I suspect that a constituent in Hungarian Topic-position needn't always be a Topic in the functional sense, since this seems to be the default position for nonexhaustive Information Foci, but I am not certain. If the Information Focus in a nonexhaustive answer isn't a suitable Topic, at least one speaker preferred placing it in H-Focus, along with a modifier like *pedlaul* 'for example' to rule out or cancel the exhaustive reading. I'll return to address the preference for preverbal realization of Information Foci below.

Besides exhaustiveness, there is another semantically based constraint on the occurrence of NPs (or DPs) in the distinguished preverbal positions in Hungarian, and this yields another class of examples where the Information Focus of the utterance (in a context) may not occur in H-Focus position. Szabolcsi (1995, 1997) argues that one class of DPs, which she calls *Type B*, may occur postverbally, but preverbally may only occur in the Quantifier position; they include DPs like *minden fiú* 'every boy', *valamennyi fiú* 'each boy', *meg Péter is* 'even Peter', *Péter is* 'Peter, too', *senekyjik fiú* 'none of the boys' (negative concord), and *lagalább hat fiú* 'at least six boys'.<sup>19</sup> But Type B DPs can serve as Information Foci, even in

complete answers to questions. In English, such DPs may be prosodically focused, as in the answer (22b) to the question in (22a):

- (22) a. Who went to the concert?  
b. [<sub>FOC</sub> Everyone] went to the concert.

The Hungarian counterpart to (22) is given in (23):

- (23) Context: Who went to the concert?  
a. *mindenki el ment a koncertre*.  
everyone  
'everyone went to the concert'  
b. *!i mindenki ment el a koncertre*     !i: semantic anomaly  
c. *a koncertre mindenki el ment*  
d. *el ment mindenki a koncertre*

As the context shows, the Type B DP *mindenki* is the Information Focus in each of the possible replies. It may either occur in Q position, as in (23a) (with no V-Raising), or postverbally, as in (23c) and (23d). It may not occur in H-Focus, as reflected in the complete unacceptability of (23b), with V-Raising.

Another, apparently syntactic constraint on H-Focusing is that only one constituent may be H-Focused. Given the possibility of multiple Information Foci (e.g., in replies to questions with multiple wh-elements), this would predict another class of Information Foci which do not occur in H-Focus. My data confirm this, with a second Information Focus occurring either in a pre-H-Focus position, as in (24), or postverbally, as in (25):

- (24) a. *Ki mit kapott el?*  
who what caught PFX  
'Who caught what?'  
b. *Mari egy mokkust kapott el*.  
one squirrel caught PFX  
'Mary caught a squirrel (and that was all the catching that occurred)'

(25) Context: The kids needed to raise money for their trip to Copenhagen, so they sold some of their belongings.

- a. *Ki mit adott el?*  
who what sold PFX  
'Who sold what?'  
b. *János adta el a televízióját*.  
sold PFX the television  
'John sold his television (and that's all the selling that occurred)'

The relative position of verb and prefix in (24b) and (25b) argues that the immediately preceding DP, *egy mokkust* in (24b) and *János* in (25b), is in H-Focus.

But both examples are also exhaustive with respect to the non-H-Focused Information Focus, *Mari* in (24b) and *a televízióját* in (25b); that is, in the former, there are no other catchers, and in the latter John sold nothing besides his tv.<sup>21</sup> (26) illustrates that multiple Information Foci needn't all be exhaustively interpreted:

- (26) Context: As in (25).  
*János el adta a televízióját, Mari a új kabátját, és István a kameráját.*  
 PFX sell the television the new coat and the camera  
 'János sold his television, Mari her new coat, and István his camera.'

My informant offered (26) as a way of conveying the information in the gloss in reply to the contextually given question. The lack of Verb Raising in the full (initial) clause argues that there are no H-Foci in (26). I assume the motivation for this is that none of the subjects or objects in the three conjuncts in (26) are exhaustive.

So, I have provided three types of arguments that not all Information Foci in Hungarian discourse are realized in H-Focus position within a sentence: (i) (21c) and (21d) illustrate how Information Foci in partial answers often occur either postverbally or in Topic (or Left Dislocated) position, presumably to avoid the exhaustiveness of H-Foci; (ii) (23) illustrates how Type B DPs can serve as Information Foci, though they can never occur in H-Focus position; and (iii) the examples just considered show how multiple Information Foci are possible though all but one must occur in a non-H-Focus position. Hence, we can confidently conclude that H-Focusing isn't necessary, or even possible, for all Information Foci in Hungarian, though in at least some cases, as in (21b), (24), and (25), Information Foci may also be H-Foci.

In fact H-Foci are always directly related to an Information Focus, though this relationship is not identification. Although an H-Focus always contains at least a subconstituent which is in the Information Focus of the utterance, the constituent in H-Focus doesn't always equal the entire exhaustively interpreted Information Focus (i.e., the Contrastive Focus of Horvath and Kenesei, the Operator Focus of Kiss, or the Kontrast of Vallduví & Vilkuna). Two types of examples argue for this claim. The first shows that the Contrastive Focus may be a proper subconstituent of the H-Focused constituent. As one might expect, displacement to pre-verbal positions is syntactically constrained, displaying the features of *move α* (Horvath, 1981), and/or respecting subadjacency (Kiss, 1987, 1995c, 1996a). Some pied-piping is allowed, so that, for example, if a modifier of the head of an NP receives narrow Focus, the whole NP may be displaced, though the modifier by itself may not. In the following examples from Kenesei (1996), boldface is used to mark the elements which receive what he calls "primary stress," while the entire contrasted constituent is underlined. In (27), the Contrast Focus *unalmas*

'boring' is a proper subconstituent of the H-Focus, whereas in (28), the entire H-Focus is contrastive:

- (27) *János* [<sub>H-Focus</sub> *az unalmas jelentéseket*] *olvassa fel*  
 the boring reports-acc read PFX  
 'It's the BORING reports that John read(s).'
- (28) *János* [<sub>H-Focus</sub> *az unalmas jelentéseket*] *olvassa fel*  
 the boring reports-ACC read PFX  
 'It's THE BORING REPORTS that John read(s).'

As shown, the prosody in (27) and (28) differs, with primary stress on *unalmas* in (27), but on the head of the H-Focus, *jelentéseket*, in (28).

The second type of example shows that the H-Focus may be only a proper subconstituent of the Information Focus in a given context. Complement clauses may not move to H-Focus, nor may VPs, even when they are the Information Focus in a context. According to Kenesei, when the VP (or the entire S) are the Contrastive Focus, one of the arguments of the verb may move to H-Focus position, so long as at least one other constituent which remains *in situ* within VP receives prosodic prominence. Consider the examples in (29):

- (29) a. *Péter fel-olvasta a Hamletet a kertben* (*nem pedig úszott*)  
 Peter PFX-read the Hamlet the garden-INE not rather swim  
 b. *Péter a Hamletet olvasta fel a kertben* (*nem pedig úszott*)  
 Peter the Hamlet read PFX the garden-INE not rather swim  
 'What Peter did was read Hamlet in the garden (rather than swim).'

In (27), (28), and (29), the contrastively Focused constituent, whether Adjective, DP, or VP, is arguably the Information Focus as well. This can be demonstrated by considering the contexts in which such examples are felicitous. (27) can be a felicitous answer to the Hungarian translation of *What kind of reports did János read?*, but not to *What did János read?*, whereas felicity is reversed with (28). Similarly, (29a) and (29b) are both possible ways of addressing the question of what Péter did (though when this question is explicit, the examples improve if the subject *Péter* is deleted), but not to the question of what Péter read in the garden, or of where Péter read Hamlet.

The examples from Kenesei argue against a view of Information Structure in languages of the sort proposed by Vallduví, in which the surface structure of an utterance is partitioned into fields, each corresponding to a particular discourse function, e.g., Focus. Though H-Focus does correlate directly with Information Focus, the latter is neither all nor only the H-Focused constituent. The examples also constitute an argument (unintended by Vallduví) that prosody plays a role in

encoding the relation between H-Focus and the Information Focus of an utterance. As a preliminary to exploring what this role might be, I'll present a brief, preliminary sketch of Hungarian prosodic structure, based partly on the literature and partly on instrumental phonetic analysis conducted with my informant.<sup>22</sup>

Hungarian lexical stress is invariably initial. There is at least one level of prosodic phrasing, and quite possibly two (e.g., there may be something like a series of one or more **Accentual Phrases** which combine to form an **Intonation Phrase**). There appear to be two types of boundary tones associated with such phrases. As in English, there is a tone at the right edge of the Intonation Phrase. But in addition, there is evidence, again both in our own work and in the work of Rosenthal, for a left-edge tonal unit at some phrasal level, probably a L H sequence. This left-edge tone sequence gives the impression of initial prominence in Hungarian Intonation Phrases, echoing the initial stress at the lexical level. The VP typically forms an (Accentual or) Intonation Phrase. Quantifiers and Topics, if present, often form independent (Accentual or) Intonation Phrases, though they may also merge with the phrase immediately to their right (Varga, 1983; Vogel & Kenesei, 1987, 1990; Kornai & Kálmán, 1988; each of these authors uses slightly different terminology). Kornai and Kálmán (1988) and Varga (1983) argue that each Intonation Phrase bears an accent. Note that "bearing an accent" may be used in two senses: either bearing stress, or bearing a pitch accent. But, as work since Lehiste (1970) has recognized, prosodic prominence is typically a complex phenomenon, involving both pitch movement and the phonetic correlates of stress, as well as other factors like pitch range. Ladd's (1980) intonational contours and Selkirk's (1984) pitch accents are said to align in a certain fashion with the most prominently stressed prosodic word in the Intonational Phrase in which they occur, and with the most prominently stressed syllable (or head stress foot) within that constituent. In phonological terms, "a syllable must have a minimal segmentally-defined stress prominence in order to be accented" (i.e., be associated with a pitch accent—Beckman, 1996:31). Both the phonetic analysis of Rosenthal (1992) and our own analysis at Ohio State University, argue that the perceived accent in Hungarian Intonation Phrases is correlated with a H+L pitch accent, either a H\*+L (Rosenthal) or a H+L\* (as suggested in our own pitch tracks); further work is required to determine the precise location of the fall relative to the stressed initial syllable of the constituent in question. When more than one pitch accent occurs within an Intonation Phrase, there is a strong tendency for the accents to be downstepped, so that the initial accent sounds more prominent.<sup>23</sup> Finally, as also noted by Varga (1983) and Kornai and Kálmán (1988), one Intonation Phrase may be perceived as more prominent than the others; presumably this perceived relative prominence depends in part on the relative pitch range of the phrases.

Varga (1983) claims that the H-Focus and Verb form a prosodic unit, which he calls the **FV**.<sup>24</sup> Adopting this assumption, then when the VP forms an independent

Intonation Phrase, we would expect prosodic prominence to fall (as usual in Hungarian) initially in that phrase, and hence to be associated with the FV. Of course, in this initial stress language, prosodic prominence is associated with the initial element of the FV. Hence, if there is an H-Focus, it is most prominent; otherwise, the Verb is the most prominent element in the VP. This is how accent falls in minimal pairs like (29a) and (29b), and the assumption is compatible with my other observations, as well. But of course, we have examined several kinds of examples in which an Information Focus does not occur in H-Focus position. Our phonetic findings, consistent with impressionistic transcriptions by me and my informant, suggest that Information Foci in Hungarian always bear the primary (or "nuclear") accent and stress within the Intonation Phrase in which they occur. Consider again the examples in (21) above. I don't find any discussion of examples like (21c) in the prosodic literature, except possibly that Kornai and Kálmán (1988), following Varga (1982), claim that accents fall not only on the preverbal constituents, including H-Focus, but also on what Varga calls "contrafoci." Kornai and Kálmán do not define this term (translated from the original Hungarian, I presume), but I suspect they are talking about "contrastive foci" (i.e. relatively narrow Information Foci within VP). This, of course, is the status of *János* in (21c), though in this context it isn't "contrastive" in the usual sense. Instrumental pitch tracking showed that the Information Focus *János*, whether in H-Focus, as in (21b), *in situ* as in (21c), or in Topic as in (21d), always bears a H+L pitch accent. In addition, examination of examples involving Quantifier Information Foci and multiple Information Foci, as in (23)–(26) above, show evidence that each Information Focus in such examples bears the H+L pitch accent, as well (e.g., in examples like [23], *mindentki* 'everyone' bears this accent in each of the word orders shown).

Now consider again the Kenesei examples in (27), (28), and (29). As noted before, (27) and (28) contrast solely in the placement of what Kenesei calls "primary stress" (and hence, in all probability, accent placement). The constituents which bear this stress, the adjective in (27) and the entire H-Focused NP in (29), are the (contrastive) Information Foci in these examples, so that the placement of greatest prosodic prominence on these constituents is consistent with our instrumental observations about examples like (21) and with the data in Rosenthal (1992). Similarly, in (29), primary stress is indicated not only on the constituent in H-Focus, but also on the postverbal arguments of the verb, indicating, according to Kenesei, that it is the entire VP which is contrasted, and not just the H-Focused constituent. Along similar lines, Varga (1983) offers minimal pairs of examples like the following:

- (30) *Mit csinálnak a gyerekek a kertben?*  
 what do the children the garden-in  
 'What are the children doing in the garden?'



- (A *gyerekek* | ) | *játszának* (a <sup>2</sup> *kerthben*)  
 the children play the garden-in  
 'The children are) playing (in the garden)'  
 (31) *Mit csinálnak a gyerekek?*  
 what do the children  
 'What are the children doing?'  
 (A *gyerekek* | ) | *játszának* a <sup>1</sup> *kerthben*  
 the children play the garden-in  
 'The children are) playing (in the garden)'

In each of these examples, there are two Intonation Phrases (Varga calls these "Tone Groups"), the boundary marked by the vertical "|" following the optional Topic *a gyerekek*. The locative *a kerthben* is not in the Information Focus in (30), as shown by its inclusion in the question under discussion provided by Varga; in this case, it bears a secondary (reduced) stress, and the predicate *játszának* bears what he calls the character tone, basically the nuclear tone of the (second) Intonation Phrase. But in (31), where the entire VP is the Information Focus, *a kerthben* bears primary stress as well (though possibly downstepped). This is consistent with what Kenesei claims for example (29).

Although much more work would be required to develop a fully adequate characterization of Hungarian prosody, the data presented strongly suggest that there is a consistent prosodic correlate to Information Focus in Hungarian. Roughly, within the Intonation Phrase in which it occurs, a constituent which realizes an Information Focus bears the primary (or nuclear) accent. This accent is realized on its head, and there are also accents on any arguments of the head (at least with VP or S Foci). Also, the prosodic analysis suggests a possible reason for the strong preference of Hungarian speakers for displacing an Information Focus to H-Focus, Operator or Topic position: Hungarian appears to have a markedly uniform preference for initial prominence across types of prosodic constituent, including the phonological word and the Intonation Phrase. Under Varga's hypothesis that the H-Focus and Verb form a prosodic unit, the FV, then the position of H-Focus in FV will place it at the left edge of an Intonation Phrase, so that the prosodic prominence which accompanies Information Focus will be compatible with the preference for initial prominence within prosodic constituents. Similarly, given that the other preverbal constituents tend to form independent Intonation (or Accentual) Phrases, placement of a nonexhaustive Information Focus within the Topic or Operator position, as in (21d) or (23a or c), would be prosodically preferable to leaving it *in situ*, as in (21c) or (23d), since in the dislocated position the prosodic prominence associated with Information Focus will fall Phrase-initial, while *in situ* within the VP it will not. In the pied-piping examples and in multiple Focus examples, as in certain kinds of contrastive (especially corrective) focus, we have instances demonstrating that not all Foci can move to a left edge. In those

cases, the preference for initial prominence is set aside so that the Information Foci can be appropriately marked prosodically.

Assume that the phrase structural analysis of Hungarian utterances, like those of English utterances, is annotated with the feature [Focus]. This feature is freely assigned to any constituent(s) in the utterance; however, the prosodic structure leads to a preference for the [Focus]-marked syntactic constituents to correspond to prosodic constituents which fall at the left edge of an Intonation Phrase. The calculation of Focus Alternative Sets for Hungarian utterances then proceeds much as in English (11), repeated below, but with one probable difference: Recall that English wh-phrases are not uniformly prosodically focused. However, Hungarian wh-phrases are obligatorily in H-Focus, and on the basis of preliminary results, it looks as if these wh-phrases behave prosodically like any other element in H-Focus. Hence, although (11) will yield the same results for Hungarian as for English, it may be that we can simplify it for Hungarian to omit specific reference to wh-constituents:

(11) **Focus alternative sets**

The focus alternative set corresponding to a constituent  $\beta$ ,  $\|\beta\|$ , is the set of all interpretations obtained by replacing all the *F*-marked (focused) and wh-constituents in  $\beta$  with variables, and then interpreting the result relative to each member of the set of all assignment functions which vary at most in the values they assign to those variables.

Congruence remains as defined in (14), so that a move is congruent to a question iff the move's Focus alternative set equals the question. Then the presupposition of Hungarian prosodic focus, (32), is equivalent to the presupposition of English prosodic focus in (15):

- (32) **Presupposition of Hungarian prosodic focus in an utterance**  $\# \beta$ ,  
 where  $\# \in \{ ? \text{ (interrogative)}, \cdot \text{ (assertional)} \}$ ;  
 $\beta$  is congruent to the question under discussion at the time of utterance.

Recall that H-Foci are always Information Foci. We could capture this and the corollary that H-Foci are obligatorily focused prosodically by assuming that H-Focus position inherently bears the feature [Focus].<sup>23</sup>

### 3.2.2. COMPARING ENGLISH AND HUNGARIAN

In the preceding section, I argued that Hungarian is like English in utilizing prosodic focus to mark Information Focus (i.e., that prosodic focus in the two languages bears the same presupposition about the relationship of the utterance to the Information Structure of the discourse in which it occurs). This is so despite the fact that the systems of prosodic focus marking are quite distinct in the two languages: Hungarian prosodic constituents tend uniformly toward initial promi-

nence, while English stress and accentuation are distinctive (e.g., BLACKbird vs. black BIRD at the level of the phonological word, free placement of nuclear accent within the Intonation Phrase, etc.). Hungarian marks VP Focus on the head (or the FV complex) as well as on its arguments, while English places nuclear accent on a verb only when there is no suitable argument in the VP (see Ladd, 1980, and Selkirk, 1984, for extensive discussion). And the default phrasal and boundary tones and Pitch Accents used in the two languages may differ. What they have in common is the association of greatest prosodic prominence, whatever that means in the given language, with the Information Focus (or Foci) of the utterance.

But what about the exhaustiveness associated with H-Focus position? Does that have any correlate in English? Like Hungarian non-H-Focused Information Foci, English prosodically focused constituents do not, by themselves, generally bear an implication of exhaustiveness. However, there are English constructions in which this implication does hold, notably the cleft and pseudo-cleft constructions illustrated by (33) and (34):

(33) It was a public garden that Jenna visited.

(34) What Jenna visited was a public garden.

The cleft in (33) and the pseudo-cleft in (34) implicate that Jenna didn't visit anything else besides a public garden. The two constructions are different in a number of respects, including the fact that VPs may be pseudoclefted but not clefted. However, what is common to them is that in both, the entire clefted constituent, *a public garden* in (33) and (34), obligatorily bears narrow prosodic focus. The only exceptions to this are cases where the utterance is taken as corrective to a prior utterance of the same form, as in the discourse in (35):

(35) A: It was [a private garden]<sub>F</sub> that Jenna visited.

B: No. It was a private garden that [ALEX]<sub>F</sub> visited, ([JENNA]<sub>F</sub> visited a [PUBLIC]<sub>F</sub> garden).

As discussed in Rochemont and Culicover (1990), several other English constructions have this obligatory placement of prosodic focus on a particular constituent. Most of these can be argued to involve filler/gap relations, and hence to be derivable transformationally. But not all English Focus constructions can be so derived. Higgins (1973) argues convincingly that the pseudocleft cannot be derived transformationally from something like *Jenna visited a public garden*.

One way of capturing the obligatory prosodic focus property of such constructions, as with that of H-Focus in Hungarian, would be to say that they carry presuppositions about their discourse function(s). For example, we might say that utterance of a cleft sentence of the form *it was XP that φXP*, where *φXP* is a clause *φ* which is missing a constituent *XP*, presupposes that the question under

discussion is *wh<sub>XP</sub> φXP?* For example, *It was Martine who ordered shrimp cocktail* would presuppose *Who ordered shrimp cocktail?* This is compatible with the characterization given to clefts in Prince (1978), though she doesn't claim that the presuppositions are about questions, only that the constructions presuppose the givenness of the material in the nonclefted portion. In the case of wh-clefts (pseudoclefts), she argues that the material in the wh-constituent must also be already in the hearer's consciousness at the time of utterance, while it need only be "known" in the case of *it*-clefts. In terms of the proposal in section 2, this would mean that the question under discussion presupposed by an *it*-cleft can be accommodated, in the sense of Lewis (1979), while with pseudoclefts the presupposed question cannot be accommodated. Jacobson (1995) argues that the wh-constituents in pseudoclefts are free relatives, and that free relatives, in turn, have the same underlying semantics as that of questions, so that the proposed presupposition of pseudoclefts is quite plausible semantically. Then, the clefted constituent will provide the answer to the presupposed question. Given this and a similar story for *it*-clefts, the default use of a cleft sentence (e.g., not to correct an earlier cleft as in [35]) will only be felicitous if the prosodic focus in the utterance falls on the clefted constituent *XP*, since only then will the presuppositions of the construction and those of the prosody be consistent.<sup>26</sup> Similar presuppositions are apparently associated with the other English "Focus constructions," such as extraposition, locative inversion, and Heavy NP Shift. So, all English Focus constructions carry the presupposition that one of their constituents is an Information Focus, and accordingly, we expect that that constituent must be prosodically focused, as well (except in corrective contexts). But, of course, though by the hypothesis in section 2 all prosodically focused constituents in English are Information Foci, not all English Information Foci occur in the marked position of a Focus construction. Again, this parallels the situation in Hungarian, where all H-Foci were argued to be Information Foci, though not all Information Foci were H-Foci. Summarizing, Hungarian H-Foci and English prosodic focus appear to be both grammatically and functionally distinct phenomena, although they are obviously closely related. Analyses like that of Brody (1990), which attempt to compare the realization of Focus in the two languages by comparing H-Focus and English prosodic focus, are arguably misguided. It would even be premature to assume that H-Focus and English cleft constructions are directly comparable, either grammatically or functionally. Their functions certainly overlap, marking an Information Focus as exhaustive; but until we have an adequate analysis of how the presuppositions in question arise, whether they are equally conventional (and hence, noncancelable), and whether they really have all the same conditions of use (unlike H-Focus and the pseudocleft as characterized by Prince), it seems premature to conclude that they are identical, or that each realizes some language universal. In any case, if we associate appropriate presuppositions with such constructions, and show, following Rochemont and Culicover (1990), how the con-

structions satisfy the syntactic constraints imposed by the languages in which they occur, then, apart from the role of Information Focus, there is apparently no need to make appeal to grammatical universals to explain them. The functional roles they play may be common across languages, since expressively convenient, but they don't require built-in parameters or principles in the grammar.

#### 4. CONCLUSION: FOCUS AND LANGUAGE UNIVERSALS

Most of the contemporary literature on Focus that I am familiar with has one thing in common: the use of the feature [(+)(F)(ocus)], first introduced (to my knowledge) by Jackendoff (1972). Horvath (1995) argues that the key to characterizing Focus in Universal Grammar lies in the feature [+FOCUS], present in the S-Structure of all languages, whose assignment is parameterized so that it is either assigned by a functional head or freely associated with one or more constituents. The former method of [+FOCUS] placement would characterize those languages with a designated Focus position in S-Structure, the latter the *in situ* Focus languages like English. Horvath proposes to account for further variation among languages with designated Focus positions with the use of additional parameters, which capture the fact that in structural Focus the functional head assigning [+FOCUS] may be either I or C (to account for various landing sites), may or may not need to be "lexicalized" (by movement of a lexical item into the head), and may assign this feature in one of two ways—via feature-transfer (involving government and adjacency) or SPEC-head agreement (see her summary, Horvath 1995, p. 53). One of the virtues of this theory is that much of the remaining variation found in the realization of Focus in the world's languages (including constraints on Focus displacement, obligatory vs. optional morphological marking, and a number of other matters) would be accounted for without stipulating further Focus-specific parameters of Universal Grammar. "Focus constructions do not involve any parameters of their own, rather, they only manifest the effects of (specific settings for) independently existing, general parameters of syntactic features and syntactic feature-assignment" (p. 47). Hence, she avoids the problems which she points out for the theory of Brody (1990), problems devolving from the use of a functional projection for Focus, FP.

Besides its complexity, I see two important problems with the proposal Horvath develops. The analysis of Hungarian in section 3.2 illustrates an empirical problem with the proposal. Horvath's initial assumption is that the assignment of [+FOCUS] should be parameterized to account for a primary distinction between *in situ* Focus languages and languages with a designated Focus position. But Hungarian seems to be both. Information Focus may be *in situ*, only marked prosodically, but a designated position accepts certain types of Information Foci, and

yet other Information Foci may be displaced not to H-Focus, but to Topic or Quantifier position; that is, [+FOCUS] assignment is both free (prosodic focus on non-H-Focus constituents) and assigned to a specific syntactic position (H-Focus). Since a parameter in Universal Grammar can only be set one way or another, Horvath's theory would appear to predict that languages like Hungarian are impossible.

But the other problem is, I think, even deeper, and bears on what may actually be universal about Focus. This is that Horvath's proposal, like most in the literature, conceives of [Focus] as primarily a syntactic feature, and attempts to account for its operation in Universal Grammar in purely syntactic terms. I think there is good reason to think instead that the feature is a means of relating distinct components of the grammar, syntactic phrase structure, and phonological prosodic structure, and to think that its assignment is constrained at least as much by constraints on the prosodic structure of a language as by those on its syntax. To understand what I have in mind, consider the following characterization, due to Mary Beckman (personal communication), of a prosodic "edge language" (see also Beckman, 1996):

I would define an *edge language* as one in which the edges of prosodic constituents are very salient at intermediate levels of the [prosodic] hierarchy, so that tonal events comparable to "pitch accents" in English are "delimitative" rather than "culminative" (to use Trubetsky's terms) with the corollary that there will be phenomena such as phrasal pitch range expansion and dephrasing to play roughly analogous roles to the phenomena of pitch accent prominence and deaccenting in a head-based language such as English.

As I understand this, in a true edge language, prosodic prominence is associated with the edges of prosodic constituents at various levels, including the phonological word and the Intonation Phrase (and in some languages, the Accentual Phrase). For example, one finds nondistinctive initial or final stress in the phonological word, and, instead of pitch accents, edge tones associated with prosodic phrases; relative prominence of prosodic phrases is indicated by differential pitch range. This is in marked contrast to "head languages" like English, where the location of the head stress foot (and hence the potential for placement of pitch accent) within the phonological word is distinctive, and where [Focus] and the associated prosodic focus may be located anywhere within the Intonation Phrase. In an edge language, if a syntactic constituent is to be prosodically focused (made most prominent in its Intonation Phrase), this means that this constituent must fall at the edge of an Accentual or Intonation Phrase in the corresponding prosodic structure. Given the way that Intonation Phrases are typically aligned with syntactic constituents (such as clauses), if the constituent *in situ* doesn't happen to fall at a phrasal edge, there are three ways that the structure might be modified so that it does, and hence can bear prosodic focus.

One way would be to modify the prosodic structure, by introducing additional Accentual or Intonation Phrases so that there is one whose edge does fall by the intended Focus. According to Pierrehumbert and Beckman (1988) and Beckman (1996), a variant of this type of strategy is employed by Japanese in the assignment of Accentual Phrases. This first strategy may be constrained, at least in some languages, by a requirement that Intonation Phrases correspond to "sense units." Selkirk (1984) proposes such a constraint, arguing that this indirectly requires alignment of Intonation Phrases with syntactic constituents, for the most part at least. For example, in Hungarian, this might tend to limit the number of Intonation Phrases per VP to one, except in the case of emphatic utterances, which align a distinct Intonation Phrase to each subconstituent of the VP.

There are also two syntactic strategies for locating Foci at edge boundaries, strategies which involve displacement. One would be to displace the constituent to be prosodically focused to a position where it does fall at the edge of a phrase; if we take Hungarian to be a modified edge language (modified in that it does use pitch accents, as well as edge tones, though it still prefers to place those pitch accents at the left edge of a prosodic phrase), then movement to H-Focus or one of the other preverbal positions illustrates this strategy. The other strategy would be to displace any constituents which come between the constituent to be prosodically focused and the edge of the Intonation Phrase. As a possible example, consider Catalan, as suggested by Mary Beckman (personal communication). It appears to be an edge language at the phrasal level, where the greatest prosodic prominence is always phrase-final (though at the level of the phonological word it is a head language like English, with lexically distinctive potential for accent placement). Then the displacement of non-Information Focused constituents (Link and Tail, in Valldivy's terms) from the main clause would be a means of guaranteeing that the Information Focus, though it remains *in situ*, occurs at the edge of the Intonation Phrase associated with the main clause. Although we would expect that independent syntactic principles in the grammar of a language constrain whatever displacement strategies may be developed to address prosodic constraints on Focus realization, such strategies are arguably motivated primarily by the prosodic character of the language (i.e., the fact that it is an edge language, and not by the syntax itself).

As noted earlier, Gundel (1988) observes that in addition to whatever other (optional or obligatory) means a language may provide to indicate Focus (her *comment*), it is almost universally prosodically marked.<sup>27</sup> She reports only one language which is said not to use intonation and/or stress for coding topic-comment relations, Hixkaryana (Derbyshire, 1979, as cited in Dooley, 1982).<sup>28</sup> Otherwise, "sentence stress was reported to be the only consistent and obligatory means of coding topic-comment relations in such genetically, geographically and topologically diverse languages as English . . . , Guarani . . . , Russian . . . and Turkish, to name only a few" [preferences omitted] (Gundel, 1988, p. 230). She could find no language which marked "topic-comment structure" only morpho-

logically (and I am aware of none which marks it solely with displacement). In addition, she speculates that there are universal generalizations about where nuclear stress falls in utterances: Primary sentence stress always falls within the Focus/comment. And the primary stressed constituent within the Focus is the same across languages, regardless of word order: in presentational sentences with a subject and intransitive V, the primary stress falls on the subject (e.g., English SV, Russian VS); in transitive sentences with broad focus, primary stress universally falls on the object in the SVO, VSO, VOS, and SOV languages she considers. Hungarian, as described above, seems to be a counterexample to at least the last claim, as broad focus often falls on the verb in addition to its arguments. Still, the general observation is well worth considering carefully: Information Focus may universally be reflected prosodically, in intonation and/or stress, and may tend to fall on either the head of the Focused constituent or one of its arguments, if any. I submit that the following hypothesis is well worth empirical investigation:

(36) **Hypothesis of a Focus Universal**

[Focus] is a feature that links syntactic and prosodic structures and coordinates them with conventional interpretation:

- It annotates one or more nonoverlapping constituents in syntactic structure, which are accordingly interpreted as Information Foci.
- The corresponding constituents at the appropriate level in prosodic structure must be maximally prominent within their containing Information Phrase.

According to (36), Information Focus, as defined in section 2, universally constrains the text-to-tune mapping in any given language, that is, constrains the relationship between prosody and conventional (presuppositional) interpretation, as mediated by syntactic constituency. Since prosody is a type of grammatical structure, this is a hypothesis about Universal Grammar, and in particular about the relationship between syntactic structure (the text), prosodic structure (the tune) and Information Focus, a conventional aspect of meaning which pertains to the pragmatic Information Structure of the context of utterance.<sup>29</sup> This hypothesis points up the need to not only consider grammatical universals which pertain to particular components of the grammar, such as syntactic structure or prosodic structure, but also to consider in what ways their relationships may be universally constrained.

(36) is closely related to the theory of Focus in Selkirk (1984), but there are some differences. First, the hypothesis that prosodic prominence is universally linked to Information Focus is novel here. Second, partly as a consequence of her adoption of the model of grammar of the Extended Standard Theory and subsequent work by Chomsky and his colleagues, Selkirk views prosodic structure as derived from syntactic structure. However, it is quite possible to adopt (36) without assuming such a derivational relationship between the two grammatical components. Instead, one might hold that the prosodic and syntactic structures for a

given utterance are independently generated, but that they must be consistent in that the information represented in those structures can be unified to form a consistent set of information about the utterance.<sup>30</sup> Such a perspective would have a number of consequences. For example, Selkirk argues that because the choice of Pitch Accent on a given constituent apparently influences interpretation, Pitch Accent assignment must occur at Surface Structure (SS); this is driven by the assumption that SS is the sole input to semantic interpretation, via LF. However, on the unificational view, there is no reason why an independent prosodic structure might not directly bear on interpretation, as well, and hence no reason to adopt Selkirk's "intonated SS." Further, the roles of [Focus] in (36) are two: indicating which constituent(s) are to be interpreted as Information Foci (in determining the Focus alternative set for the utterance), and indicating how the two types of structure, syntactic and prosodic, are to align. But if we assume that prosodic structure may directly influence compositional interpretation, so that in interpreting we have direct access to information about which constituent(s) are most prominent prosodically, only the latter function of [Focus], aligning the two structures, is primitive, and the other, indicating Information Focus, is derived.

If this hypothesis turns out to be correct in some form, it should not be too surprising. Besides the fact that prosodic focus is so pervasive in the languages we know, the characterization of the Information Structure of discourse in section 2 predicts that a function related to Information Focus would be invaluable in developing and maintaining that structure and in keeping the conversation on track. In fact, in those languages in which it has been carefully studied, the primary interpretive effect of Focus is pragmatic and not truth conditional. Association with Focus notwithstanding. And prosody, while clearly critical in determining the intended interpretation of an utterance, itself appears to bear directly only on the conventionally determined pragmatic aspects of interpretation (like Information Focus) and not the truth conditional (at least, not if we exclude those intonational and stress factors which are lexical in tone or pitch-accent languages, and the way that phrasing sometimes disambiguates constituency). We might say that prosody is the pragmatic ground of language. Prosodic prominence echoes the functional prominence of Information Focus and facilitates its perception as such: As the "new" part of an utterance, the Information Focus is naturally foregrounded to make it the clearest and most readily understood part as well, facilitating processing and comprehension. Hence, so long as there is no conflict with other commitments of the prosodic resources of the language, it is natural to use prosodic prominence to mark functional prominence.

Whether the feature [Focus] has syntactic reflexes, as well, is an interesting question, which also bears more systematic empirical investigation across the world's languages. For example, Chomsky (1977), as part of an account of weak crossover, claimed that English [Focus]-marked constituents undergo Focus raising at LF, and Lasnik and Stowell (1991) argue that weak crossover phenomena indicate the presence of a Focus Operator, associated with the feature [Focus],

which undergoes Focus Raising at LF.<sup>31</sup> Recent work by Kratzer (1991) provides concrete semantic arguments for the existence of bound variable readings for pronouns with focused antecedents. And, although Rooth (1985) argued against the scoping analysis of weak crossover, partly on the basis of the fact that raising Focus in such cases would often entail island violations, Rooth (1996) concedes that the scoping account appears at least as plausible as a purely alternative semantic account such as his. However, there are three points to be made in this regard, as caveats to the continued exploration of syntactic hypotheses regarding [Focus]. The first is that it is crucial that when phenomena are compared cross-linguistically, we ascertain that they are, in fact, functionally equivalent. I hope that the analysis of Hungarian, and its comparison with English, in section 3 will prove cautionary in that regard. The second is that if we would claim that [Focus] is an operator undergoing QR at LF, we must take into account not only narrow focus, as is generally the case in the literature, but broad focus as well, given the argument in Roberts (1996a) that examples involving both broad and narrow prosodic focus are instances of the same phenomenon, Information Focus. Finally, we must also take into account the myriad predictions that the Focus-as-operator account makes about scope relative to other operators. I refer the reader to Kadmon and Roberts (1986), who argue, contra Jackendoff (1972), that Focus does not determine scope; in addition, I would argue that for all Foci except narrowly Focused NPs, the claim that these constituents behave as operators on a par with quantificational NPs, wh-phrases, etc., is semantically very suspect. It seems to me that these caveats point up a number of potentially serious problems for a theory which treats [Focus] as a scope marker at LF, though I cannot begin to investigate those issues here.

I hope I have now convinced the reader of the two points which I set out to argue. The first is that one shouldn't prematurely assume that notions like Topic and Focus are themselves part of Universal Grammar, or are even unitary notions. There seem to be some facts about the way we use language and what we use it to do which must be reflected in the optimal design for any communicatively adequate language (see Hawkins, 1988 for useful discussion on this point). This is the bedrock of pragmatics, where social and cognitive factors interact with the more specialized language faculty to motivate functional universals. Given the existence of functional universals in a Universal Grammar, we should guard against any tendency to encode all language universals in a Universal Grammar. And claims about grammatical universals must, in turn, be based on a careful comparison of the phenomena cross-linguistically, to determine that they are plausibly all reflexes of the same discourse functions. This bears on my second point, the potential utility of a formal theory of discourse like that presented in section 2 for syntactic analysis. This theory provides for more rigorous definitions of functional notions like Information Focus within an integrated approach to pragmatic theory. If we take seriously the idea that an optimal grammar is composed of several relatively independent components, interacting nonredundantly to generate all and only the well-formed

utterances of a language, then it is natural to assume that pragmatics, like semantics, can, constrain acceptability in discourse, via conventional presuppositions and the like, as well as motivating some of the elements in the overall grammar to begin with. And, in turn, it may be that when we have a more adequate theory of discourse, this will relieve the explanatory burden on the syntax and other components of the grammar. I should think we would welcome this, as the resulting grammar will almost certainly be simpler, as well as more plausible from the point of view of learnability. Finally, I hope that this discussion will spur empirical and theoretical work about Focus and other functional notions which assumes a more adequate pragmatic basis for the comparison of the relevant phenomena in distinct languages, and investigates more carefully the prosodic correlates of any reflexes of Focus in a given language.

#### ACKNOWLEDGMENTS

I am grateful to Peter Culicover and Louise McNally, whose invitation to contribute to this volume spurred me to pursue the present extension of my work on Information Structure. I am also very grateful to the Hungarian linguists I corresponded with, Zsuzsanna Fagyai, László Hunyadi, László Kálmán, István Kenesei, Katalin Kiss, Szilvia Papp, and Anna Szabolcsi, some of whom will surely disagree with my conclusions. Anna Szabolcsi was especially generous with her time, answering my endless questions in great detail and referring me to other literature or linguists where appropriate. My Hungarian informant, Patricia Szelle, was similarly patient and generous with her time; I couldn't have made adequate progress without her help. Any errors in the description of Hungarian offered here are entirely due to misunderstanding on my part, and I apologize to those whose language I may have inadvertently misrepresented. I also owe a debt to Julia Horvath, Louise McNally, Paul Portner, and Anna Szabolcsi, who read an earlier draft of this paper and provided extremely valuable criticism and suggestions. Finally, many thanks to the members of the Pragmatics reading group at Ohio State University, especially Mary Beckman. My discussions with this group of various points raised in this chapter, and their assistance with a trial attempt at instrumental analysis of Hungarian prosody were crucial to the development of some of the points made in this chapter. Mary Beckman helped me to clarify a number of points about the prosodic analysis. But of course, I alone am responsible for any errors in my analysis.

#### REFERENCES

- Awobuluyi, O. (1978). Focus constructions as Noun Phrases. *Linguistic Analysis* 4, 93-114.  
 Beckman, M. E. (1996). The parsing of prosody. *Language and Cognitive Processes* 11, 17-67.

- Bibera, B. J. (1994). Information status and word order: An analysis of English inversion. *Language* 70, 233-259.  
 Birner, B. J., and G. Ward (1992). On the interpretation of VP inversion in American English. *Journal of Linguistics* 28, 1, 1-12.  
 Bresnan, J., and S. McMahon (1987). Topic, pronoun, and agreement in Chichewa. *Language* 63, 741-782.  
 Brody, M. (1990). Some remarks on the Focus Field in Hungarian. *UCL Working Papers in Linguistics* 2, 201-226, University College, London.  
 Calcagno, M. (1996). Presupposition, congruence, and adverbs of quantification, in Jae-Hak Yoon, and A. Kathol (eds.), *The Ohio State University Working Papers in Linguistics* 49, Linguistics Dept., The Ohio State University, Columbus, Ohio.  
 Carlson, L. (1983). *Dialogue Games: An Approach to Discourse Analysis*. Reidel, Dordrecht.  
 Choe, H. S. (1995). Focus and topic movement in Korean and licensing, in Kiss (ed.), *Discourse configurational languages*. Oxford University Press, Oxford.  
 Chomsky, N. (1977). On wh-movement, in P. Culicover, T. Wasow and A. Akmajian (eds.), *Formal Syntax*. Academic Press, New York.  
 Chomsky, N. (1981). *Lectures on Government and Binding*. Foris, Dordrecht.  
 Clements, G. N. (1984). Binding domains in Kikuyu. *Studies in the Linguistic Sciences* 14.2, 37-57.  
 Cohen, P. R., J. Morgan, and M. E. Pollack (eds.) (1990). *Intentions in Communication*. MIT Press, Cambridge, MA.  
 Culicover, P. W., and M. S. Roeckemont (1983). Stress and focus in English. *Language* 59, 123-165.  
 Dane, F. (1968). Some thoughts on the semantic structure of the sentence. *Lingua* 21, 55-59.  
 Dertyschire, D. C. (1979). Hixkaryana syntax. Ph.D. dissertation, University of London. Reprinted with minor revisions as *Hixkaryana and Linguistic Typology*, Summer Institute of Linguistics, The University of Texas at Arlington, 1985.  
 Dezső, L. (1982). *Studies in Syntactic Typology and Contrastive Grammar*. Mouton, The Hague.  
 Dooley, R. A. (1982). Options in the pragmatic structuring of Guarani sentences. *Language* 58(2), 307-331.  
 Erteschik-Shir, N. (in press). *The Dynamics of Focus Structure*. Cambridge University Press.  
 Farkas, D. F. (1986). On the syntactic position of Focus in Hungarian. *Natural Language and Linguistic Theory* 4, 1, 77-96.  
 von Stechow, K. (1994). *Restrictions on Quantifier Domains*. Ph.D. dissertation, University of Massachusetts at Amherst.  
 von Stechow, K. (1995). A minimal theory of adverbial quantification. Ms., MIT, Cambridge, MA.  
 Firbas, J. (1964). On defining the theme in functional sentence analysis. *Travaux Linguistiques de Prague* 1, 267-80.  
 Firbas, J. (1971). On the concept of communicative dynamism in the theory of functional sentence perspective. *Sborník prací filozofické fakulty brněnské university* A, 19, 135-44.  
 Firbas, J. (1972). On the interplay of prosodic and non-prosodic means of functional sen-

- tence perspective, in V. Fried (ed.), *The Prague School of Linguistics and Language Teaching*, 77–94. Oxford University Press, London.
- Firbas, J. (1981). Scene and perspective. *Bruno Studies in English* 14, 37–49.
- Givón, T. (1975). Focus and the scope of assertion. Some Bantu evidence. *Studies in African Linguistics* 6, 185–205.
- Grice, H. P. (1989). *Studies in the Way of Words*. Harvard University Press, Cambridge, MA.
- Groenendijk, J. and M. Stokhof (1984a). On the semantics of questions and the pragmatics of answers, in F. Landman and F. Veltman (eds.), *Varieties of Formal Semantics*, 143–170. Foris, Dordrecht.
- Groenendijk, J. and M. Stokhof (1984b). *Studies on the Semantics of Questions and the Pragmatics of Answers*. Ph.D. dissertation, University of Amsterdam.
- Groenendijk, J., and M. Stokhof (1990). Dynamic Montague Grammar. In L. Kalman & L. Plos (eds.), *Papers from the Second Symposium on Logic and Language*. Akadémiai Kiadó, Budapest.
- Gundel, J. K. (1988). Universals of topic-comment structure, in M. Hammond, E. Moravcsik, and J. Wirth (eds.), *Studies in Syntactic Typology*. John Benjamins, Philadelphia.
- Halliday, M.A.K. (1967). Notes on transitivity and theme in English (Part 2). *Journal of Linguistics* 3, 199–244.
- Halliday, M.A.K. (1970). Language structure and language function, in John Lyons (ed.), *New Horizons in Linguistics*, 140–165. Penguin, Harmondsworth.
- Hamblin, C. (1973). Questions in Montague English. *Foundations of Language* 10, 41–53. Reprinted in B. Partee (ed.), (1976) *Montague Grammar*. University of Texas Press, Austin.
- Hartig, J. and Kathleen Bardovi-Hartig (1988). Accentuation typology, word order and theme-theme structure, in M. Hammond, E. Moravcsik, and J. Wirth (eds.), *Studies in Syntactic Typology*. John Benjamins, Philadelphia.
- Hawkins, J. A. (1988). On explaining some left-right asymmetries in syntactic and morphological universals. In M. Hammond, E. A. Moravcsik, and J. R. Wirth (eds.), *Studies in syntactic typology*, 321–358. John Benjamins, Philadelphia.
- Heim, I. (1982). *The Semantics of Definite and Indefinite Noun Phrases*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Heim, I. (1983). On the projection problem for presuppositions. In *Proceedings of WCCFL 2*.
- Heim, I. (1992). Presupposition projection and the semantics of attitude verbs. *Journal of Semantics* 9, 183–221.
- Higgins, F. R. (1973). *The Pseudo-Cleft Construction in English*. Ph.D. dissertation, MIT, Cambridge, MA. Reproduced by the IULC, 1976.
- Hintikka, J. (1973). *Logic, Language-Games, and Information*. Clarendon Press, Oxford.
- Horn, L. R. (1985). Metalinguistic negation and pragmatic ambiguity. *Language* 61, 121–174.
- Horn, L. R. (1989). *A Natural History of Negation*. University of Chicago Press, Chicago.
- Horvath, J. (1976). Focus in Hungarian and the X-bar notation. *Linguistic Analysis* 2, 175–197.
- Horvath, J. (1981). *Aspects of Hungarian Syntax and the Theory of Grammar*. Ph.D. dissertation, UCLA.

- Horvath, J. (1986). *FOCUS in the Theory of Grammar and the Syntax of Hungarian*. Foris, Dordrecht.
- Horvath, J. (1995). Structural Focus, structural case, and the notion of feature-assignment, in K. F. Kiss (ed.), *Discourse configurational languages* 28–64, Oxford University Press.
- Hunyadi, L. (1981). *A nyelvi polaritás kifejezése a magyarban [The expression of linguistic polarity in Hungarian]*. Ph.D. dissertation, University of Debrecen, Hungary.
- Hyman, L. M., and J. R. Watters (1984). Auxiliary focus. *Studies in African Linguistics* 15, 223–273.
- Jackendoff, R. (1972). *Semantic Interpretation in Generative Grammar*. MIT Press, Cambridge, MA. Chapter Six.
- Jacobson, P. (1995). On the quantificational force of English free relatives, in E. Bach, E. Jelinek, A. Kratzer, and B. H. Partee (eds.), *Quantification in Natural Languages*. Kluwer, Dordrecht.
- Joshi, A., E. Prince, and M. Walker (eds.) (in press). *Centering in Discourse*. Oxford University Press, England.
- Kadmon, N., and C. Roberts (1986). Prosody and scope: The role of discourse structure, in A. Farley, P. Farley, and K-E. McCullough (eds.), *CLS 22, Part 2: Papers from the Parasession on Pragmatics and Grammatical Theory* pp. 16–28. Chicago Linguistic Society.
- Kamp, H. (1981). 'A Theory of Truth and Semantic Representation,' in J. Groenendijk, T. M. V. Janssen, and M. Stokhof (eds.), *Formal Methods in the Study of Language, Vol. I*. Mathematische Centrum, Amsterdam. Reprinted in Groenendijk, Janssen, and Stokhof (eds.), 1984. *Truth, Interpretation and Information*. Foris, Dordrecht.
- Kenesei, I. (1986). On the logic of Hungarian word order, in W. Abraham, and S. de Meij (eds.), *Topic, Focus, Configurationality*. John Benjamins, Philadelphia.
- Kenesei, I. (1996). Adjuncts and arguments in focus. Ms., Szeged.
- Kiss, K. É. (1977). Topic and Focus in Hungarian syntax. *Montreal Working Papers in Linguistics* 8, 1–42.
- Kiss, K. É. (1981). Structural relations in Hungarian, a "free" word order language. *Linguistic Inquiry* 12, 185–215.
- Kiss, K. É. (1987). *Configurationality in Hungarian*. Reidel, Dordrecht.
- Kiss, K. É. (ed.) (1995a). *Discourse Configurational Languages*. Oxford University Press.
- Kiss, K. É. (1995b). Introduction, in K. E. Kiss (ed.), *Discourse configurational languages*. Oxford University Press.
- Kiss, K. É. (1995c). NP Movement, Operator Movement, and Scrambling in Hungarian, in K. É. Kiss (ed.), *Discourse configurational languages* 207–243. Oxford University Press.
- Kiss, K. É. (1995d). Focusing is a non-uniform phenomenon. Unpublished manuscript, Linguistic Institute of the Hungarian Academy of Sciences.
- Kiss, K. É. (1996a). The Focus Operator and Information Focus. Unpublished manuscript, Linguistic Institute of the Hungarian Academy of Sciences.
- Kiss, K. É. (1996b). Multiple Topic, One Focus? Ms., to appear in *Acta Linguistica Hungarica*.
- Kornai, A., and L. Kálmán (1988). Hungarian sentence intonation, in H. van der Hulst & N. Smith (eds.), *Autosegmental Studies on Pitch Accent*. Foris, Dordrecht.

- Kratzer, A. (1991). The representation of focus, in A. von Stechow and D. Wunderlich (eds.), *Semantik/Semantics: An International Handbook of Contemporary Research* 804–825. de Gruyter, Berlin.
- van Kuppevelt, J. (1996). Inferring from Topics. Scalar implicatures as Topic-dependent inferences. *Linguistics and Philosophy* 393–443.
- Ladd, D. R., Jr. (1980). *The Structure of Intentional Meaning*. Indiana University Press, Bloomington, Indiana.
- Lasnik, H., & T. Stowell (1991). Weakest Crossover. *Linguistic Inquiry* 22, 687–720.
- van Leusen, N., & L. Kalman (1993). The semantics of free focus. ILLC Prepublications, University of Amsterdam.
- Lehiste, I. (1970). *Suprasegmentals*. MIT Press, Cambridge, MA.
- Lewis, D. (1979). Scorekeeping in a language game. In R. Baderle, U. Egli, and A. von Stechow (eds.), *Semantics from a Different Point of View*. Springer, Berlin.
- Liberman, M., and J. Pierrehumbert (1984). Intonational invariants under changes in pitch range and length, in M. Aronoff & R. Oehle (eds.), *Language Sound Structure*. MIT Press, Cambridge, MA.
- McNally, L. (1997). On recent formal analyses of Topic. In Jonathon Ginzburg (ed.) *The Thilisi Conference on Logic, Language, and Computation: Selected Papers*. 149–162. CSLI, Stanford, California.
- Muysken, P. (1995). Focus in Quechua, in K. E. Kiss (ed.), *Discourse configurational languages*. Oxford University Press.
- Odden, D. (1984). Formal correlates of focusing in Kimatumbi. *Studies in African Linguistics* 15, 275–299.
- Ortiz de Urbina, J. (1995). Residual verb second and verb first in Basque, in K. É. Kiss (ed.), *Discourse configurational languages*. Oxford University Press.
- Pierrehumbert, J. B. (1980). *The phonology and phonetics of English intonation*. Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge, MA.
- Pierrehumbert, J. B., and M. E. Beckman (1988). *Japanese tone structure*. MIT Press, Cambridge, MA.
- Portner, P., and K. Yabushita (1994). The Semantics and Pragmatics of Topic Phrases. Ms., Georgetown U. and U. of Texas at Austin.
- Prince, E. F. (1978). A comparison of *wh*-clefts and *It*-clefts in discourse. *Language* 54, 883–906.
- Prince, E. F. (1981). Topicalization, Focus-Movement, and Yiddish-Movement: a pragmatic differentiation. *Proceedings of the Seventh Annual Meeting*. BLS.
- Prince, E. F. (1984). Topicalization and Left-Dislocation: a functional analysis. S. J. White and V. Teller (eds.), *Discourses in reading and linguistics*. Annals of the New York Academy of Sciences.
- Prince, E. F. (1986). On the Syntactic Marking of Presupposed Open Propositions. In *Papers from the Parasession on Pragmatics and Grammatical Theory*. CLS.
- Prince, E. F. (1992). The ZPG Letter: Subjects, Definiteness and Information Status. In S. Thompson & W. Mann (eds.), *Discourse description: Diverse analyses of a find raising text*, 295–325. John Benjamins, Philadelphia.
- Prince, E. F. (this volume). On the limits of syntax, with reference to left-dislocation and topicalization.

- Reinhart, T. (1982). Pragmatics and linguistics: An analysis of sentence topic. *Philosophica* 27, 53–94.
- Rijk, R. P. G. de (1978). Topic fronting, focus positioning and the nature of the Verb Phrase in Basque. In F. Jansen (ed.) *Studies on Fronting*. Peter de Ridder Press, Lisse.
- Roberts, C. (1995). Domain restriction in dynamic interpretation. In E. Bach, E. Jelinek, A. Kratzer, and B. H. Partee (eds.) (1995), *Quantification in Natural Languages*. Kluwer, Dordrecht.
- Roberts, C. (1996a). Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics, in J. Hak Yoon and A. Kathol (eds.), *Ohio State University Working Papers in Linguistics* Volume 49.
- Roberts, C. (1996b). *Information Structure, plans, and implicature*. Paper presented at a symposium on Conversational Implicature of the American Association for Artificial Intelligence, Stanford University, March 1996.
- Roberts, C. (in press). The place of centering in a general theory of anaphora resolution. In A. Joshi, E. Prince, and M. Walker (eds.), *Centering in Discourse*. Oxford University Press, England.
- Rochement, M. S. (1986). *Focus in Generative Grammar*. John Benjamins, Philadelphia.
- Rochement, M. S. & P. W. Culicover (1990). *English Focus Constructions and the Theory of Grammar*. Cambridge University Press, England.
- Rooth, M. (1985). *Association with Focus*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics*, 1(1), 75–116.
- Rooth, M. (1996). Focus, in S. Lappin (ed.), *The Handbook of Contemporary Semantic Theory*. Blackwell, Cambridge, MA.
- Rosenthal, S. (1992). The intonation of simple sentences in Hungarian. In L. Smith Swan et al. (eds.), *Papers from the Third Annual Formal Linguistic Society of Midamerica Conference*, 297–310. IULS, Bloomington, Indiana.
- Rudin, C. (1986). *Aspects of Bulgarian Syntax: Complementizers and Wh Constructions*. Slavica, Columbus, OH.
- Schachter, P. (1973). Focus and Relativization. *Language* 49, 19–46.
- Schwarzschild, R. (1994a). *Association with Focus: Semantics or pragmatics*. Unpublished manuscript, The Hebrew University of Jerusalem.
- Schwarzschild, R. (1994b). *The contrastiveness of associated foci*. Unpublished manuscript, Hebrew University of Jerusalem.
- Selkirk, E. O. (1984). *Phonology and syntax: The relation between sound and structure*. MIT Press, Cambridge, MA.
- Sgall, P. (ed.) (1984). *Contributions to Functional Syntax, Semantics, and Language Comprehension*. Academia, Praha.
- Sgall, P., E. Hajičová, and I. Panevová (1986). *The Meaning of the Sentence in its Semantic and Pragmatic Aspects*. Academia, Prague, and Reidel, Dordrecht.
- Shieber, S. M. (1986). *An Introduction to Unification-Based Approaches to Grammar*. CSLI, Stanford, California.
- Stahaker, R. (1974). Pragmatic presuppositions, in M. Munitz and P. Unger (eds.), *Semantics and Philosophy*, 197–213. New York University Press.



- Stalnaker, R. (1979). Assertion. In P. Cole (ed.) *Syntax and Semantics* 9.
- von Stechow, A. (1989). Focusing and backgrounding operators. Arbeitspapier Nr. 6, Fachgruppe Sprachwissenschaft, Universität Konstanz.
- Stenius, E. (1967). Mood and language-game. *Synthese* 17, 254–274.
- Svolachia, M., L. Mereu, and A. Pugliesi (1995). Aspects of discourse configurationality in Somali. In Kiss (1995a).
- Szabolcsi, A. (1980). Az aktuális mondattagolás szemantikaijához. *Nyelvtudományi Közlemények* 82, 59–83.
- Szabolcsi, A. (1981). The semantics of Topic-Focus articulation, in J. Groenendijk, T. M. V. Janssen, and M. Stokhof (eds.), *Formal methods in the Study of Language*. Mathematische Centrum, Amsterdam.
- Szabolcsi, A. (1983). Focussing properties, or the trap of first order. *Theoretical Linguistics* 10, 125–145.
- Szabolcsi, A. (1994). All quantifiers are not equal: the case of focus. *Proceedings of the 5th Symposium of Logic and Language*. Special issue of *Acta Linguistica Hungarica* 42–43, 171–187.
- Szabolcsi, A. (1995). *Differential Scope*. Handout of a talk at the first Colloque de Syntaxe et Sémantique, Paris, October, 1995.
- Szabolcsi, A. (1997). Strategies of scope taking. In Anna Szabolcsi (ed.), *Ways of Scope Taking*, 109–155. Kluwer, Dordrecht.
- Tsimpi, I. M. (1995). Focusing in Modern Greek. In Kiss (1995a).
- Tuller, L. (1992). The syntax of postverbal Focus constructions in Chadic. *Natural Language and Linguistic Theory* 10, 303–334.
- Yachek, J. (1964) (ed.). *A Prague School Reader in Linguistics*. Indiana University Press, Bloomington, Indiana.
- Yachek, J. (1966). *The Linguistic School of Prague*. Indiana University Press, Bloomington, Indiana.
- Vallduví, E. (1992). *The Informational Component*. Garland Press, New York.
- Vallduví, E. (1993). *Information packaging: A survey*. Report of the Word Order, Prosody, and Information Structure Initiative, University of Edinburgh.
- Vallduví, E., and E. Engdahl (1996). The linguistic realization of information packaging. *Linguistics* 34, 459–519.
- Varga, L. (1982). Két szintaktikai pozícióról. *Magyar Nyelv* 78, 159–169.
- Varga, L. (1983). Hungarian sentence prosody: An outline. *Folia Linguistica* 17, 117–51.
- Vilkuna, M. (1995). Discourse configurationality in Finnish. In K. E. Kiss (1995a), pp. 244–268.
- Vogel, I., and I. Kenesei (1987). The interface between phonology and other components of grammar: The case of Hungarian. *Phonology Yearbook* 4, 243–263.
- Vogel, I., and I. Kenesei (1990). Syntax and semantics in phonology, in S. Inkelas and D. Zec (eds.), *The phonology-syntax connection*. University of Chicago/CSLI.
- Ward, G. L. (1985). *The Semantics and Pragmatics of Preposing*. Ph.D. dissertation, University of Pennsylvania. Reprinted by Garland Press, NY, 1988.
- Ward, G., and B. Birner (1994). *Constituents out in left field: The functions of fronting in English*. Paper presented at the LSA Annual Meeting, Boston.
- Watters, J. (1979). Focus in Aghem, in L. Hyman (ed.), *Aghem Grammatical Structure*,

- Southern California Occasional Papers in Linguistics* 7, University of Southern California, Los Angeles.
- Wittgenstein, L. (1953). *Philosophische Untersuchungen/Philosophical Investigations*. Blackwell, Oxford.
- Wittgenstein, L. (1974). *Philosophical Grammar*. Blackwell, Oxford.

## NOTES

<sup>1</sup> I use capitalized *Focus* and *Topic* when I am talking about the relevant functional notions or about related technical terms within particular theories, such as functional universals, grammatical roles, or syntactic operators or categories. This will distinguish these senses from the several nontechnical uses of the same terms.

<sup>2</sup> For more on Topic, see Ward (1985) and McNally (1997).

<sup>3</sup> For extensive discussion of the answerhood relation to questions, including definitions of direct, indirect, partial, and complete answers, see Groenendijk and Stokhof (1984a, 1984b) and Roberts (1996a).

<sup>4</sup> I ignore here utterances in the imperative mood; see Roberts (1996a) for discussion.

<sup>5</sup> One might want to define a discourse as the set of explicit moves made in a period of time between a set of interlocutors. In that case, there might be different sets of possible implicit interpolated moves that the interlocutors could “agree” on, with different resulting information structures. Hence, one would talk not about *the* information structure for the discourse, but about *an* information structure for the discourse. In what follows, I assume that a discourse consists of all the moves made within it, implicit as well as explicit, though this isn’t crucial. In either case, one might also add a set *Exp* to the tuple, the subset of *M*, which consists of all the explicit moves in the discourse.

<sup>6</sup> Even assertions or questions which are rejected by the participants can be determined to have been felicitous (or not) in terms of their relation to the Information Structure of the discourse in which they occur. Hence, the domain of QUD isn’t restricted to the accepted moves.

<sup>7</sup> The notion of a *strategy of inquiry* relative to some topic or question under discussion is defined formally in Roberts (1996a), in the framework suggested by (4) above.

<sup>8</sup> See Selkirk (1984) for a fairly detailed exploration of the issues and discussion of many valuable examples; my assumptions about prosody are generally adopted from her work, with some simplifications for presentation here (especially (9c)). Selkirk’s work, in turn, relied heavily on the work of Pierrehumbert (1980) on the phonology of tone, including pitch accents; see also Liberman and Pierrehumbert (1984).

<sup>9</sup> This definition takes a conservative view of what it is to be F-marked, taking that feature on constituents to be invariably reflected in prosodic focus. Since English wh-elements aren’t always prosodically focused, I take it that they are not always F-marked. Many linguists have argued that wh-elements are always Foci, over a variety of languages. If we take that to correlate with F-marking in English, then the definition in (11) can be simplified accordingly.

<sup>10</sup> (15) is modified and generalized from von Stechow (1989, p. 36). Paul Portner notes that this definition ignores the sorting of wh-phrases into human and nonhuman subtypes, which would in general make the Q-alternatives of the question a proper subset of the focal alternatives of  $\beta$  (i.e., such that  $Q\text{-alt}(\alpha) \supseteq \|\beta\|$ ). This raises the larger issue of how the domain for the Focus alternative sets may be contextually restricted; see the discussion in Rooth (1985) and Roberts (1995).

<sup>11</sup> Among others, Kenesei cites Odden (1984) on Kimatumbi and Hyman and Waters (1984) on Efik, claiming that each language has a "Contrastive Focus" marker in the form of a special tense form of verbs. After examining these accounts, it appears that, instead, each language has a special form (for at least one tense) of the verb, which indicates that it is part of the Information Focus (wide or narrow); it isn't clear from these discussions that this is exhaustive focus. Further, there are other special tenses marking narrow focus on an object or other argument, instead, though again there is no indication of whether these forms are exhaustive. These special forms are accompanied, at least in the case of Efik, by a "tonal perturbation" on the verb when it has narrow focus. Thus, these forms do not appear to be parallel to cases like Hungarian "Operator Focus," to be considered in the next section.

<sup>12</sup> But see Bresnan and Mchombo, 1987, for arguments that this is not the case in all Bantu languages, in particular not Chichewa, in which foci canonically remain *in situ*.

<sup>13</sup> For example, in the theory of Bresnan and Mchombo (1987), developed to account for phenomena in Chichewa, they claim that FOC(us) and TOP(ic), along with ADJUNCT, are nonargument grammatical functions, and that the same argument, say a SUBJ(ect) cannot be both a FOC(us) and a TOP(ic). But they do not offer a characterization of these functions which would explain the claimed complementarity. Many authors, including Roberts (1996a), argue for the existence of thematic themes (i.e., Focused Topics). The status of Bresnan and Mchombo's claim rests on an adequate characterization of FOC(us) and TOP(ic).

<sup>14</sup> The characterization of Hungarian which I offer here is based on a study of the literature, e-mail correspondence with the Hungarian linguists mentioned in the Acknowledgments, and extensive informant work in Columbus, Ohio, with a (nonlinguist) native speaker, Patricia Szelle, referred to herein as "my informant." Part of the work with Szelle was conducted in the phonetics laboratory at OSU, under the direction of Mary Beckman, to whom I am most grateful for her assistance. The literature which most influenced this section included Horvath (1976, 1981, 1986); Kiss (1977, 1981, 1987, 1995d, 1996a, 1996b); Szabolcsi (1981, 1983, 1994, 1995, 1997); and Brody (1990).

<sup>15</sup> Szabolcsi uses the term *Focus* instead of *H-Focus*. The Pred-Op in this schema is the same slot as the V-Mod in Szabolcsi (1994).

<sup>16</sup> Kiss (1995d) assumes FP can be iterated, and that in cases of multiple displaced Foci, all of them have been moved into one of these syntactic Focus projections (i.e., into a projection of an H-Focus position). And Kiss (1996b) argues that the whole sequence *TOP QP FP* can recurse, with each Focused NP moving to a [Spec,FP] and the verb landing in the highest F. However, all of the other literature I have considered assumes that there is at most one H-Focus, concurring with my data, and I assume the more conservative position here.

<sup>17</sup> However, Szabolcsi (1997) argues that instead of the verb moving to F, it moves to a distinct functional head that is linearly not separated from [Spec,FP] by any overt material.

<sup>18</sup> The string in (20a) isn't always taken to be a contradiction. With narrow focus on the subjects of the two clauses and rising intonation at the end of the first, it may be understood in the same way as (20b). However, I would argue that this involves something like the "metalinguistic negation" of Horn (1985, 1989), which he argues is unlike logical negation in that it can be used to negate conversational implicatures, and even conventional implicatures, or presuppositions, which are often assumed to be noncancelable (e.g., by Stalnaker, 1974 and Heim, 1983, 1992).

<sup>19</sup> Szabolcsi (1994) argues that the semantic character of this class provides an explanation for why it cannot occur in H-Focus. That is, exhaustiveness entails that the denotation of the H-Focus is the maximal set of entities which bear on the property in question. Hence, only group-denoting DPs (where a group may correspond to a singleton set) can serve as H-Foci.

<sup>20</sup> This interruption is crucial here. Otherwise, only an elliptical reply, *János a televízióját*, would sound more natural. The informant was specifically instructed to reply under the assumption of a previous interruption, in order to solicit the full form in (25b).

<sup>21</sup> Anna Szabolcsi's (personal communication) judgments differed from my informants regarding (25): "If a single pair is intended to be exhaustive, the only natural way to answer (25a) is '*János a televízióját*' (with the verb ellided), (25b) as it stands is only acceptable as an answer to a single question 'who sold his tv to me.'"

<sup>22</sup> We recorded the informant producing examples of different utterance types (digitizing them at 8 kHz), and then ran an autocorrelation-based algorithm to compute a fundamental frequency contour for each utterance. We then used the xwaves program to display the f0 contour along with a wide-band spectrogram, permitting us also to interactively zoom in on selected portions for listening and examination of the tune and rhythm.

<sup>23</sup> This was suggested by Varga's (1983) careful description, and, independently, by Paul Portner and Louise McNally, on the basis of an earlier draft of this chapter.

<sup>24</sup> The possibility that FV may form a prosodic constituent raises the question of whether H-Focus and Verb might not form a constituent syntactically as well (contra several of the analyses cited above), under the common assumption that prosodic and syntactic constituency are generally closely related. This suggests the further possibility that H-Focus and PredOp, in complementary distribution and sharing the same prosodic characteristics (so far as I now know) might share the same syntactic position. Although this is a very interesting possibility, I haven't the room to explore it further here.

<sup>25</sup> I do have some reservations about this approach, based principally on the possibility, mentioned in the preceding footnote, that H-Focus and Pred-Op are in the same syntactic position, and that Pred-Op is not necessarily always an Information Focus. If that were the case, this position itself couldn't obligatorily carry the feature Focus. This bears further investigation.

<sup>26</sup> As noted above, Roberts (1996a, section 2) argues that corrective focus involves a metalinguistic use of the syntactic structure in the utterance to refer to an earlier utterance with the same structure, and, like metalinguistic negation, this use overrides any presuppositions generally associated with the construction, leaving only the presuppositions of the prosodic focus.

<sup>27</sup> Similarly, Dezsö (1982), cited in Harlig and Bardovi-Harlig (1988), claims that it is a language universal that sentence stress falls on the rheme, drawing particularly on work on the Uralic-Atlantic languages, especially Turkish.

<sup>28</sup> One of the striking things about Hixkaryana, according to Derbyshire's (1985: 145ff) account, is that the language displays a very strong tendency to move focused constituents, "new" information, and constituents bearing "contrastive emphasis" to a clause-initial position. The language is OVS, so the Focus-fronted constituents precede the direct object. Derbyshire does say that "there is no special stress or intonation on constituents that undergo this process," (p. 146) but he doesn't indicate what the (ordinary) stress or emphasis associated with the resulting construction might be, and the few examples he offers involving prosody at the clausal level do not include such a Focus-displaced constituent. Clausal stress is said to be final, not initial, so the prosody doesn't immediately recall that of Hungarian. Still, with no indication of how phrasing works, we cannot rule out the possibility that prosody marks Focus in Hixkaryana. For example, the language involves extensive pro-drop, both for subjects and objects, with agreement for both on the verb. Hence, Focus fronting might possibly be a species of Left Dislocation. Suppose that Hixkaryana is an edge language and is employing the same kind of strategy as Hungarian for accenting syntactic constituents which aren't edge aligned when *in situ*. Left Dislocated constituents in many other languages constitute distinct Intonation Phrases from that of their main clauses. If this were the case in Hixkaryana, then a Focus-fronted constituent might also bear final stress in that phrase, but a stress which would thereby be initial in the entire construction. Such stress, though neither "special" nor particularly emphatic, might constitute Focus marking in Hixkaryana. Of course, this is purely speculative, but it illustrates the sort of questions that one might want to pursue with a native speaker.

<sup>29</sup> By talking about Universal Grammar, I do not mean to make any claims about the psychological status of principles like (36), nor do I mean to adopt the view that Universal Grammar, however encoded, determines the set of all possible human language grammars (e.g., as the set of all possible combinations of parameter settings). Rather, I only mean to claim that (36) is one of the principles which appear to be encoded in the grammatical structure of all human languages, like, for example, X-bar theory or the prosodic hierarchy.  
<sup>30</sup> See Shieber (1986) for an overview of the notion of *unification* within grammatical theory.

<sup>31</sup> Note that this does not support Kiss's (1996b) claim that there are two kinds of focus, one of which, Information Focus, does not display the operator-like behavior of the other. For example, according to Kiss, *everi* is not a Focus Operator, since it cannot occur in English clefts or (in translation in Hungarian) in H-Focus. But, as she concedes, *everi*-NPs do display the same weak crossover behavior as other prosodically focused constituents in English, as well as behaving like a focus-sensitive operator in Rooth's (1985) terms.

## ON THE LINGUISTIC ENCODING OF INFORMATION PACKAGING INSTRUCTIONS

LOUISE McANALLY

*Facultat de Traducció i Interpretació  
Universitat Pompeu Fabra  
Barcelona, Catalonia*

### 1. INTRODUCTION

The large literature on the linguistic encoding of what I will call *information packaging instructions* (term adapted from Vallduví, 1992, following Chafe, 1976) contains a number of proposed generalizations about the way such instructions are encoded in language, for example, Halliday's (1967: 212) claim that "the theme is what comes first in the clause," or Greenbaum and Quirk's (1990: 394ff) affirmation (apparently inspired by Prague school thinking) that "it is common to process the information in a message so as to achieve a linear presentation from low to high information value," what they call "the principle of END-FOCUS." These attempts to predict the linguistic encoding of information packaging instructions have justly been criticized as circular, difficult to verify, or simply incorrect (see e.g., Prince, 1988, and the papers in Payne, 1992, for recent surveys).

In this chapter, I defend an approach to information packaging instructions which takes them to be conventionally encoded presuppositions in a dynamic semantics (see e.g., Stalnaker, 1978, and Heim, 1983, for such treatments of presupposition). While this approach, which I will call an "integrated" approach, is not new (see sections 2.2 and 3.2), it makes a rather surprising prediction which, to my knowledge, has gone unremarked upon: There may be considerable cross-linguistic variation in the encodings of all types of information packaging instruc-