

**The Realization and Function of
Focus in Spoken English**

by

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**The Realization and Function of
Focus in Spoken English**

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The Realization and Function of Focus in Spoken English

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Theories of semantic focus — like many linguistic theories — have been developed primarily on the basis of constructed examples, based on the intuitions of linguists. Despite the fact that the main realization of focus in English is through prosodic prominence, very little research has systematically treated the occurrence of focus in natural speech. The current work contributes to the understanding of focus by examining the occurrence of focus in spontaneous spoken discourse. While many previous observations are supported by this corpus research, clear counterexamples to some of them also occur.

In particular, focus data from natural speech is problematic for claims that connect new discourse status and focus. The data in the corpus better support the notion that focus signals the existence of alternatives — either in the discourse or in the mind of the speaker. Observed differences in the semantic properties of focus can be attributed to the nature of the alternatives of the focus and the focus constituent; they need not be attributed to fundamentally different types of focus.

The current work also provides evidence that focus should not be equated with pitch accent: focus is a discourse semantic phenomenon and pitch accent a phonological one. While the primary pitch accents of intonation constituents typically signal focus, they do not always do so; secondary accents, on the other hand do not typically signal focus, although they may serve other related communicative functions. The assumptions and conclusions around this issue were confirmed in an experiment. The experimental results indicate that the primary sentence accent plays the most important role as a marker of focus, and that there is substantial interaction between phonological and discourse-semantic constraints on the placement of pitch accent.

Focus involves many aspects of language: syntax, semantics, phonology, pragmatics, and discourse structure, and the research of this work draws from all of these areas. Focus is also of interest to researchers in other fields concerned with cognition, not only linguistics. The present work thus attempts to present discussion in a manner that is accessible to readers from as wide a range of backgrounds as possible.

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Chapter 1: Introduction

The primary means of marking focus in English is through intonation, the pattern of prosodic prominence characteristic of speech. Theories of focus — like many linguistic theories — have been developed largely on the basis of constructed examples, based on the intuitions of researchers. This work has been supported by studies of written discourse, naturally occurring examples incidentally observed by linguists, and experimental studies of focus in speech. Very little work has been done, however, that systematically treats the occurrence of focus in natural speech.

One goal of the current work is to test the validity of observations about focus in English in spontaneous speech. This goal is reflected in the contributions of chapters 2 and 3. Chapter 2 discusses existing observations about focus and identifies the issues related to these. Chapter 3 examines specific phenomena occurring in a speech corpus that are relevant to existing observations and theories about focus. A second goal of this work is to address the implications of excerpts from the corpus for current theory on focus. Chapters 4 and 5 discuss excerpts that are problematic for some existing claims about focus and suggests an alternate proposal. Chapter 6 turns to an experiment designed to support assumptions made in my approach to the data in the speech corpus and thus to support the findings and analysis presented in chapters 3 through 5. Section 1.3 of the present chapter provides a brief overview of the conclusions presented in subsequent chapters.

Focus involves many aspects of language: syntax, semantics, phonology, pragmatics, and discourse structure. Because of this, it has been of interest to researchers working in various areas, not only in linguistics, but in other fields concerned with cognition. Thus, another goal of the present work is to present discussion in a manner that is accessible to readers from as wide a range of backgrounds as possible. This introduction is intended to contribute to this goal. Section 1.1 and 1.2 prepare readers for the discussion in the remaining chapters. These sections provide general definitions related to the discussion of focus in this work and a general summary of views on the function of focus.

1.1 DEFINING FOCUS

1.1.1 Focus and domains of focus

The term *focus* refers to a cross-linguistic semantic phenomenon related to the highlighting of information for communicative purposes. In English, focus is typically connected to words in an utterance that are perceived by hearers as stressed or emphasized by speakers. Such syllables can be louder or longer than the syllables around them. Particularly important to the prominence of individual words in a sentence, however, is the connection between the emphasized word and a change in the pitch of the speaker's voice, which occurs because of the presence of a pitch accent (Ladd 1996; Bolinger 1958). These are thus accented words.

It was noted long ago that the accented word in a sentence is related to the question that the sentence answers (Hermann Paul 1880). This is evident from the constructed question answer pairs appearing in (1)-(4)

- (1) (a) Who will drive to Austin tomorrow?
(b) ALEX will drive to Austin tomorrow.
- (2) (a) How will Alex get to Austin tomorrow?
(b) Alex will DRIVE to Austin tomorrow.
- (3) (a) When will Alex drive to Austin?
(b) Alex will drive to Austin TOMORROW.
- (4) (a) Where will Alex drive tomorrow?
(b) Alex will drive to AUSTIN tomorrow.

Thus, the focus of the sentence in (1b), represented by the word in capital letters which would be accented in this context, *Alex*, corresponds to the wh-constituent *who* in the question in (1a). The focus in (2b), *drive*, likewise corresponds to the wh-constituent *how* in the question in (2a), the focus in (3a), *tomorrow*, corresponds to *when*, and the focus in (4b), *to Austin*, corresponds to *where* in (4a).

Furthermore, the answer to a question has been noted to be pragmatically odd, or infelicitous, when the accented word of the answer does not correspond to the wh-element of the question:

- (5) (a) When will Alex drive to Austin?
(b) % Alex will drive to AUSTIN tomorrow.
(c) % ALEX will drive to Austin tomorrow.

These observations have led to a defining test for focus: the focus of a sentence corresponds to the wh-constituent in the question that the sentence answers.

As the example in (4b) might suggest, however, an accented word can sometimes be part of a larger constituent that serves as the focus of a sentence. The noun *Austin* is accented in (4b) and is part of the prepositional phrase *to Austin* that answers the question *Where will Alex drive tomorrow?* The fact that an accented word can be part of a larger focus constituent results in potential ambiguities in focus structure. The sentence in (4b) could also be the answer to different wh-questions, specifically the ones appearing in (6a) and (7a).

- (6) (a) What will Alex do tomorrow?
(b) Alex will drive to AUSTIN tomorrow.
- (7) (a) What happens tomorrow?
(b) Alex will drive to AUSTIN tomorrow.

In (6), the accented noun *Austin* in (6b) represents focus on the verb phrase, *drive to Austin*. This constituent corresponds to the wh-element *what* (taken together with *do*) in the question that the sentence answers. In (7), the accented noun *Austin* represents focus on the constituent *Alex will drive to Austin*. This

corresponds to the wh-element *what* (taken together with *happens*) in the question that the sentence answers. The sentence appearing in (4b), (6b) and (7b) is thus potentially ambiguous with regard to its focus structure: it could answer any of the questions in (4a), (6a) and (7a), given the right context. In each of the different contexts proposed, the accented word *Austin* would signal focus on a different constituent.

These examples show that while the accented word always falls within the focus of a sentence, the focus cannot necessarily be equated with the accented word. There is a distinction between the word perceived as stressed, which signals focus on a *constituent* containing that word, and the focus of the sentence itself. This distinction has not always been preserved in the literature on focus. I will attempt to maintain it in the current work by distinguishing between the focus of a sentence and a *focus center*. A focus center is an accented word in an utterance that signals focus on a constituent containing it (a more precise definition appears in Chapter 3). Thus, the focus center of (1b) is *Alex*, the focus center of (2b) is *drive*, the focus center of (3b) is *tomorrow*, and the focus center of the sentences in (4b), (5b) and (6b) is *Austin*. In some cases, as in (1b), (2b) and (3b), the focus center and the focus of the sentence are the same. In other cases, like (4b), (5b) and (6b), the focus center and the focus of the sentence are different. In these cases, the focus center is only one word appearing in the focus of the sentence. The focus center on *Austin* in (4b), (5b) and (6b) can correspond to focus on the constituents *to Austin* (4b), *drive to Austin* (5b), and *Alex will drive to Austin* (6b). These constituents are the domains of focus signaled by the focus center *Austin*. In the remainder of the current work, I will typically call a constituent that comprises a domain of focus a *focus constituent*. In (1b), (2b) and (3b), the focus centers represent the complete focus constituent; in (4b), (5b) and (6b) the focus center occurs within a larger focus constituent.

1.1.2 Categories of focus

Readers encountering the literature on focus for the first time find a number of terms used to describe different categories of focus. Terms that frequently occur include *broad* and *narrow focus*, *neutral* and *contrastive focus* and more recently, *information* and *identificational focus*.

The terms *broad* and *narrow focus* were introduced by Ladd (1980). These labels distinguish between circumstances in which a focus center corresponds to focus on a larger "broad" constituent and those in which it corresponds to focus on a smaller "narrow" constituent. Consider two constructed examples that Ladd provides:

- (8) (a) What did John do yesterday?
(b) He [painted the SHED].
- (9) (a) John painted the garage yesterday, didn't he?
(b) He painted [the SHED].

The appearance of the focus center *shed* can represent either broad focus on the verb phrase, as in (8b), or narrow focus on the noun phrase, as in (9b).

Other writers have observed similar distinctions, but have discussed them in different terms. What Ladd (1980) called *broad focus* others have identified as *neutral (sentence) stress* (Chomsky and Halle 1968, Jackendoff 1972), *neutral focus*

(as in Sgall et al 1986), and more recently, *information focus* (as in É. Kiss 1998); different views about the significance of so-called broad or neutral focus will be addressed more specifically in Chapter 2 (see section 2.1.2).

The concept of *identificational focus* has been equated with narrow focus in the literature (É. Kiss 1998), but I will argue that these in fact represent two different parameters of focus: narrow focus refers to the size of a focus constituent while identificational focus refers to the discourse characteristics of a focus constituent. Other authors have equated narrow focus with *contrastive focus*, but again, they are not precisely the same thing: contrastive focus has a particular purpose in discourse, and while it is often narrow, it need not be. Likewise, Ladd (1980) noted that while narrow focus can indicate a contrast, it does not necessarily do so.

The notion of contrastive accent was recognized long ago on in the study of sentence stress and accent (e.g., Coleman 1914 in Bolinger 1962). Bolinger (1962) observed that accent is permitted (although not always required) on most words within a sentence when there a contrast, and Jackendoff (1972) argued that this accent serves as a marker of focus. Rochemont (1986) is among those who proposed that contrastive focus be considered distinct from other focus. Constructed examples of contrastive accent (from Bolinger 1962 (8a), (8c) and Jackendoff 1972 (8a), (8b)) appear below:

- (10) (a) You may call it dark BLUE, I should say it was BLACK.
- (b) Carol LIKES Bill, she just TREATS him badly.
- (c) Avoid INDigestible foods in your diet and favor diGESTible ones.
- (d) I would like you to work WITH me, not AGAINST me.

In (8a) *dark blue* contrasts with *black*, and in (8b), *likes* with *treats badly*. Bolinger (1962) and Jackendoff (1972) both pointed out that even syllables that do not typically get stressed can be accented in contrastive contexts: thus accent can occur on *in-* of *indigestible* when it contrasts with *digestible*, and on *with* and *against* when they contrast with each other. Like Ladd's narrow focus, these examples all represent highlighting of the smallest constituent possible connected to the accent — in some cases, even smaller than a word.

1.2 FOCUS FUNCTION

It is generally agreed that focus highlights information for communicative purposes. The question that research on focus attempts to answer is what this communicative purpose actually is. There are two main perspectives on this question. One is that focus highlights new information in a discourse, information “which is represented by the speaker as being new, textually (and situationally) non-derivable” (Halliday 1967; cf. also Sgall et al 1986, Rochemont 1986, Lambrecht 1994, among others; see Chapter 2, section 2.2.1-2.2.2). Another view is that focus signals the existence of alternatives to the item in focus (cf. Rooth 1985, Krifka 1991, Jacobs 1991, among others; see Chapter 2, section 2.2.3).

The question in (4a) (repeated below) can be understood to presuppose that *Alex will drive somewhere tomorrow*. Proponents of the view that focus represents new information consider the focus phrase of the response in (4b), *to Austin*, to be new information. Thus, the constituent serves as the sentence focus, and is

highlighted with accent on *Austin*. Furthermore, the presupposed material, which is given by the context (that *Alex will drive somewhere tomorrow*) is deaccented.

- (4) (a) Where will Alex drive tomorrow?
(b) Alex will drive to AUSTIN tomorrow.

Proponents of the alternative view of focus analyze the question-answer pair in (4) differently. The question in (4a) asks for places *x* such that it is true that *Alex will drive x tomorrow*. The focus of the answer in (4a) identifies a particular place *x* that satisfies the proposition, namely *to Austin*; the focus thus can be understood to select this destination out of all the alternative destinations that Alex could potentially drive tomorrow.

Krifka (1999) points out that the two views can result in different analyses for the domain of focus. He provides the following discourse sequence (slightly adapted), where (11a) and (11b) are responses A might make to the question posed by B.

- (11) A: My car broke down.
B: What did you do?
(a) A: I called a MECHANIC
(b) A: I FIXED it.

Both perspectives come up with the same domain of focus for the response in (11a). If focus marks new information, the focus here is *called a mechanic*, since this is the new material. If focus signals the existence of alternatives, B's question asks for the things A did when the car broke down: the set of *x* such that it is true that *A did x*. The constituent *called a mechanic* is the alternative (of any of the things that A might do when his car breaks down) that satisfies this proposition, and is thus the focus of the sentence.

The two perspectives result in a different analysis, however, for the focus in (11b). For the new information perspective, the focus in the response is simply *fixed*, as *it (=the car)* is already given. The alternative approach puts focus on *fixed it*, since the question asks (as with (11a)) for the set of *x* such that it is true that *A did x*.

The absence of accent on *it* (which is essentially never accented) in (11b), which typically refers to a given entity, suggests that whatever the function of focus, givenness appears to play a role in accent assignment (Krifka 1999, Ladd 1980, 1996). The de-accenting of given material might initially appear to favor a new information explanation. However, the presence of accent on elements in contexts where these elements are given in the discourse favors an alternatives view. A constructed example that illustrates such a context appears in (12).

- (12) A: How do you usually get to work?
B: I ride my BIKE or take the BUS. Today, I rode my BIKE.

The alternative view provides a natural account of the focus in these examples. The focus constituents *ride my bike* or *take the bus* are the relevant means of getting to work, selected from the set of alternative means of getting to work. The focus constituent *rode my bike*, which can be understood to answer the question *How did B get to work today?*, is selected item from the set of alternatives that the discourse

explicitly provides: *rode my bike* and *took the bus*. While the first focus centers on *bike* and *bus* in (12B) would not pose a problem for the perspective that focus represents new information, the second focus center on *bike* is problematic, since *bike* is not new information.

A recent proposal by É. Kiss (1998) can be considered a third perspective on focus. Distinctions between categories of focus have long been noted (as the discussion in section 1.1.2 suggests) and É. Kiss attempts to connect the new information and alternatives perspectives on focus to these observed categories. She relates the new information perspective to information focus and the alternatives perspective to identificational focus (see Chapter 2, section 2.2.4).

1.3 OVERVIEW

Most of the discussion to be presented in the current work comes from observations drawn from data from a corpus of naturally occurring speech. Section 1.3.1 provides information about this corpus and its use in the current work, while section 1.3.2 previews the findings to be presented in subsequent chapters.

1.3.1 Data

The speech data used in the current work come from two sources. The first source consists of interviews conducted on the National Public Radio program *Fresh Air* and aired in April and May of 1998. These interviews include eight speakers (including three different interviewers and five interview subjects). The second source consists of brief interviews conducted by undergraduate students at the University of Texas as part of an assignment for an introductory linguistics class. These include nine speakers, all interview subjects. The interviewers' voices rarely appeared in the recordings, and so were not used as part of the data. All speakers in the corpus are native speakers of American English, and represent a variety of dialects spoken in the United States.

Although the interview subjects were aware of the topics on which they would be expected to speak during their interviews, the speech in these interviews is nevertheless entirely spontaneous, not read, and thus displays all the features typical of naturally occurring speech — including pauses, hesitations, corrections and speech errors. Because of the formal interview setting, there is little overlap between speakers, making this a more convenient source of initial data on the realization of focus in naturally occurring speech than more interactional conversational data. All interviews were transcribed, consisting of a total of 140 minutes of speech. Approximately 2210 clauses occur in the corpus. Relevant portions of the recorded interviews were digitized for pitch analysis with *Praat*, a software program that performs acoustic analyses.

A primary goal for the use of data from a speech corpus is to consider whether the observations made about focus on the basis of constructed examples — and the theories developed from these — are supported by data from naturally occurring speech. A speech corpus provides complete information about intonation and discourse context, both of which play an important role in focus, and so it is a source well-suited for this objective. I approached the corpus with this goal in mind, looking for contexts in the interviews most likely to be relevant to existing observations and theories. This means that I did not undertake a statistical study of the speech corpus. I did not, for example, examine every occurrence of pitch accent or focus, since the majority of these did not provide data that were relevant to

existing observations. Rather, I looked at excerpts that provided data that supported or challenged existing claims about accentuation and discourse status, items in contrast, marked syntactic constructions, focus in questions and focus sensitivity. Altogether, I considered the occurrence of pitch accent, focus and the contexts for 208 clauses (slightly less than 10% of the clauses in the speech corpus). Representative examples from these data and discussion thereof appear in Chapter 3.

Looking at a selected set of data comes with its own problems, but the time-intensive nature of the approach used in considering the data from the corpus precluded examining the occurrence of pitch accent and focus in every sentence. This was part of the reason I sought to validate the assumptions that I made in considering the corpus data through an experiment (Chapter 6). Given the fact that the purpose of the current work was to consider the validity of previous claims about focus based on constructed examples, contexts expected to be relevant to previous claims provided the starting point for the consideration of focus in natural speech.

I also did not address the function of particular pitch contour "tunes" in the current work, although pitch information for many excerpts is provided for readers interested in this information. The work done here lays a foundation for future work on the semantic, pragmatic and sociolinguistic function of pitch contours because it develops an approach that distinguishes between pitch accents that represent focus and those that do not.

1.3.2 Preview of findings

Data from the corpus provide evidence that pitch accent and focus are best treated as separate phenomena — one phonological, the other semantic. While the main accents of a sentence typically do signal focus, there are exceptions; furthermore, while secondary accents can signal focus, they do not typically do so. These observations are confirmed by the experimental data, which also indicate phonological differences between broad and narrow focus.

Excerpts from the corpus bear out many observations about focus based on constructed examples, but they also provide clear counterexamples: for example, given items are pitch accented and serve as focus even when they do not contrast with other concepts in the discourse. The existence of such examples, and the properties of the focus connected to them, provide support for the idea that focus does not simply represent new information.

Data from the corpus can be understood to support the idea that there are two kinds of focus, but the data do not support the properties attributed to these different kinds under existing proposals. A proposal developed on the basis of these observations relates both kinds of focus to the existence of alternatives: one kind, however, is relevant to relationships within sentences, while the second kind is relevant to relationships within discourse.

Chapter 2: Focus Literature in Context

The previous chapter introduced and defined the linguistic phenomenon of semantic focus, identifying categories of focus that have been discussed in the literature and introducing the two dominant views about the function of focus. The goal of the present chapter is to provide background on various perspectives on intonation and focus relevant to the data and discussion appearing in Chapters 3 through Chapter 6. This should help clarify for the reader the contribution these chapters make.

While it is impossible for me to present a complete survey of all the literature on focus, I will give the reader an idea of the range of perspectives that have been used to treat focus. Section 2.1 addresses analyses of sentence accent. Section 2.2 addresses a variety of approaches to focus. Section 2.2.1 presents the observations that have come out of discourse-oriented research perspectives. Section 2.2.2 presents the observations and analyses of focus that have come out of what I will call focus-oriented research perspectives. Section 2.2.3 examines the observations and analyses of formal semantic approaches. Section 2.3 turns to issues particularly relevant to the analysis of focus in spontaneous speech.

2.1 ON SENTENCE ACCENT

The phenomenon of focus has long been connected to stress in a sentence (Hermann Paul 1880). Hearers typically perceive focus as being centered on the most prominent word in a sentence. This prominence results in part from relatively greater intensity and duration of the syllable that receives the primary stress (Ladd 1996). More important to this prominence in English, however, is the change in relative pitch, or fundamental frequency (abbreviated F0), that results from the presence of a pitch accent associated with the stressed syllable (Fry 1955). Ladd (1996:45-46) defines a pitch accent as "a local feature of a pitch contour — usually but not invariably a pitch change, and often involving a local maximum or minimum — which signals that the syllable with which it is associated is prominent in the utterance."

Many attempts have been made to describe and account for the placement of pitch accent. One such attempt was the nuclear stress rule (NSR) (Chomsky and Halle 1968). This captures the generalization that in neutral conditions, the main stress of an English sentence — its "nuclear stress" — falls on the stressed syllable of the last lexical item of a clause. A constructed example illustrating this generalization appears in (1).

- (1) The last word gets an áccent.

The NSR was criticized (e.g., Bolinger 1972) because it did not capture the fact that the main accent of a sentence could fall elsewhere. Bolinger (1972) argued that the location of accent was not predictable by grammatical rules, but reflected the intentions of the speaker. The sentence (1) could, for example, also be uttered as in (2a) or (2b), if the speaker chose:

- (2) (a) The lást word gets an accent.
(b) The last wórd gets an accent.

The NSR was also criticized on the grounds that any tendency of accent to fall on the final lexical item of a clause could be viewed as an artifact of English word order (e.g., Schmerling 1976, Selkirk 1984). In English, the objects of transitive verbs follow the verb, and these objects are indeed often accented (as in (1)), as the NSR might predict. In other languages, however, where objects can precede the verb, (e.g., Dutch, German), the object typically bears the accent, even though it is not clause final. An example from Dutch appears in (3).

- (3) Het gebeurt dat het laatste woord een klémtoon heeft.
 It happens that the last word an accent has.
 It happens that the last word has an accent.

Perhaps the apparent preference of accent for clause final lexical items is actually a preference for the argument of a verb. Schmerling (1976) observed that in English the subjects of intransitive verbs — the only argument of the verb — are accented when the sentence occurs in a the most neutral of contexts: as the first sentence of a conversation (a so-called "news sentence").

- (4) Jóhnson died.

The NSR made the wrong prediction for sentences like (4), and it was argued that even when it made the right one, as it does for sentences like (1), it was for the wrong reasons.

Significant advances have been made in the understanding of English intonation since the NSR was proposed. One important development has been the recognition that any complete account of sentence accent in English must consider more than phonology. A second important development has been the emergence of a model of English intonation that considers *only* phonological constraints (Pierrehumbert 1980). This model has been useful for investigation of the role of focus in sentence accent because it defines the range of phonological possibilities for intonation. The issues left for analysis outside phonology are the factors that determine how and when these possibilities are realized. This model is described below.

2.1.1 A model of the intonation phrase

In the introduction to his comprehensive survey of intonational phonology, Ladd (1996) says about Pierrehumbert's dissertation entitled "The phonology and phonetics of English intonation" (1980) that it is "without a doubt the single most influential contribution to current work on intonational phonology." This work put forth "a simple yet powerful" model of intonation in English that has been adopted by linguists working in intonational phonology and in areas that interface with intonational phonology (Ladd 1996). Pierrehumbert's model, as presented in Pierrehumbert 1980 and Beckman and Pierrehumbert 1986, provides an essential tool for understanding the relationship between accents and intonational units. Certain essential aspects of this model serve as the basis for the analysis of data from the corpus in the current work, and thus I will review these here.

There is a long history of observation of the existence of intonational units and the importance of pitch accents within these (e.g., Schubiger 1958, Bolinger 1961, Lieberman 1968, Crystal 1969, etc.). Pierrehumbert's model describes the pitch (or F0) contour of the basic unit of intonation, the intonation phrase.

In her model of English intonation, the intonation phrase consists of a constrained sequence of different tones and accents. These include *boundary tones*, *phrase accents*, and *pitch accents*. There are two types of boundary tones, the low boundary tone (represented as L%) and the high boundary tone (represented as H%). Boundary tones represent a low or high pitch target occurring at the edge of an intonation phrase. There are also low and high phrase accents (represented as L and H, respectively). Phrase accents represent a low or high pitch target that occurs either somewhere between a pitch accent and a boundary tone, or between two pitch accents.

Pitch accents are also analyzed as consisting of low and high pitch targets. Pitch accents differ from phrase accents and boundary tones in two crucial respects: first, they are associated with the primary stressed syllable of words, and second, they can appear as bi-tonal combinations of high and low pitch targets.

The inventory of pitch accents proposed for English includes six pitch accent "shapes": H*, L*, H*+L, H+L*, L*+H and L+H*¹. The starred tone is linked to a stressed syllable in a pitch-accented word. The H* or L* pitch accents have high or low pitch targets (respectively) on the accented syllable. The bi-tonal accents represent more complicated pitch movements. The H*+L accent has a high tone target on the accented syllable, with a low target immediately following, while the L*+H accent has a low tone on the accented syllable with a high target immediately following. The H+L* accent corresponds to the occurrence of a pitch peak shortly before the accented syllable, and a drop in pitch throughout the accented syllable towards a low target. Finally, the L+H* accent corresponds to a low target before a rise in pitch during the accented syllable.

A bi-tonal pitch accent can be realized over a single syllable or over several syllables. In both examples in (5), the L* tone is linked to the stressed syllable, *Stein* (5a) or *ri-* (5b). In an example like (5a), the pitch contour reaches the H target during the syllable associated with L* *Stein*, but in (5b) the H target occurs during the syllable *ga-* of *rigamarole*. The two utterances nevertheless have the same overall pitch contour (see pitch tracks in (5')).

(5) from Beckman and Pierrehumbert 1986 ²

(a) Stein's not a bad man.

|
L*+H L H%

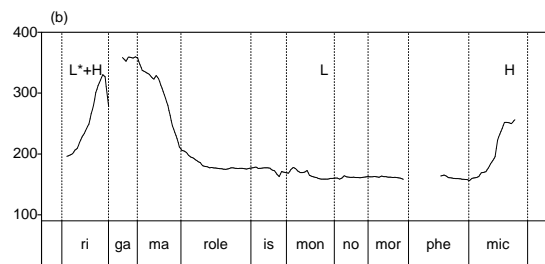
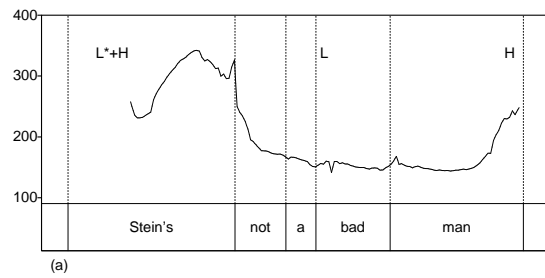
(b) Ri- ga- ma- role is monomorphemic.

|
L*+H L H%

¹ The original version of the model in Pierrehumbert 1980 also included a seventh pitch accent, H*+H. This was eliminated from the inventory in Liberman and Pierrehumbert 1984.

² These are the same sentences and intonation contours as appear in Beckman and Pierrehumbert 1986, but I produced the pitch tracks for use here.

(5')



The phrase accent (L) in these examples is realized over a series of syllables and cannot be connected to any particular syllable in the series. It occurs over the syllables *not a bad man* in (5'a) and *-marole is monomorphe-* in (5'b). The boundary tones (H%) are the targets at the end of the utterances, occurring in the examples within the syllables *man* in (5'a) and *-mic* in (5'b).

An intonation phrase contains an optional initial boundary tone (this does not occur in either (5'a) or (5'b)) followed by one or more pitch accents (L*+H in (5'a) or (5'b)) and ends with a phrase accent (L in (5'a) or (5'b)) and boundary tone (H% in (5'a) or (5'b)). Recall that only pitch accents are linked to syllables; this association is represented by the vertical line in the examples in (5a) and (5b).

While the model allows for multiple pitch accents, intonational phrases typically contain two or three, and rarely contain more than five pitch accents (Pierrehumbert 1980). When an intonation phrase contains more than one pitch accent, the final one is the *nuclear pitch accent* of the phrase. This accent is typically perceived as the most prominent accent of an utterance. This perceived prominence appears to be phonological rather than phonetic. It has no acoustic correlate: to date there has been no evidence supporting the idea that the final accent is the most prominent phonetically (Ladd 1996; also Bolinger 1986, 't Hart et al. 1990, Terken 1991).

The proposed composition of an intonational phrase can be modeled with a transition network (see Figure 2.1) The represents the optional boundary tone, followed by one or more pitch accents, followed by a the phrase accent and final boundary tone.

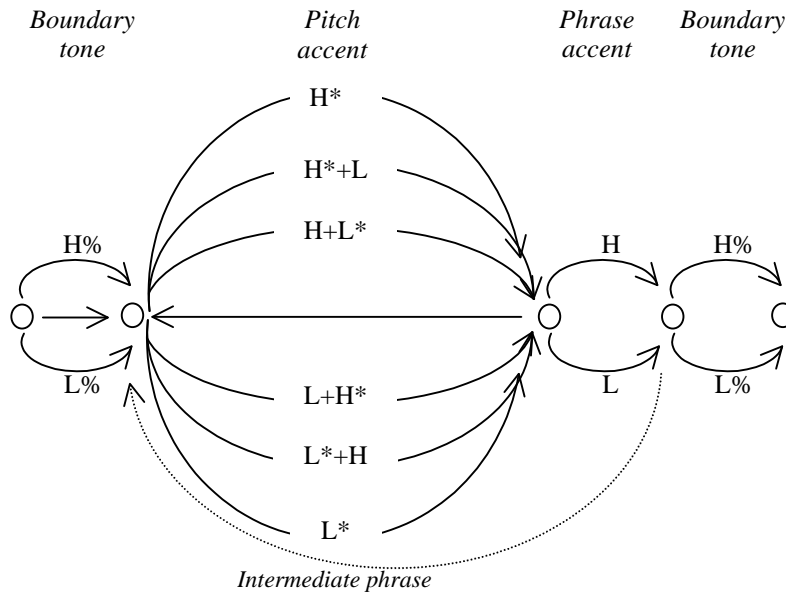


Figure 2.1: Transition network of the well-formed intonation phrase (from Pierrehumbert 1980)

A modification to the model (Beckman and Pierrehumbert 1986) adds a level of phrasing smaller than the intonation phrase: the "intermediate phrase." It reanalyzes the phrase-accent and boundary tone configuration, so that the phrase accent is "a terminal tone for the intermediate phrase, while only the boundary tone is terminal to the intonation phrase." In this modification, an intonation phrase consists of an optional initial boundary tone, followed by one or more intermediate phrases and a final boundary tone. An intermediate phrase consists of one or more pitch accents followed by a phrase accent. This change in the model allows for intonation phrases with more than one phrase accent as well as more than one pitch accent.³

The assumptions of this model of English intonation underlie the phonological aspects of the data analysis in Chapter 3.

2.1.2 Neutral stress

The pitch accent that has been typically connected to focus is the nuclear accent — in Pierrehumbert's model, the final pitch accent of the intonation phrase. Her model describes the *phonological* nature of the intonation phrase, and it captures a tendency in the location of a pitch accent that is perceived as the most prominent: it occurs as close to the end of an intonational unit as possible. This is related to the tendency that Chomsky and Halle also attempted to capture with the nuclear stress rule (NSR).

Pierrehumbert's generalization that the nuclear accent is the final accent is more powerful, however, than the generalization of the NSR. It is a phonological generalization, entirely disconnected from the syntax and semantics of the sentence. Because the NSR tied the location of the nuclear accent to the final lexical item, it

³ An example of an intonation phrase containing an intermediate phrase occurs in the corpus data, Chapter 3, example (13b)/(13'b).

was easy to find counterexamples. A speaker of English hears and utters hundreds of sentences every day in which "sentence stress" does not fall on the last lexical item of a clause (cf. (2), (4)). Data from the speech corpus used as a source for discussion in the following chapters here also contain hundreds of such utterances. These exceptions made it necessary for the NSR to be offered with the caveat that it apply only in case of "neutral stress," and made the NSR the focus of criticism (Bolinger 1972, Schmerling, Ladd 1980, among others). It is more difficult to find a clause — or intonational phrase — in which the final pitch accent is *not* the most prominent, or more accurately, is not perceived as the most prominent.

Pierrehumbert's model captures English speakers' intuitions about prominence of items in a sentence under normal circumstances, and it does so without requiring reference to the notion of focus itself. Because the model provides an account of the intonational phrase that is free of reference to syntactic or semantic domains, it has moved the discussion of intonation away from controversy over the issue of "neutral stress," which dominates much of the literature predating the adoption of Pierrehumbert's model of intonation in English. More recent discussion has turned instead to the syntactic and semantic factors that influence the association of pitch accent with items in an intonation phrase or clause. Nevertheless, much of the work on intonation makes reference to "normal" or "neutral stress" and the relationship between "neutral stress" and the notion of focus. It will thus be necessary to say a few words about these issues.

Chomsky (1970) suggested that intonation and semantic interpretation of sentences be linked via focus: "the focus [of a sentence] is the phrase containing the intonation center and the presupposition [of a sentence] is determined by replacing the focus by a variable" (Chomsky 1970: 91). After the publication of this work, other authors tried to link accent patterns that were not covered by the NSR to the phenomenon of focus. Jackendoff (1972: 238ff) explicitly modified the NSR by positing the feature [+focus], attached to a word at surface structure. Thus, the last [+focus] constituent in a sentence receives the nuclear stress; when there is no such constituent, the NSR was to apply — reflecting its status as a default rule for "neutral stress". This modification to the NSR assumed that the addition of focus was directly responsible for overriding the rule. In this analysis, then, neutral stress occurred in the absence of focus.

Selkirk (1984) also assumed that neutral sentence stress arises in the absence of focus. Like Jackendoff, Selkirk (1984: 145) adopted a [+focus] feature, but appealed to the presence of pitch accent rather than focus as a factor in sentence accentuation. She argued that a word with a pitch accent will have "greater rhythmic prominence" than one without, and will thus serve as the location of nuclear stress: "This principle ... may override the NSR, but in the absence of pitch accents ... the NSR will prevail," presumably generating a pitch accent on the final lexical item of a clause or phrase. In Selkirk's analysis, the role of focus in sentence accent patterns is less direct. Focus can be related to the assignment of pitch accents in an utterance, which in turn influences intonation patterns.

Other authors (e.g., Ladd 1980, see also section 2.2.1). have claimed that neutral stress does not represent circumstances in which there is *no* focus, but circumstances in which a sentence is *all* focus. In discourse initial sentences ("news sentences"), for example, the entire sentence can be understood to comprise a domain of focus, even though accent appears on only the final lexical item, as in the example below (adapted from Ladd 1980).

- (6) (a) What's going on?
 (b) [John painted the shéd].

In this view, rules of normal or neutral stress apply when complete sentences are in focus. One implication of this perspective is that all sentences, even those displaying neutral stress, have focus.

Gussenhoven (1983) takes this view a step further, arguing that

normal stress cannot reasonably be part of a theory of accent assignment, since [accent assignment] necessarily involves a prior interpretation of semantic material as either background or variable. The best one could do is to provide an explanation of why a particular accent assignment is called "normal": the answer is that it is that position that results from the widest reasonable interpretation of the semantic material as the variable...

In his view, there is no real "normal" or "neutral" sentence stress. In a neutral context like that in (6b), it is focus over the entire clause that results in the occurrence of accent on the object of the verb. Constituents that are focused, for whatever reason, are marked by pitch accents, and thus focus is the driving force behind the linguistic mechanisms that determine sentence stress. Ladd (1996) calls the view that focus is the only determinant of the location of pitch accent the radical focus-to-accent perspective.

The extent to which semantic and discourse factors influence accent assignment is a basic question of the current work, which looks at the realization of focus in natural speech. The following sections of this chapter present some of the approaches that have been taken in the study of focus, and through these, the nature of the factors that have been proposed to underlie focus and the assignment of accent.

2.2 APPROACHES TO FOCUS

There are a number of criteria by which to divide linguistic approaches to focus. Mainly for the purposes of discussing the literature relevant to the current work, I will divide these approaches into three broad groups. The first group of approaches I will call discourse-oriented approaches, because they are oriented towards questions that consider what focus reveals about the nature of spoken and written discourse. These include approaches that rely primarily on discourse or pragmatic factors in their analyses (e.g., Sperber and Wilson 1986, Lambrecht 1994, Prince 1999), some of which come out of the Prague School of linguistics and the work of Danes and Firbas (e.g., Sgall et al 1986).

The second group of approaches I will call focus-oriented because they are typically oriented towards questions that consider how focus influences the accentuation of sentences. Focus-oriented approaches consider discourse issues, too, but their perspective is different from that of discourse-oriented approaches. Focus-oriented approaches tend to look at the role discourse plays in the focus of sentences, while discourse-oriented approaches look at the way focus fits into discourse.

The third group of approaches I will call formal semantic approaches, because these approaches consider the contribution that focus makes to sentence

meaning. These approaches also employ formal models of language, specifically models of meaning.

All of these approaches share an interest in the relationships between discourse and focus; they differ in the direction they take and the methods they use to investigate these issues. Section 2.2.1 discusses discourse-oriented approaches, 2.2.2 discusses focus-oriented approaches, and 2.2.3 discusses formal semantic approaches. Section 2.2.4 discusses a proposal that integrates different aspects of these approaches.

2.2.1 Discourse-oriented approaches

Many authors are interested in the coherence of discourse and the role that focus — as reflected by intonation — plays in it (e.g., Halliday 1967, Sgall et al. 1986, Chafe 1976, Prince 1981a, Sperber and Wilson 1986, Lambrecht 1994). They have argued that focus represents that “which is represented by the speaker as being new, textually (and situationally) non-derivable” (Halliday 1967).

Discourse-oriented approaches typically take communication via discourse as an important starting point. Discourse is made up of individual utterances, but discourse structure has an impact on the structure of sentences within it. Grammar thus reflects the function of language as a means of communication. The purpose of discourse is to convey information, and this information must be structured so that it can be easily interpreted by the hearer. Given or accessible information (often called topic in the literature) serves as a starting point in communication, while focus — representing what has not been given — adds new information to the context. Prague school-based approaches (Sgall et al. 1986, Hajicova & Sgall 1987, Hajicova 1991) explicitly argue that because focus has the greatest “communicative potential”, it is the most “dynamic” part of the sentence. This corresponds to the intonation center, which cues a hearer to new information. Although there are differences in terminology, other discourse-oriented approaches agree in spirit with this notion of focus.

Because every sentence in a discourse can be assumed to add something new to the context — why else utter it? — discourse-oriented approaches also generally agree that every sentence contains focus (e.g., Halliday 1967, Sgall et al. 1986, Lambrecht 1994). In their view, then, what has been described as “normal sentence stress” represents circumstances in which an entire sentence is focus (see also 2.1.2), as there can be no “absence” of focus. Such sentences can be considered to represent all new information.

Prince (1981) addresses a problem with connecting focus to “new information.” Information is considered to be propositional — to relate to the assertion of a sentence. Yet items in focus can correspond to constituents that are *not* sentences: for example, verbs, verb phrases, or noun phrases as in (7b).

- (7) (a) John painted the garage yesterday, didn't he?
(b) He painted [the SHED].

Prince thus proposes a concept of new information that applies to the description of focus. A focus constituent is what makes the assertion of a sentence true, while the sentence itself adds new information to the discourse. Thus, the new information added by (7b) is that *John painted the shed*; the focus constituent *the shed* represents the thing that makes the assertion *John painted something* true.

Discourse-oriented authors incorporate a variety of observations into their approach. First, there is the observation that sentence accent is used in a variety of languages to signal focus or something like it (Hirst and Di Cristo 1998). In neutral contexts in these languages, sentence accent occurs towards the end of a sentence rather than the beginning, as it appears to in both American and British English (Chomsky and Halle 1968, Pierrehumbert 1980, Cruttenden 1986). Second, there are a number of observations concerning the cross-linguistic tendency for languages to prefer to put given information before information that is not already given (Hajicova and Sgall 1987, Lambrecht 1994). In languages with relatively free word order (Panhuis 1982, Sgall et al, 1986, É. Kiss 1988,) and even to a certain extent in fixed-word order languages like English (Birner and Ward 1998), we find that given entities and concepts tend to occur earlier in a sentence those that are not given. Grammatical subjects tend to occur at the beginning of sentences, and correspond to things already given in discourse (Hajicova and Sgall 1987, Lambrecht 1994). Pronouns come before definite noun phrases, and definite noun phrases before indefinite ones (Prince 1981a, Gundel et al 1993)

This means that sentence accent (and thus focus) can be connected to information that is new or not given in the context. These tendencies have led some authors to hypothesize general principles governing the structure and presentation of information in discourse from that which is most accessible to that which is most informative (e.g., Sperber and Wilson 1986, Giora 1988). This movement from the accessible to the non-accessible is reflected in the terminological pairs found in discourse-oriented approaches: *topic* and *comment*, *theme* and *rheme*, *given* and *new*, *accessible* and *informative*. Focus is invariably connected with the latter concept in each of these pairs.

Discourse-oriented approaches also treat the use of marked syntactic structures and the cognitive status of the material appearing in them. Marked structures may change the typical linear order of the presentation of given and new information. Such structures include passivization ((8b)), topicalization (21b); (10b) and (10c)), stylistic inversion (11b) and (12b)), heavy NP (noun phrase) shift ((13b)), existential *there*-constructions (14b), *it*-clefts ((15b)) and *wh*-clefts ((16b)). Discussion of these structures will not only illustrate their general treatment of discourse-oriented approaches, but also introduce some of the sentence structures that have been argued in a wide range of approaches to interact with intonation and focus. We will look at occurrences of some of these in natural speech in Chapter 3 (see section 3.4).

The syntactic differences between active and passive sentences are well documented, and will not concern us here. What is relevant here is that passive sentences have been argued to serve a different discourse function from active sentences (e.g., Hajicova and Sgall 1987, Lambrecht 1994, Davison 1984). Passivization appears to change what can be assumed to be true.

(8) *Passivization* (adapted from Hajicova and Sgall 1987):

- (a) This time, Harry didn't cause our defeat.
- (b) This time, our defeat wasn't caused by Harry.

In (8a), the unmarked active order, the defeat is not presupposed to have occurred on this particular occasion (although presumably earlier defeats have not only occurred, but been Harry's fault). The sentence in (8a) can be followed by the

continuance ... *in fact, he led us to victory*. Since the defeat is not presupposed here, it is argued to be part of the sentence focus (Hajicova & Sgall 1987). In (8b), the passive sentence, the defeat is presupposed and thus is not part of the focus: it definitely occurred, it just wasn't Harry's fault. The sentence in (8b) cannot be followed by the continuance ... *in fact, he led us to victory*. This continuance contradicts the presupposition of the sentence that *we lost again*. Passivization thus appears to affect the relationship between given and new information, as well as options for intonation: since it "moves" the agent to the sentence final position, passivization makes the agent a more suitable target for focus, because it is in a better position to receive the nuclear accent.

The information structure of so-called topicalization structures is more controversial. Topicalization is a term used to describe sentence structures in which constituents that are neither grammatical subjects nor clausal constituents appear at the beginning of a sentence. Examples of these structures appear in (9b) and (10b) and (10c); the unmarked word order is shown in (9a) and (10a)

(9) *Noun Phrase Topicalization:*

- (a) She read the book in a week.
- (b) The book, she read (it) in a week.

(10) *Topicalization* (adapted from Davison 1984):

- (a) John/He sat for hours on this chair after dinner
- (b) On this chair, John/he sat for hours after dinner
- (c) For hours after dinner, John/he sat on this chair.

The fronted constituents typically comprise complete intonational units of their own (Cruttenden 1986). One effect of the use of this structure is to reduce what appears in the non-topicalized portion of the sentence, the part in which nuclear accent is likely to occur. Thus, in comparison to the unmarked order, the structure changes the options for intonation.

Prince calls structures like that in (9b) "focus-moved" constituents (Prince 1981b). She argues that "topicalization" is a misnomer and that the fronted constituents in these sentences do not typically behave like topics (Prince 1999)⁴. The fronted constituents share more properties with focus. Whatever the properties of the fronted constituent, its appearance in this marked position changes both the dynamics of the information structure of the sentence and the range of intonational options available to a speaker (Lambrecht 1994). It has been claimed that other topicalization structures require that the sentence final phrase be focused (Rochemont and Culicover 1990). Certainly, a pitch accent typically appears on a constituent falling at the end of the sentence in the examples here, in keeping with the tendency for nuclear accent to fall as close to the end of a clause as possible.

Inversion structures like the ones in (11b) and (12b) can be considered a sub-type of topicalization structure, in that they place constituents that are not grammatical subjects in a sentence initial position.

⁴ Prince (1999) uses the notion of *discourse* topic (defined in the framework of Centering Theory), but avoids the notion of *sentence* topic (see also Smith 1987).

- (11) *Stylistic Inversion (locative)*:
- (a) The cat hid in the most inaccessible place in the house.
 - (b) In the most inaccessible place in the house hid the cat.
- (12) *Stylistic Inversion* (adapted from Rochemont and Culicover 1990):
- (a) A carriage was rolling down the hill / A carriage rolled down the hill.
 - (b) Rolling down the hill was a carriage / Down the hill rolled a carriage.

Like topicalization structures, they reduce the amount of material at the end of a sentence, and thus alter its information and intonational dynamics. However, there are some differences between the constructions in (10b/c) and the ones in (11b) and (12b). The fronted constituent of an inversion sentence need not comprise its own intonational unit. Inversion, restricted to sentences with intransitive verbs (Birner and Ward 1998), results in a reversal of the unmarked word order. It exchanges the positions of the grammatical subject and the material that would occur after the inflected verb in a sentence with the unmarked structure ((11a) and (12a)). The subject thus appears as the final constituent, and thereby aligns with the primary sentence accent, appearing as the sentence focus. In topicalization structures, where there is no inversion, the subject is not the final element of the sentence, and thus is typically not aligned with the primary sentence accent. The subjects of topicalization sentences can appear as pronouns (cf. (9b), (10b), (10c)), but subjects of inversions cannot. Thus, inversion provides options for intonation and structuring of information that are distinct from those provided by topicalization.

While topicalization and inversion reduce the amount of post-verbal material, that most likely to be new (and serve as focus, according to the discourse-oriented approaches), heavy NP shift merely alters the order of constituents in post-verbal material. *There*-constructions actually serve to increase the amount of post-verbal material. Both of these marked constructions can be used to introduce a new individual into a discourse, and thus can serve a *presentational* function (Lambrecht 1994). Such examples are thus sometimes called *presentational focus* (cf. Rochemont and Culicover 1990).

- (13) *Heavy NP shift* (adapted from Rochemont and Culicover 1990):
- (a) John bought a painting that he liked very much for his mother.
 - (b) John bought for his mother a painting that he liked very much.
- (14) *Existential there-construction* (adapted from Rochemont and Culicover 1990):
- (a) A man with long blond hair came into the room.
 - (b) There came into the room a man with long blond hair.
 - (c) Into the room there came a man with long blond hair.

In both types of constructions, a sentence accent typically occurs somewhere on the material in the final noun phrase, insuring that it will be within the focus of

the sentence. These structures have thus also been argued to alter the possibilities for sentence focus, in comparison to unmarked sentence structures (Rochemont 1983, Lambrecht 1994).

The classic test for focus, the *wh*-question test (see Chapter 1) shows that the unmarked and heavy NP shift examples in (13a) and (13b) are likely to contain different focus constituents. Among the questions that (13b) could answer is *What did John buy for his mother?* while (13a) is less likely to be the answer to this question. Likewise, among the questions that (13a) could answer is *Who did John buy a painting that he liked very much for?* The example in (13b) cannot be taken as an answer to this question. It has been observed that for many speakers, the heavier the shifted NP, the more acceptable the sentence. Some discourse-oriented approaches consider this gradient acceptability the result of information properties of a heavy NP: the more material in an NP, the more new information it is likely to convey, and the more felicitous it is in sentence final position. (Lambrecht 1994)

The *there*-construction, like inversion, locates grammatical subjects after the inflected verb of the sentence. In many cases, existential *there* sentences cannot be rephrased with the subject in a sentence initial position; the locative reading of *there* results: *A man with long blond hair was there.* Like inversion constructions, *there*-constructions show restrictions on the cognitive status of referring expressions that can appear as the subject. Pronouns do not occur and definite noun phrases only infrequently, while indefinites occur freely. The construction thus displays a strong tendency for sentence final material to be new in the discourse. It is also associated with primary sentence accent, and thereby, with focus of a sentence.

The constructions that we have looked at thus far typically conform to the generalization that material in a sentence proceeds from what is given to what is not. The sentence-final, non-derivable material is typically associated with the sentence accent that signals focus. The *it*-cleft construction (as in (15b)), however, has been observed to invert the unmarked linear order of old and new material (as in (15a)).

(15) *It*-cleft (adapted from Prince 1978)⁵:

- (a) Only sheer will power kept me from eating twelve pieces of fudge every night.
- (b) It was only sheer will power that kept me from eating twelve pieces of fudge every night.

The post-cleft material is, if not precisely given in the discourse context, at least inferable from the context. The cleft at the beginning of the sentence typically contains new material. This inversion is also accompanied by a change in accent location. The most prominent accent in the sentence typically occurs on the clefted constituent (Prince 1978, Delin and Oberlander 1995).

The clefted constituent of an *it*-cleft sentence is considered to represent sentence focus by discourse-oriented and focus-oriented approaches alike (Prince 1978, Sgall et al. 1986, Rochemont 1983, É. Kiss 1988, etc.). Thus, the *it*-cleft is apparently a construction that allows accented focus to precede given or accessible

⁵ A second type of *it*-cleft that is discussed by Prince (1978) has different intonational characteristics and is used in different discourse contexts from the one discussed here. The example discussed in the text is the *stressed-focus it*-cleft, while the second type, in which the sentence accent does not fall on material in the cleft, is the *informative-presupposition it*-cleft. See also Delin and Oberlander 1995. In this work, *it*-cleft will invariably mean clefts of the stressed focus type.

information in a sentence. We will return to consider additional observations made about *it*-clefts in the section 2.2.4.

The *wh*-cleft, on the other hand, presents the material in the cleft as given and the post-cleft material as new; in contrast to an *it*-cleft, a *wh*-cleft (as in (16b)) preserves the order of old-to-new material claimed for an unmarked sentence structure (as in (16a)).

(16) *Wh*-cleft (adapted from Prince 1978):

- (a) Nikki hopes to be a star on the horse-show circuit.
- (b) What Nikki hopes to do is be a star on the horse-show circuit.

The *wh*-cleft construction is also called the "pseudo-cleft." It serves a different function from an *it*-cleft in that it assumes that what appears in the *wh*-cleft can be taken for granted, and presents the remaining material in relationship to this presupposed material. In a *wh*-cleft sentence, it is the post-cleft material that corresponds to focus. We will also return to the *wh*-cleft later in this chapter (see section 2.3).

I have presented a range of syntactic structures that are claimed to interact with focus and have briefly discussed the issues of interest to discourse-oriented approaches. This discussion demonstrates the important role that the view that focus represents new or non-derivable information plays in discourse-oriented approaches. Discourse-oriented approaches have two goals: an understanding of the structure of specific discourse, and understanding of the nature of discourse structure in general. Discourse-oriented approaches treat the investigation of focus as a way of informing our knowledge about the structure of discourse.

2.2.2 Focus-oriented approaches

While discourse-oriented approaches to focus consider the role that focus plays in discourse, focus-oriented approaches consider the role that focus plays in accentuation of sentences. Focus-oriented approaches also consider discourse-related issues, but they tend to employ observations about discourse to inform our understanding of focus, while discourse-oriented approaches employ observations about focus to inform our understanding of discourse. Thus, these two different approaches work with the same issues and observations, but from different perspectives.

Focus-oriented approaches often consider the ways that context influences what serves as focus, and how this translates to the realization of focus through accentuation. Many such approaches make reference to or employ concepts and models of language developed in the generative grammar approach to linguistics, initiated by the work of Chomsky. Discussion of some of the observations and analyses that come out of this perspective appear in the following sections. This discussion here divides the research into treatments of accent (section 2.2.2.1) and treatments that incorporate grammatical relationships within focus constituents (section 2.2.2.2).

2.2.2.1 Accent and focus

The discourse-oriented approaches discussed in section 2.2.1 emphasize the importance of the new status of information to focus. Many focus-oriented

approaches also incorporate the observation that givenness tends to preclude pitch accenting.

Rochemont and Culicover (1990, also Culicover 1983, Rochemont 1986) identify the presence of pitch accent with focus: if a constituent has a pitch accent, it is a focus. They employ the idea of "context construability" in their account of pitch accent assignment. Under their definition, material in a sentence is context- or c-construable if and only if this material has a "semantic antecedent" in the discourse (see discussion of (17) in the next paragraph for examples of semantic antecedents). Rochemont (1986) claims that a constituent must not be accented, and therefore must not be in focus, if it contains c-construable material. In his view, then, givenness directly affects what can be a focus in a sentence.

We can see how these principles work by considering the following constructed example:

- (17) I bought some *básil* at the farmer's *márket*.
- (a) Really? I bought some *basil*/**básil* at the *stóre*
 - (b) Really? I bought some **oregano*/*orégano* at the *stóre*.
 - (c) Really? I bought some *herbs*/**hérbs* at the *stóre*

In (17a), *basil* is not accented because it has a semantic antecedent in the discourse, *some básil* in (17). This shows that the semantic antecedent necessary for something to be c-construable need not be co-referential; the *basil* in (17) and the *basil* in (17a) do not point to the same discourse referent. In (17b), *oregano* is accented because it does not have a semantic antecedent: it therefore is, under this account, part of a focus constituent. In (17c), *herbs* is not accented. This shows that the semantic antecedent necessary for c-construability can be an included concept: *basil* is included in *herbs*, and thus *herbs* is c-construable. *Herbs* therefore appears without an accent and is not part of a focus constituent. This approach claims a direct interaction between givenness and accent, since material that is c-construable cannot be accented, and therefore cannot be focus.

Problematic for this account are accents like those on *he* and *her* in (18).

- (18) Carol criticized Bill, and then *hé* criticized *hér*.

Both of the pronouns have semantic antecedents (*Carol* and *Bill*), and so are c-construable. Nevertheless, they are accented, and under the account, any accented constituent is in focus. Rochemont (1986) labels these accents examples of "contrastive focus", and says that they are not governed by the same principles he claims for the focus described in reference to (17). This strategy has been criticized (e.g., Ladd 1996, Krifka p.c.) as dealing with a problem by simply re-classifying the problematic cases.

Rochemont's approach is also problematic for cases in which all the material in a sentence is c-construable.

- (19) A: Has John read *Slaughterhouse Five*? (from Ladd 1980)
B: No, John doesn't *read* books.

In (19), *books* is c-construable because it includes *Slaughterhouse Five*. All the other elements of the second sentence are c-construable because they appear in the first sentence.

Ladd (1980, 1996) points out that the pitch accent on *read* in B's response (19) cannot be analyzed as a case of contrast or narrow focus on *read*. In fact, the sentence *John doesn't read books* appears to contain focus on the verb phrase as determined by the wh-question it answers (*What does(n't) John do?*), despite the fact that every element of the verb phrase is given by the context. Ladd (1980, 1996) proposes that givenness (cf. Rochemont and Culicover's c-construability) does not affect the options as to what can function as focus, but that it indirectly affects the way focus can be marked. He argues that phonology requires that something be accented in a sentence, and thus even given material can be accented if there are reasons an accent cannot appear elsewhere. He observes, like Schmerling (1976), that when a verb phrase consisting of a verb and its object is a focus constituent, the object typically gets the pitch accent. If the object cannot be accented, however, the accent will appear on the verb, without resulting in a narrow or contrastive reading.⁶ This is the situation for *John doesn't read books* in (19).

According to Ladd, in circumstances where the verb cannot be accented, the pitch accent will revert to a position on the object. The following constructed discourse segment supports his view:

(20) A: I worked on a páper all weekend. What did you do?

B: I álso [worked on a páper]..

The focus phrase in B's response appears to be *worked on a paper* (based on the wh-question it answers). Rochemont's theory disallows this, since the verb phrase is c-construable and constituents that are c-construable cannot be focused or accented. Why should *read* in (19B) be somehow more accentable than its object *books*, when it is also given by the context, while *worked* in (20B) is not more accentable than its object *a paper*? The predictability of the object may also play a role in its status as given, and thereby, its accentability: not only is *books* given or c-construable (as a concept that includes *Slaughterhouse Five*) in (19B), it is also more predictable as the object of *read* (which can actually appear without an object) than *a paper* is as the object of *worked on* (which cannot appear without an object). This extra predictability of *books* in (19B) (in comparison to *a paper* in (20B)) may account for why it is does not get accented, and *paper* does.

Rochemont claims a direct connection between accent/focus — which are essentially the same in his analysis — and givenness (c-construability). Rochemont is not alone in this view, as discussion of other approaches will demonstrate. Ladd offers a different view. While he acknowledges that there is a relationship between accent, focus and givenness, he does not identify focus with accent. He argues instead that givenness affects the options for accentability. The relationship between focus and accent is thus, in his view, an indirect one.

⁶ In Ladd 1980, the term *default accent* was used to name the re-location of an accent "in cases where a normally accented word is deaccented". In Ladd 1996, he withdraws use of the expression *default accent* because of the confusion that it causes due to the widespread use in the linguistics community of expressions like *default rules*.

2.2.2.2 Arguments and focus

Ladd (1980, 1996) points out that the structure of a focus constituent can interact with givenness to determine location of accent: in a verb phrase focus, for example, the object is typically accented unless it is given or there is another reason for it not to be accented. This is related to a generalization observed by Schmerling (1976:82) for "news sentences": "the verb receives lower stress than the subject and direct object, if there is one" (see also example (4)). Such accent preferences have become an accepted part of the data for which linguistic theories should be able to account. A number of authors have attempted to capture these preferences in their accounts of accentuation. Two often cited accounts are those of Gussenhoven (1983) and Selkirk (1984, 1995). Both consider the way in which focus and accent interact with sentence constituents.

Gussenhoven's (1983) account includes a sentence accent assignment rule (SAAR) that attempts to account for the placement of multiple pitch accents within a sentence. This includes a Domain Assignment rule as in (21a), in which P stands for predicate, A for argument, X and Y for anything, and [] for the boundaries of the domain made through the domain assignment rule. This rule divides the utterance into focus domains, which Gussenhoven defines as "one or more constituents whose [+focus] status can be signaled by a single accent." The accent assignment rule (21b) assigns a single accent per focus domain, showing a preference for arguments over predicates.

(21) Sentence Accent Assignment Rule (Gussenhoven 1983)

- (a) Domain Assignment:

$$P_{+FOCUS} (X) A_{+FOCUS} \gg [P (X) A]$$

$$A_{+FOCUS} (X) P_{+FOCUS} \gg [A (X) P]$$

$$Y_{+FOCUS} \gg [Y]$$
- (b) Accent Assignment:

$$[] \gg [*], \text{ accent } A \text{ in } [A(X)P] \text{ or } [P(X)A]$$

The domain assignment rule divides an utterance into focus domains so that a [+focus] predicate is always grouped with a [+focus] argument, if there is one. The accent assignment rule guarantees that in a focus domain consisting of an argument and a predicate where *both* are [+focus], the argument receives the accent. Although his accent assignment rule does not reflect this, Gussenhoven specifies that sentence constituents that are not [+focus] are included in the nearest focus domain but never accented. A "news sentence" such as *Our dóg's disappeared*, consists of a single focus domain in which both the argument and predicate are [+focus]. Thus, accent is assigned to the argument *our dog* by the accent assignment rule. The sentence *Our dog's disappeáred*, on the other hand, uttered in response to a question like *How's your dog?* includes both the argument and predicate *disappeared* in the focus domain, but only the predicate is [+focus]. Here, *our dog* is old information, and thus cannot be [+focus]. The SAAR also works for accent placement on sentences like *Truman was quietly buried in Independence*. Gussenhoven proposes for this sentence an underlying focus assignment like that in (22a). This results in focus domains represented in (22b) and the accent assignments in (22c):

- (22) (a) Truman was quietly_{+FOCUS} buried_{+FOCUS} in Independence_{+FOCUS}
 (b) [Truman was quietly_{+FOCUS}] [buried_{+FOCUS}] [in Independence_{+FOCUS}]
 (c) [Truman was quietly] [buried] [in Independence]

Gussenhoven also puts a condition on the argument to account for the difference in acceptability of the two sentences in (23) at the beginning of a discourse (as a "news sentence"):

- (23) (a) The prisoners have escaped!
 (b) *Éverybody has escaped! / *Whó's escaped?
 (c) Éverybody's escáped! / Whó's escáped?

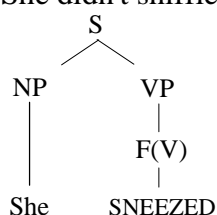
The examples in (23b) and (23c) are problematic for the account thus far. Domain assignment would assign a structure of [A P] to the sentence *Everybody has escaped* (or question *Who's escaped?*), and assuming both argument and predicate are [+focus], accent assignment would put a pitch accent on the argument *Everybody* (or *Who*). (23b) and (23c) demonstrate that this is not what actually occurs. For this reason, Gussenhoven adds that [A P] domain formation must be ruled out when a [+focus] argument is a quantifier or wh-expression. Such arguments form their own domains, and get their own pitch accent by the accent assignment rule.

Gussenhoven's account refers to the argument structure of a sentence to predict placement of accent. Selkirk (1984) also provides an account that refers to arguments. This account makes direct reference to the concepts and principles of syntactic theory. It contains two rules:

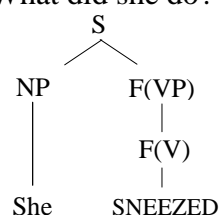
- (24) Basic focus rule:
 A constituent to which a pitch accent is assigned is a focus.
- (25) Phrasal focus rule:
 A constituent may be a focus if
- (i) The constituent that is its head is a focus
 - (ii) A constituent contained within it that is an argument of the head is a focus.

These rules cover two types of focus. The basic rule, taken alone, is intended to account for narrow focus, which is claimed to be contrastive; the phrasal rule treats broad focus over a larger constituent, the projection of a focus phrase from an accented element within it. Thus, a sentence like *She sneezed* has two focus structures and two intonational meanings. There is no difference in realization between the (26a) and (26b), thus the sentence is ambiguous between the two focus structures represented.

- (26) (a) She didn't snuffle.



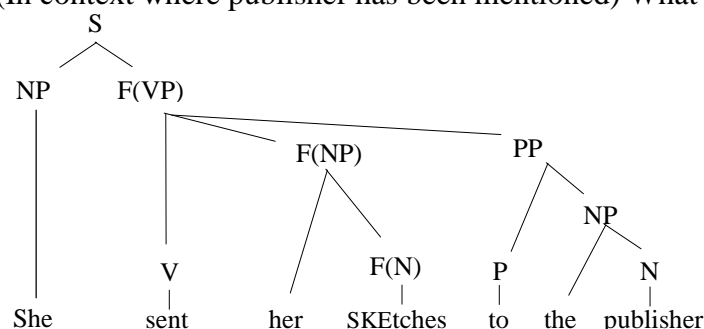
- (b) What did she do?



The representation in (26a) illustrates the application of the basic focus rule alone: the verb is pitch accented, thus it is a focus. In this case, focus does not project any higher, resulting in a contrastive meaning for the focus. (26b) illustrates the application of the phrasal focus rule to the output of the basic focus rule, which designates the verb as a focus. Part (i) of the phrasal focus rule applies to the verb, projecting focus up to the verb phrase. The recursive nature of Selkirk's rules specifically put both the V and the VP in focus in (26b). Selkirk acknowledges the problem that "it is difficult to sort out what ... additional meaning ... that focus on the verb might contribute." (1984: 209)

A second example shows how focus projects from a pitch accented noun to the verb phrase.

- (27) (In context where publisher has been mentioned) What did she do next?



Phrasal focus rule (i) projects focus from the pitch accented noun *sketches* to the noun phrase, while phrasal focus rule (ii) projects focus from the noun phrase to the verb phrase. Again, the rules put all three F constituents (N, NP and VP) in focus. Selkirk points out that this analysis is an improvement over the nuclear stress rule, which would not account for accent appearing on anything other than *publisher*. Her analysis, however, would allow focus to project to the VP from *publisher* and *sent* as well as from *sketches*.

This analysis treats sentences like *Our dóg's disappeared* as an instance of subject NP focus. The basic phrasal rule says that the pitch accent on *dog* makes the noun *dog* a focus. The phrasal focus rule (i) says that the NP *our dog* is a focus. The rules do not allow focus to project any higher than this. Selkirk's treatment thus differs from that proposed by Gussenhoven, which considers the the domain of focus in this example to be the entire sentence.

Selkirk attempts to capture the precedence of the argument in determining VP focus with a focus interpretation principle that reflects the idea that a unaccented argument must be interpreted as given, while unaccented verbs and adjuncts can be new.

- (28) Focus interpretation principle:

$F(\text{argument}) \Leftrightarrow \text{new information}$

What the principle intends is that a focused argument must be interpreted as new information and that a discourse new argument must be a focused argument.⁷ It also

⁷ Because of the biconditional, it also says that any new information must be a focused argument; this is likely not what Selkirk means. This was pointed out by Manfred Krifka in a seminar on Focus, Spring 1997.

allows for cases in which other focused constituents are not new, as in (19) (repeated below), where *read* projects focus to the VP.

- (19) A: Has John read *Slaughterhouse Five*? (from Ladd 1980)
B: No, John doesn't read books.

It does, however, as formulated, allow for focus projection from the verb, as well, even if the argument is new.

Finally, Selkirk proposes a redundant focus rule to account for circumstances in which a pitch accented adjunct signals focus on a larger phrase. This rule attempts to capture the generalization made by Bolinger (1972) that pitch accents occur on constituents that cannot be predicted.

- (29) Redundant focus rule
If a constituent is redundant in S, it may be a focus in S.

A constituent is redundant, essentially, if it can be omitted, like the *plant* and *things* in (30), without changing the meaning of the sentence.

- (30) (a) My *géranium* [plant]_N/[ϕ]_N is almost dead.
(b) There were *crawling* [things]_N/[ϕ]_N all around.

The redundant focus rule allows an unaccented head, like *plant* or *things*, to be a focus; it thus replaces the basic focus rule in analysis of the sentences in (30).⁸ The focus of *plant* and *things* then projects via the phrasal focus rule (i) to result in phrasal focus on the NPs *my geranium plant* and *crawling things*.

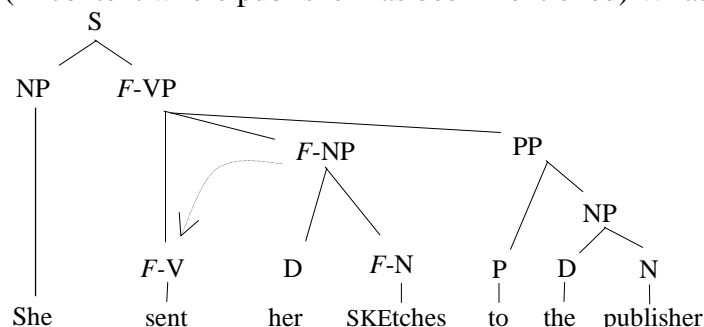
A later account (Selkirk 1995) revises the rules, replacing *focus* with *F-marking*.

- (31) Basic F-marking:
An accented constituent is F-marked.
- (32) Phrasal F-marking:
- (i) F-marking of the head of a phrase licenses F-marking of the phrase.
 - (ii) F-marking of the internal argument of a phrase licenses the marking of the head.

In this version, an F-marked (pitch accented) noun projects focus to its phrase. If the NP is an internal argument, it licenses F-marking of the head of its phrase, which in turn licenses F-marking of the higher phrase. The highest F-marked phrase is a focus phrase.

⁸ One objection to this analysis is that *things* can't really be omitted syntactically in (30b), although it is semantically empty. Krifka, furthermore (p.c.) points out that an analysis that refers to the typical stress pattern of compounds makes such an account unnecessary.

- (33) (In context where publisher has been mentioned) What did she do next?



Thus in (33), F-marking on *sketches* licenses F-marking of the NP by phrasal rule (i), and this licenses F-marking of *sent* by phrasal rule (ii). F-marking of *sent* then licenses F-marking of the VP by phrasal rule (i). (cf. (27))

This change in the approach makes a distinction between pitch accented items and focus that is not made in the earlier account: in the first account all the syntactic levels that intervene between the pitch accented focus and the highest level of phrasal focus are also focused. In the later account, the relationship between the pitch accent and phrasal focus is mediated through F-marking; while all the intermediate levels are F-marked, only the highest level is a focus phrase.

The revised account also deals with sentences like *Our dóg's disappeared* differently. Current syntactic theory considers the single arguments of "unergative" verbs like *disappear* to be internal arguments. Thus, the pitch accent/F-marking on *dog* may license F-marking of *disappeared*, which in turn licenses F-marking, and ultimately focus, of the verb phrase. Recall that the earlier account analysed such sentences as representing focus on the subject NP.

While the accounts of Selkirk (1984; 1995) provide for the identification of a larger focus constituent from a pitch accented syllable, they do not provide an explanation for why the accent occurs on one item within that constituent rather than another. Schwarzchild (1999) develops a proposal within the framework of Selkirk 1995 that incorporates the role of givenness in accentuation; this uses competing constraints (cf. optimality theory) to capture the facts observed by Ladd (1980) (see section 2.2.2.1).

The accounts of Gussenhoven (1983) and Selkirk (1984, 1995) both attempt to capture the differences between accented arguments and other accented constituents (predicates/heads, adjuncts). Both also presuppose a relationship between patterns of prominence and semantic focus. In fact, like Rochemont and Culicover (1990, also Culicover 1983, Rochemont 1986), both assume a more or less direct relationship between focus and pitch accent: one is invariably connected to the other. Both accounts employ the notion that at least in some cases, focus represents new information. Nevertheless, their accounts are different in certain crucial respects.

First of all, the two authors take a different view on the relationship between pitch accent and focus. Gussenhoven's account proposes that pitch accents are *assigned* to elements within a focus domain by an accent rule. The starting point for accounts like Gussenhoven's is a complex focus constituent, and pitch accents occur somewhere within this constituent. Such accounts have been called *accent percolation* accounts (see also Jacobs 1991). Selkirk's accounts propose that pitch accents *project* focus through the phrasal syntax, either directly (1984) or through F-

marking (1995). The starting point for *accent projection* accounts like Selkirk's is pitch accent (cf. Ladd 1996, "accent first theory of sentence stress").

Secondly, Selkirk 1984 differs from Gussenhoven 1983 in what it assumes about the focus structure of sentences with pitch accented subjects and unergative verbs; the amendments in Selkirk 1995 bring these assumptions closer to those of Gussenhoven 1983.

2.2.2.3 Focus-oriented approaches compared

The focus-oriented approaches discussed here all share an interest in the role of focus in the accentuation of sentences. These approaches consider factors like new information and givenness, which are determined by discourse context, in relation to their influence on accent. All attempt to generate rules or constraints that can account for the location of pitch accent, given a particular context. This perspective differs from that of discourse-oriented approaches, which typically look at how focus contributes to the structure of discourse.

Nevertheless, there are important differences between focus-oriented approaches. While all incorporate notions like givenness into their accounts, Rochemont (1986; cf. also Rochemont and Culicover 1990) assume, like discourse-oriented approaches, that focus represents new information, while others are more vague in their assumptions about what focus represents (e.g., Gussenhoven 1983). Some assume a direct relationship between focus and pitch accent (e.g., Rochemont 1986, Rochemont and Culicover 1990, Gussenhoven 1983, Selkirk 1984, 1995), while others assume an indirect relationship (Ladd 1980, 1996). Of those that assume a direct relationship, some consider focus first (called the radical focus-to-accent view by Ladd 1996, e.g., Gussenhoven 1983), while others begin with accent (Selkirk 1984, 1995). Using data to be discussed in Chapter 3, I will examine how these different views hold up in analysis of naturally occurring speech.

2.2.3 Formal semantic approaches

Both discourse-oriented and focus-oriented perspectives already discussed incorporate notions of new information and givenness into their accounts, either explicitly or implicitly. The goals of these two perspectives differ in that the former attempts to add to our understanding of discourse and the latter to our understanding of the factors that affect the assignment of accent. The goals of approaches that develop semantic models of focus are different again: the approaches to be discussed here attempt to model the contribution that focus makes to the meaning and interpretation of sentences. Current semantic models have moved away from the idea that focus represents new information toward the idea that it represents the existence of alternatives to the item in focus (see also Chapter 1).

2.2.3.1 Basic relationships

In the past thirty years, a number of semantic theories have evolved that attempt to model the contribution of focus constituents to the meaning of a sentence.

Bolinger (1961) observed that two different intonation contours associated with stress occur in sentences, which he called A and B accents. The A accent corresponds to a H* L L% contour in Pierrehumbert's framework, and the B accent to a H* L H% contour. Jackendoff (1972) observed that these contours can serve to disambiguate. The sentence (34a) has two relevant readings, paraphrased as cleft structures in (34b) and (34c):

- (34) (a) Fred doesn't write poetry in the garden.
(b) It is Fred who doesn't write poetry in the garden.
(c) It isn't Fred who writes poetry in the garden.

In speech, the two readings of (34a) can be disambiguated by pitch accents; the reading of the sentence corresponding to the paraphrase in (34b) has the A accent, a high tone on the *Fred* and a falling coda, while the reading corresponding to the paraphrase in (34c) has the B accent, a high tone on *Fred* and a rising coda. Bolinger (1961) and Jackendoff (1972) argue that in sentences with multiple stressed elements, an A accent corresponds to focus, and a B accent is used for subjects and pre-posed phrases.

- (35) The man in the purple v  st has delivered the stolen rhin  ceros tusks.
H* L H% H* L L%
- (36) As for Fr  d, I don't think he can make it.
H* L H% H* L L%

Jackendoff observed that this distribution bears on the discourse-oriented notion of topic and comment or rheme. The A accent was thus claimed to represent sentence focus, while the B accent represents what can be presupposed.

These observations, taken with the suggestion of Chomsky (1970) that the presupposition of a sentence can be determined by replacing the focus with a variable, led Jackendoff to construct a semantic model in which the interpretation of a sentence is represented in two components. One component is the standard meaning of the sentence. The standard meaning of the sentence in (37b) can be represented as in (38a). The second component is a meaning in which a free variable replaces the focus constituent; this appears in (38b). The variable is then bound by a lambda operator, to yield a presuppositional set which can be used in interpreting the sentence, the set of all *x* such that John likes *x*. The presuppositional set for the sentence in (37b) appears in (38c).

- (37) (a) Who does John like?
(b) John likes [Bíll]_{+FOCUS}
- (38) (a) LIKE (BILL) (JOHN)
(b) LIKE (x) (JOHN)
(c) λx [LIKE (x) (JOHN)]

The focus of the sentence corresponds to the variable in its presupposition set. This model can be used to model sentences whose meanings displays focus sensitivity.

2.2.3.2 Focus sensitivity

A crucial phenomenon that semantic models of focus must be able to account for is focus sensitivity. Contexts including words and constructions whose meanings interact with focus are considered focus sensitive.

Perhaps the best known category of focus sensitive contexts are those containing so-called focus particles. The effect of these were noted by Jackendoff (1972). The English particles considered to be focus sensitive that are written about most often in the literature on focus include *even*, *only*, *also* and *too*.

- (39) (a) Even Jóhnn likes Bill./ *Even John likes Bíll. /
 *Even John líkes Bill.
 (b) Jóhnn even likes Bill./ John even likes Bíll./ John even líkes Bill.
 (c) *Jóhnn likes even Bill./ ?John likes even Bíll. /
 *John líkes even Bill.
- (40) (a) Only Jóhnn likes Bill./ *Only John likes Bíll. /
 *Only John líkes Bill.
 (b) ? Jóhnn only likes Bill./ John only likes Bíll. / John only líkes Bill.
 (c) ? Jóhnn likes only Bill./ John likes only Bíll. /
 *John líkes only Bill.

The examples in (39) and (40) show that the grammaticality of sentences including these particles in various positions in the sentence is affected by the location of pitch accent. The contexts in which the various grammatical examples can be used felicitously also vary with the location of pitch accent. The grammatical example in (39a) appears in a context where there is an expectation that John will not like Bill. It presupposes that John does not like very many people, and conveys the implicature that Bill is likable (since even John likes him). The grammatical example in (40a) asserts that no one likes Bill but John, thus conveying the implicature that Bill is not likable. In these examples, the focus particle associates with the accented item *John*.

The first example in (39b) is grammatical when it appears in the same context as the grammatical example in (39a). The first example in (39b), along with the example in (40b), is also acceptable as a correction in a different context (cf. echo question⁹): if someone had previously said *Alex even/only likes Bíll*. Their meanings, then, might be paraphrased as *John is the one who even/only likes Bill*. This observation is also relevant for the marginal example in (40c), where the previous utterance would have been something like *Alex likes only Bíll*; it might be paraphrased as *John is the one who likes only Bill*. In these contexts, there would likely also be an "inheritance of focus structure" (Partee 1991) from the previous sentence, possibly realized with some emphasis on the second occurrence of *Bill* via "residual focus marking" (Rooth 1995).

The second, fully acceptable example in (39b) occurs in a context where it is presupposed that John likes most people he meets, and implicates that Bill is not likable; these are the same conditions for the marginally grammatical example in (39c). The second, fully acceptable example in (40b) asserts that Bill is the only person John likes; the fully acceptable example in (40c) has the same conditions. In these sentences, the focus particle associates with the accented item *Bill*.

⁹ Additionally, some speakers report that the examples marked as ungrammatical in (39a) are also acceptable in such contexts

The third example in (39b) might occur in a context where the topic of discussion has been John's bad treatment of Bill: it wouldn't be expected, given John's behavior, that he likes Bill, and yet, the sentence asserts, he does. The third example in (40b) might occur in a context where the speaker is making a correction: John doesn't *admire* Bill, he only *likes* Bill. In these sentences, the focus particle associates with the accented item *likes*.

The effects and acceptable use of focus adverbs do not appear to be due solely due to idiosyncrasies in the meaning of the English particles. Other languages show similar effects, even when the adverb is not cognate with the English particle (Hoeksma and Zwarts 1991, König 1991), as in Dutch:

- (41) (a) Zelfs Jaap vind ik leuk / *Zelfs Jaap vind ik leúk /
 *Zelfs Jaap vánd ik leuk.
 Even Jaap find I nice
 "I even like Jaap"
- (b) Zelfs ík vind Jaap leuk
 Even Jaap find I nice
 "Even I like Jaap"

Jackendoff's (1972) model can use the presuppositional set to model the focus sensitivity displayed by sentences including focus particles. The meaning of *only* in (42) uses $\llbracket \alpha \rrbracket_s$ as the standard meaning, $\llbracket \alpha \rrbracket_p$ as the presuppositional set, and $\llbracket \alpha \rrbracket_f$ as the meaning of the item in focus ($\llbracket x \rrbracket$ represents the meaning of x).

$$(42) \quad \llbracket \text{only} \rrbracket (\llbracket \alpha \rrbracket) = [\llbracket \alpha \rrbracket_s \wedge \forall y [\llbracket \alpha \rrbracket_p(y) \rightarrow y = \llbracket \alpha \rrbracket_f]]$$

With this definition, the model can derive the meaning of the sentences in (43b) and (45b); (44) and (46) give $\llbracket \alpha \rrbracket_s$, $\llbracket \alpha \rrbracket_p$, and $\llbracket \alpha \rrbracket_f$ for each of these sentences.

- (43) (a) Who does John like?
 (b) John only likes [Bíll]_{+FOCUS}
- (44) (a) $\llbracket \alpha \rrbracket_s = \text{LIKE (BILL) (JOHN)}$
 (b) LIKE (x) (JOHN)
 (c) $\llbracket \alpha \rrbracket_p = \lambda x [\text{LIKE (x) (JOHN)}]$
 (d) $\llbracket \alpha \rrbracket_f = \text{BILL}$
- (45) (a) Who likes Bill?
 (b) Only [Jóhn]_{+FOCUS} likes Bill
- (46) (a) $\llbracket \alpha \rrbracket_s = \text{LIKE (BILL) (JOHN)}$
 (b) LIKE (BILL) (x)
 (c) $\llbracket \alpha \rrbracket_p = \lambda x [\text{LIKE (BILL) (x)}]$
 (d) $\llbracket \alpha \rrbracket_f = \text{JOHN}$

The derivations in (47) and (48) demonstrate a problem with this approach. While the model captures the focus sensitive meanings of the sentences, it does not derive these meanings compositionally. The derivations do not reflect the fact that *only* appears within different constituents within each sentence.

- (47) $\llbracket \text{John only likes } [Bill]_F \rrbracket = \llbracket \text{only} \rrbracket (\llbracket \text{John likes } [Bill]_F \rrbracket) =$
- (a) $[\llbracket \alpha \rrbracket_s \wedge \forall y [\llbracket \alpha \rrbracket_p (y) \rightarrow y = \llbracket \alpha \rrbracket_f]] (\llbracket \text{John likes Bill} \rrbracket)$
 - (b) $[\text{LIKE}(\text{BILL})(\text{JOHN}) \wedge \forall y [\lambda x [\text{LIKE}(x)(\text{JOHN})](y) \rightarrow y = \text{BILL}]]$
 - (c) $[\text{LIKE}(\text{BILL})(\text{JOHN}) \wedge \forall y [[\text{LIKE}(y)(\text{JOHN})] \rightarrow y = \text{BILL}]]$
true if it is true that John likes Bill and true that everyone who John likes is Bill.
- (48) $\llbracket \text{Only } [John]_F \text{ likes Bill} \rrbracket = \llbracket \text{only} \rrbracket (\llbracket [John]_F \text{ likes Bill} \rrbracket) =$
- (a) $[\llbracket \alpha \rrbracket_o \wedge \forall y [\llbracket \alpha \rrbracket_p (y) \rightarrow y = \llbracket \alpha \rrbracket_f]] (\llbracket \text{John likes Bill} \rrbracket)$
 - (b) $[\text{LIKE}(\text{BILL})(\text{JOHN}) \wedge \forall y [\lambda x [\text{LIKE}(\text{BILL})(x)](y) \rightarrow y = \text{JOHN}]]$
 - (c) $[\text{LIKE}(\text{BILL})(\text{JOHN}) \wedge \forall y [[\text{LIKE}(\text{BILL})(x)] \rightarrow y = \text{JOHN}]]$
true if it is true that John likes Bill and true that everyone who likes Bill is John

A compositional account should derive the meaning of a sentence like *John only likes Bill_F* from the meaning of the parts *John* and *only likes Bill_F*. The meaning of *only likes Bill_F* should, in turn, be derived from its parts, *only* and *likes Bill_F*, and the meaning of *likes Bill_F* from the meaning of *likes* and *Bill_F*. That is not what the derivations in (47) and (48) do, since they apply the meaning of *only* to the different background and focus of the proposition that *John likes Bill* only after the meaning of the proposition has been derived.

One approach that captures focus sensitivity and addresses the problem of compositionality is the Structured Meaning approach. This was proposed by Jacobs (1983) and developed by Stechow (1990) and Krifka (e.g., 1991, 1992), who demonstrates that it can derive focus-sensitive meanings in a compositional way.

The structured meaning approach shares with the earlier approach the idea that focus has more than one component to its meaning; it differs from the earlier approach in that it incorporates the advantages offered by a model with semantic types. A structured meaning consists of an ordered pair of meanings $\langle B, F \rangle$, where B stands for "background" meaning and F for "focus" meaning. A focus constituent introduces a structured meaning, containing information about how it is supposed to be interpreted within the background, and this information is carried through the various levels of a derivation. The meaning of a focus constituent can be generated by a rule:

- (49) Focus meaning rule:
- $$\llbracket A_F \rrbracket = \langle \lambda X[X], \llbracket A \rrbracket \rangle,$$
- where X is a variable of the same semantic type as A.

The ordered pair is a structured meaning. It contains $\lambda X[X]$ as the background meaning and $\llbracket A \rrbracket$ as the simple meaning of the item in focus. Since X is a variable of the same semantic type as A , $\lambda X[X]$ takes something of the type A and returns something of the same type. If A is an entity, for example, then $\lambda X[X]$ takes an entity and returns an entity. The model also includes recursive rules for the combination of simple and structured meanings.

(50) Definition of extended functional application $\{\}$:

- (i) If α is of type $\langle \tau, \sigma \rangle$ and β is of type τ , then $\alpha\{\beta\}$ is $\alpha(\beta)$.
- (ii) If α is a simple type τ , β is a type $\langle \rho, \langle \tau, \sigma \rangle \rangle$, and γ is type ρ , then $\langle \beta, \rho \rangle \{\alpha\} = \langle \lambda X[\beta\{X\} \{\alpha\}], \gamma \rangle$.
- (iii) If α is type $\langle \tau, \sigma \rangle$, β is a type $\langle \rho, \tau \rangle$, and γ is type ρ , then $\alpha\{\langle \beta, \rho \rangle\} = \langle \lambda X[\alpha\{\beta\{X\}\}], \gamma \rangle$.

The inclusion of the background meaning as part of the meaning of the focus item allows for a compositional derivation of the focus sensitivity in a sentence like (43b) (repeated below). The derivation shown in (51) demonstrates the model. (51b) shows the application of the structured meaning rule (49) to an item in focus. (51c) shows the application of (iii) in (50), while (51d) and (51e) show the application of (i).

(43) (b) John only likes $[Bill]_{+FOCUS}$

- (51) (a) $\llbracket John \text{ only likes } [Bill]_F \rrbracket = \llbracket \text{only likes } [Bill]_F \rrbracket (\llbracket John \rrbracket)$
 $\llbracket \text{only likes } [Bill]_F \rrbracket = \llbracket \text{only} \rrbracket (\llbracket \text{likes } [Bill]_F \rrbracket)$
 $\llbracket \text{likes } [Bill]_F \rrbracket = \llbracket \text{likes} \rrbracket (\llbracket [Bill]_F \rrbracket)$
- (b) $\llbracket [Bill]_F \rrbracket = \langle \lambda X[X], \llbracket Bill \rrbracket \rangle$
 $= \langle \lambda X[X], BILL \rangle$, type $\langle \langle e, e \rangle e \rangle$
 $\llbracket \text{likes} \rrbracket = \text{LIKE}$, type $\langle e \langle e, t \rangle \rangle$
- (c) $\llbracket \text{likes } [Bill]_F \rrbracket = \text{LIKE} \{ \langle \lambda X[X], BILL \rangle \}$
 $= \langle \lambda X_1 [\text{LIKE} \{ \lambda X[X], \{ X_1 \} \}] BILL \rangle$
 $= \langle \lambda X_1 [\text{LIKE} (X_1)], BILL \rangle$,
type $\langle \langle e \langle e, t \rangle \rangle, e \rangle$
- (d) $\llbracket \text{only likes } [Bill]_F \rrbracket = \llbracket \text{only} \rrbracket \{ \langle \lambda X_1 [\text{LIKE} (X_1)], BILL \rangle \}$
 $\llbracket \text{only} \rrbracket = \lambda \langle B, F \rangle \lambda x [B(F)(x) \wedge \forall y \in \text{ALT}(F) [B(y)(x) \rightarrow y = F]]$
type $\langle \langle \langle \tau, \langle e, t \rangle \rangle \tau \rangle, \langle e, t \rangle \rangle$, where τ can be any type (*here*, e)
 $= \lambda \langle B, F \rangle \lambda x [B(F)(x) \wedge \forall y \in \text{ALT}(F) [B(y)(x) \rightarrow y = F]] (\langle \lambda X_1 [\text{LIKE} (X_1)], BILL \rangle)$
 $= \lambda x [\lambda X_1 [\text{LIKE} (X_1)] (BILL)(x) \wedge \forall y \in \text{ALT}(BILL) [\lambda X_1 [\text{LIKE} (X_1)] (y)(x) \rightarrow y = BILL]]$

$$= \lambda x[\text{LIKE}(\text{BILL})(x) \wedge \forall y \in \text{ALT}(\text{BILL}) \\ [\text{LIKE}(y)(x) \rightarrow y = \text{BILL}]], \text{ type } \langle e, t \rangle$$

$$(e) \quad \llbracket \text{John only likes [Bill]}_f \rrbracket = \\ \lambda x[\text{LIKE}(\text{BILL})(x) \wedge \forall y \in \text{ALT}(\text{BILL}) [\text{LIKE}(y)(x) \rightarrow y = \text{BILL}]] \\ (\text{JOHN}) \\ [\text{LIKE}(\text{BILL})(\text{JOHN}) \wedge \forall y \in \text{ALT}(\text{BILL}) [\text{LIKE}(y)(\text{JOHN}) \rightarrow \\ y = \text{BILL}]], \text{ type } t$$

true if it is true that John likes Bill, and if it is true that for everyone in the alternative set for Bill who John likes, that person is Bill.

The meaning of *only* appears in (51d). This meaning accesses both the meanings of the background and the meaning of the focus: these can be compared to the presupposition set and standard meaning used in the earlier approach. In the structured meanings approach, the background component of the meaning of the item in focus does not include the presuppositions of the sentence, but it allows the compositional derivation of the presuppositions. It thus models focus sensitivity in a compositional way. Krifka (1992) demonstrates that the structured meanings approach can also be used to derive meanings for sentences with multiple focus constituents.

The meaning of *only* in (51d) also employs the function *ALT*, which generates an alternative set for the item in focus. This set includes the meanings of the focused item and of alternatives of the same semantic type. Context should dictate how these alternatives are limited. This use of *ALT* is an adaptation that comes out of an approach to modeling focus called alternative semantics (Rooth 1985). Like Jackendoff's approach and the structured meanings approach, alternative semantics employs two components of meaning: the "ordinary" meaning and alternatives to the item in focus. The alternative semantics model also successfully models focus sensitivity in a compositional manner. It differs from the other two approaches, however, in that derivations do not access either "background" or "focus" meanings. Instead, the model makes use of the alternatives to the item in focus, which it passes up through the levels of a derivation (see Rooth 1985, 1992). Items in focus introduce alternatives, while other items do not. In the model of alternative semantics, the meanings of focus operators like *only* do not actually associate with items in focus; instead, the operators make use of the alternatives. In the structured meanings approach, the meaning of *only* directly mediates between the background and focus (see (51)).

In these models, focus is linked to a variable that evokes alternatives¹⁰. This conveys an implication about the meaning of focus: it signals the existence of alternatives to the item in focus. This notion of focus is related to but different from the given/new distinction employed in the discourse-oriented approaches and focus-oriented approaches already discussed. Items that are new can be understood to function as alternatives to items that are already present in the discourse or are otherwise salient in the minds of the speaker and hearer, and thus these inevitably have potential alternatives. The notion of alternatives can also treat the problem of accent on given items in contrast more naturally, without having to claim these as

¹⁰ Another semantic framework that implicitly incorporates the idea of focus as related to the existence of alternatives is in-situ binding semantics (Wold 1996).

exceptions (see, for example, (18) in 2.2.2.1), since items that are being contrasted are being selected from a list of other possible referents. Finally, the notion of alternatives has allowed for the development of semantic frameworks that can model the meaning of focus in sentences, particularly in focus-sensitive contexts. The treatment of focus as new information has not lent itself to this kind of application. The status of material as new (and only new) does not provide any means for generating the comparisons implicit in focus-sensitive contexts (see examples (39) and (40) and discussion following).

Negation is another focus sensitive context that has been successfully modeled in formal semantic frameworks. Consider the constructed examples in (52) (see also (8b)).

- (52) (a) Sarah didn't buy one book.
 (b) Sarah bought no books.
 (c) There was one book Sarah didn't buy.
 (d) Sarah didn't buy one book -- she bought dozens.
 (e) Sarah didn't buy one book -- that was someone else.

It is frequently observed that negation can be ambiguous. The sentence in (52a) can have either the meaning paraphrased in (52b) or that in (52c). The scope of negation apparently interacts with focus. Negation can associate with focus much as the focus sensitive particles discussed in reference to (39) and (40) above do. When a constituent is accented in a negative sentence, it becomes the negated constituent (Chomsky 1970, Jackendoff 1972). Thus, relocating the accent also changes the meaning of a negative sentence, as in (52d) and (52e).

Other contexts that have been observed to be focus sensitive include contexts with quantification and modal contexts. An example including the temporal quantifier *always* appears in (53) (from Rooth 1985), and one with the quantificational determiner *most* in (54) (from Krifka 1991).

- (53) (a) Mary always took John to the movies.
 (b) Mary always took John to the movies.
 (c) Mary always took John to the movies.
- (54) (a) Most ships pass through the lock at night.
 (b) Most ships pass through the lock at night.

Here, focus is claimed to affect the truth conditions of the sentence. While (53a) asserts that if Mary took John anywhere, it was to the movies, (53b) asserts that if Mary took anyone to the movies, it was John, and (53c) that if anyone took John to the movies, it was Mary. The most likely reading for the sentence in (54a) is that most ships that pass through the lock do it at night. In this reading the background appears to help restrict the domain of the quantified expression *most ships*. In (54b), the accent on *lock* could represent focus on the noun phrase: this gives the reading that most ships that pass through something (alternatives might include a canal or a strait) at night, pass through the lock. The accent could also

represent focus on the phrase *pass through the lock*, in which case the reading arises that most ships that are active at night pass through the lock.

Similar examples for modal contexts come from Halliday (1967). These include the modal operator *must*:

(55) Sign on an escalator: *Dogs must be carried*.

- (a) Dogs must be cárried.
- (b) ? Dógs must be carried.

(56) Sign in front of a restaurant: *Shoes must be worn*.

- (a) ? Shoes must be wórn.
- (b) Shóes must be worn.

The sentence in (55) is intended to convey the meaning that any dogs riding the escalator must be carried (55a), not the meaning that carrying a dog is required to ride the escalator (55b). The sentence in (56), on the other hand, is intended to convey the meaning that wearing shoes is required to enter the restaurant (56b). It does not mean that anyone wearing shoes who comes into the restaurant is required to wear worn shoes (or even less likely, that any shoes in the restaurant must be worn shoes) (56a). When these sentences are spoken aloud, the location of pitch accent distinguishes between these readings. Thus, meaning in these contexts also appears to depend on focus, as it does in contexts including focus particles and negation.

Examples of these focus sensitive contexts in natural speech are discussed in Chapter 3, section 3.6. Other contexts observed to be focus-sensitive are those including reason clauses (see Dretske 1972) and comparatives (see Kennedy, to appear).

2.2.4 Two kinds of focus?

The discussion in sections 2.2.1-2.2.3 have indicated that some approaches to focus have employed the notion that focus signals new information (discourse-oriented and some focus-oriented approaches) and others the notion that it signals the existence of alternatives to the item in focus (formal semantic approaches). É. Kiss (1998) presents arguments that these approaches in fact correspond to two different kinds of focus, information and identificational focus. She connects information focus to the terms *presentational focus* and *broad focus* and identificational focus to the terms *contrastive* and *narrow focus* (cf. Jackendoff 1972, Rochemont 1986, Ladd 1980).

A structure that plays an important role in the arguments É. Kiss makes for two types of focus is the *it*-cleft construction (previously illustrated in (15b)). She argues that this is the prototypical realization of identificational focus in English, although it can also be signaled by the presence of a focus operator like *only*.

Table 2.1: Realization of Information and Identificational Focus in English (É. Kiss 1998)

| INFORMATION FOCUS | IDENTIFICATIONAL FOCUS |
|--------------------------------|---|
| Presence of pitch accent alone | <i>It</i> -cleft with pitch accent Presence of exhaustive focus operator (e.g., <i>only</i> with pitch accent |

It is well documented that not all constituent types can appear in cleft focus. Universally quantified noun phrases are consistently odd in cleft focus, (Rochemont 1986, É. Kiss 1998), as (57a) and (57b) show. *Always*, on the other hand, is felicitous, while *sometimes* is not.

- (57) (a) It was John/?also John/*even John/everybody that Mary invited to her birthday party.
 (b) It was ?every dish/(always) the blue platter that he washed.
 (c) It is (always)/(?sometimes) getting up early that he finds difficult.

The emphasis of an *it*-cleft may vary, depending on which constituent in the cleft is accented (Prince 1978).

- (58) (a) It was *af^{ter}* she quit smoking that Mary felt better
 (b) It was *af^{ter}* she *qu^{it}* smoking that Mary felt better
 (c) It was *af^{ter}* she *qu^{it}* *sm^ó*king that Mary felt better

It-cleft focus constructions have been argued on the basis to receive a contrastive focus interpretation (Rochemont 1986). The location of the accent on *after* and *quit* in (58a) and (58b) lead to so-called narrow readings for these items. É. Kiss (1998) argues that the focus in an *it*-cleft is not necessarily contrastive, but is always *exhaustive*: that the material in the cleft represents all the possibilities for making the predicate true. This defining feature distinguishes identificational focus from information focus.

A summary of the differences between the two types of focus proposed appears in Table 2.2.

Table 2.2: Properties of Information and Identificational Focus (É. Kiss 1998)

| INFORMATION FOCUS | IDENTIFICATIONAL FOCUS |
|---|---|
| <p>(1) Marks nonpresupposed nature of information</p> <p>(2) Applies to all types of constituents</p> <p>(3) Does not enter into scope relations with clause-mate operators</p> <p>(4) Does not involve movement</p> <p>(5) Need not be co-extensive with an XP available for operator movement</p> <p>(6) Can project from an accented constituent, but does not iterate.</p> | <p>(1) Expresses exhaustive identification over a set of contextually given elements</p> <p>(2) Applies to restricted constituent types: e.g., cannot apply to universal quantifiers, <i>even-</i> or <i>also-</i>phrases</p> <p>(3) Can enter into scope relations with clause-mate operators</p> <p>(4) Moves to the specifier of a functional projection</p> <p>(5) Co-extensive with an XP available for operator movement</p> <p>(6) Does not project (beyond an XP available for movement), but can iterate.</p> |

Line (1) provides definitions of the two types of focus that É. Kiss proposes. Lines (2) and (3) provide generalizations about the behavior of the two types, while the properties listed in lines (4) to (6) are derived from the syntactic analysis that É. Kiss proposes for the two types of focus. It is not necessary to go through the details of this analysis here; as with the other proposals outlined in section 2.2, this proposal will also be considered in light of the occurrence of focus in data from the speech corpus.

2.3 ISSUES IN EXAMINATION OF NATURAL SPEECH

Although discourse-oriented research often uses naturally occurring examples from written texts, many of the observations and proposals discussed in section 2.2 are based on constructed examples. Despite the fact that focus involves accent, which occurs only in speech, observations and proposals about focus have rarely been tested against natural speech data. A main objective of the present work is to begin the process of confirming existing observations and evaluating existing proposals on the basis of the occurrence of focus in data from a speech corpus. This requires employing a systematic approach to the identification of focus constituents, as well as identification of the discourse contexts most likely to provide data relevant to existing proposals.

Focus marking via pitch accent can be ambiguous (see Chapter 1, section 1.1.1): pitch accent on a noun, for example, could signal focus on a noun phrase, focus on a verb phrase containing the noun, or even focus on an entire clause. For this reason, analysis of focus in natural speech requires a means of determining relevant domains of focus.

Section 2.2.1 highlighted some of the differences between *it*-clefts and *wh*-clefts. Recall that one difference was that *it*-clefts locate a focus constituent in the cleft, while *wh*-clefts locate the focus in the post-cleft portion of the sentence.

Another difference may be the exhaustivity of the focus. If É. Kiss (1998) is correct, the focus of an *it*-cleft sentence is exhaustive, while the focus of a *wh*-cleft may not be. It is likely that at least in some cases, the focus of a *wh*-cleft sentence could also be exhaustive, despite the fact that it is not marked by a focus operator (see discussion and example (60) below).

The *wh*-cleft is obviously related to the *wh*-question in English. Both begin with a *wh*-constituent and contain a gap related to that constituent. In a *wh*-cleft sentence, the *wh*-cleft material corresponds to a *wh*-question, while the post-cleft material corresponds to the answer to that question (cf. also (16b)).

- (59) (a) What Nikki hopes to do is be a star on the horse-show circuit.
 (b) What does Nikki hope to do? Be a star on the horse-show circuit.

In semantic analysis of *wh*-questions, the *wh*-constituent has long been linked to a semantic variable (e.g., Karttunen 1977, Stechow and Zimmerman 1984, Groendijk and Stokhof 1984). This variable is argued to relate to the focus of the sentence that answers the question, thus accounting for the fact that focus plays a role in what makes an acceptable answer to a *wh*-question (see Chapter 1). Some of these analyses have treated the answers to questions as exhaustive answers. This would suggest that at least in some cases, the focus portion of a *wh*-cleft sentence might also be exhaustive.

While *wh*-questions serve as the classic test for focus, it can be awkward to use this test for the focus of a sentence in on-going discourse. The insertion of a question may frequently be infelicitous not because it does not match the focus of the sentence it is testing, but because a question is inappropriate in the context. Because cleft paraphrases can be less awkwardly used in on-going discourse than *wh*-questions, these are used to determine domains of focus for examples from the corpus discussed in Chapters 3 through 6.

Supporting the validity of this approach is the relationship between *wh*-clefts and questions. Further support comes from the possible paraphrases of a sentence like that in (60), with an accent on *John*. Depending on the context, it might be felicitously paraphrased with any of the constructions in (60a)-(60e).

- (60) Mary introduced Bill to John.
 (a) Someone who Mary introduced Bill to was John
 (b) It was John that/who Mary introduced Bill to.
 (c) What Mary did for Bill was introduce him to John.
 (d) What Mary did was introduce Bill to John
 (e) What happened then was Mary introduced Bill to John

Each of these paraphrases represents a different focus structure possible for the sentence with an accent on *John*: context will dictate which option is the most appropriate or felicitous paraphrase. (60a) and (60b) are paraphrases for focus on *John*, with (60b) presumably exhaustive and (60a) unspecified with regard to exhaustivity; the indefinite pronoun *someone* is used here because of the marginal felicitousness of the *wh*-cleft *Who Mary introduced Bill to was John*. I assume that the felicitousness of (60b) entails that (60a) will be felicitous, too (although the reverse would not hold). (60c) paraphrases focus on *introduce ... to John*, while

(60d) paraphrases focus on *introduce Bill to John* and (60e) focus on the entire sentence. In each case, the focus constituent of the cleft sentence contains the word that was accented in the original sentence, *John*.

The discussion in subsequent chapters employ paraphrases like those in (60) to determine the domain of focus in examples from spontaneous speech. This is a new version of the long-used wh-question test for focus, one that allows for the testing of focus constituents within on-going discourse.

In rare circumstances in the corpus data, wh-cleft paraphrases are not possible: in these cases, however, a paraphrase using an existential *there* construction (as in 2.2.1) is typically felicitous.

The data to be discussed in subsequent chapters are drawn from contexts in the corpus that relate to the observations and proposals discussed in the current chapter. These include contexts that provide data regarding accentuation and the discourse status of information (relevant to issues discussed in sections 2.2.1 and 2.2.2); contexts that indicate contrast (relevant to issues discussed in sections 2.2.2.1 and 2.2.3); contexts for syntactic constructions that have been observed to be associated with specific characteristics (relevant to issues discussed in section 2.2.1); and focus sensitive contexts (relevant to issues discussed in section 2.2.3).

2.4 SUMMARY

The discussion in this chapter attempted to provide an overview of the perspectives that have been taken in research on intonation and focus. We have examined a wide but by no means exhaustive range of perspectives. These relate to the relationship between accent and focus, to accent assignment, to focus and sentence structure, to the significance of focus, and to the modeling of focus by formal means. The reader should now have an idea of the kind of data and issues relevant to the study of focus. Chapter 3 presents data from naturally occurring speech that are relevant to the issues raised here.

Chapter 3: Focus phenomena in natural speech

Most of the existing observations about focus surveyed in Chapter 2 come from constructed examples rather than from naturally occurring discourse. The current chapter attempts to add to the literature on focus by providing a description of the phenomena occurring in spontaneous speech. It treats excerpts that are relevant to the observations made previously in the study of focus and focus-related phenomena. The main purpose here is to examine how well theories developed on the basis of constructed examples hold up for naturally occurring speech. Many of the excerpts to be discussed confirm or add to earlier observations; others provide apparent exceptions or counterexamples.

Section 3.1 addresses the approach this work takes in describing and presenting the focus data taken from the corpus. Section 3.2 presents data regarding accentuation and the discourse status of information. Section 3.3 presents examples of accent in discourse contexts that indicate contrast. Section 3.4 examines the occurrence of syntactic constructions that have been observed to be associated with specific focus characteristics. Section 3.5 examines the focus and intonational properties of questions appearing in the corpus. Section 3.6 presents data from focus-sensitive contexts that occur in the corpus.

The text of each excerpt to be discussed is presented in the relevant discourse context, with annotation for certain prosodic information: the locations of pitch accents and phonological and intonation phrase boundaries. Information about the type ("tune") of pitch accent is beyond the scope of the current work, and thus is not included in the textual representation. In order to validate the textual representations, however, I do include the results of pitch tracking that was performed to establish the location of pitch accents. The graphics included with each excerpt will thus provide readers interested in the distribution of pitch-accent types with the relevant data.

3.1 FINDING FOCUS

Working with focus data in a corpus of naturally occurring speech requires determining what the focus constituent of each utterance is. This process involves three steps: (1) identifying phonological domains and the location of pitch accents, (2) identifying the location of the focus center, and (3) identifying the domain of focus.

3.1.1 Domains and accents

Pitch analyses were conducted on each of the excerpts discussed in this work with the program *Praat* in order to facilitate the identification of intonational and phonological phrase boundaries and pitch accents. The resulting data were used together with native speaker judgment to determine the location of these prosodic markers. The location of pitch accents was determined by identifying changes in pitch before, during and after stressed syllables, in accordance with the model of intonational phrasing proposed in Pierrehumbert 1980. Phrase accents and boundary tones were identified to determine the location of prosodic boundaries, also in accord with Pierrehumbert 1980.

The excerpt in (1) has been annotated for prosodic information. All excerpts in this work have been annotated in the same fashion. An acute accent (´) represents the presence of a pitch accent on a syllable. The lengthening of pitch accented syllables is not annotated since pitch accented syllables are in general longer than their non-accented counterparts (Beckman and Edwards 1992; Cooper et al. 1985, see also Chapter 6). Because audible breathing and pauses in speech help provide information about the location of phonological boundaries (Pierrehumbert 1980), these are annotated with filled parentheses (hh) and empty parentheses (), respectively. The lengthening of syllables that do not carry a pitch accent can also provide cues to the location of phonological boundaries (Beckman & Edwards 1987), and such lengthening is thus indicated with a colon following the lengthened vowel (e.g., *vowe:l*). The boundaries of phonological phrases are marked with a single slash (/) and those of intonation phrases with a double slash (//); I have avoided the use of % as a boundary marker because I employ this symbol to indicate discourse segments that are infelicitous.

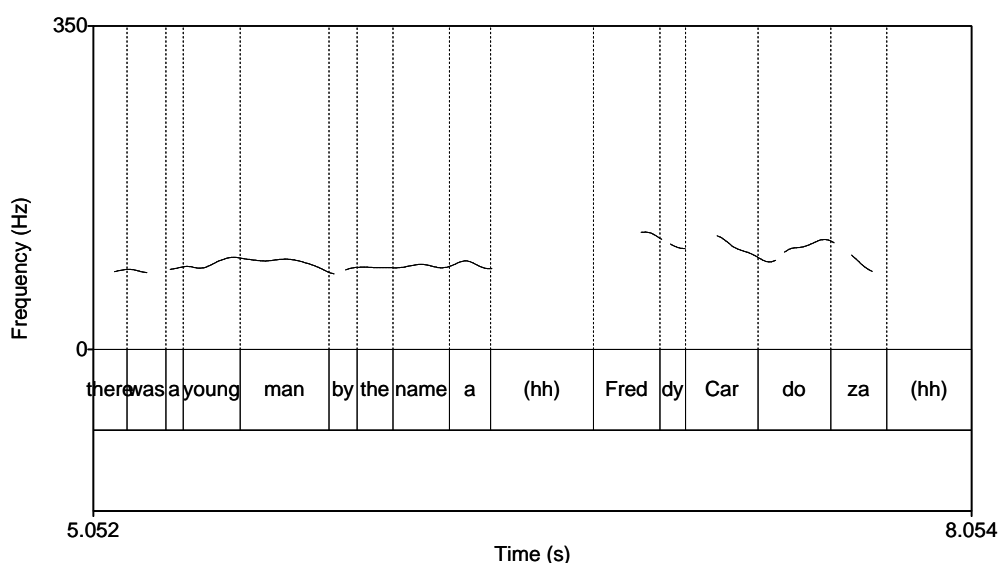
An annotated excerpt from the corpus appears below:

- (1) *A parole officer has been discussing his work with a program intended to reduce violent crime committed by youthful offenders. He begins a story to help illustrate the program's effectiveness:*

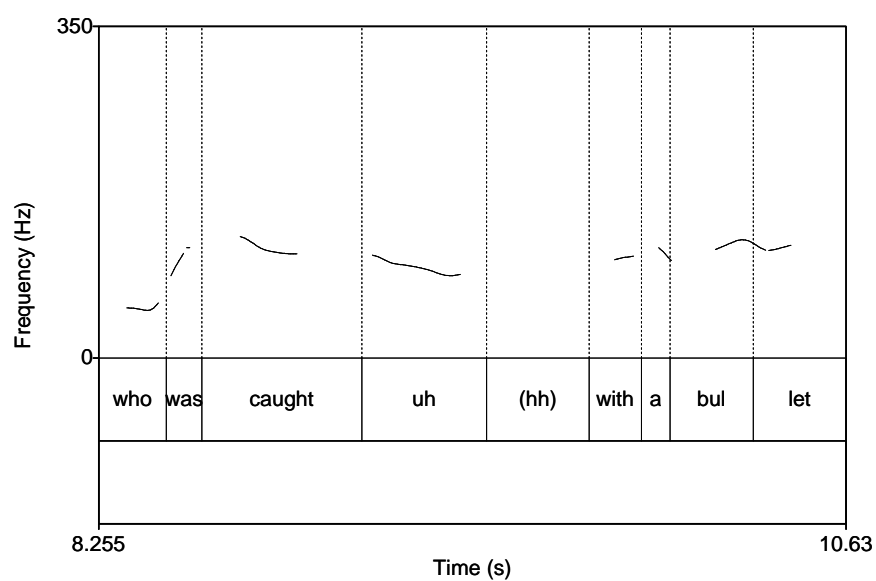
- (a) there was a yóung ma:n / by the name a (hh) / Fréddy Cardóza (hh)//
- (b) who was cáught uh (hh) / with a búlle:t //
- (c) he was álso cau:ght / pássing a gún/ to a júvenile
- (d) because the júveni:le would get // a lésser séntence

Pitch tracks reflecting the information on which the annotation of the excerpt in (1) is based follow in (1').

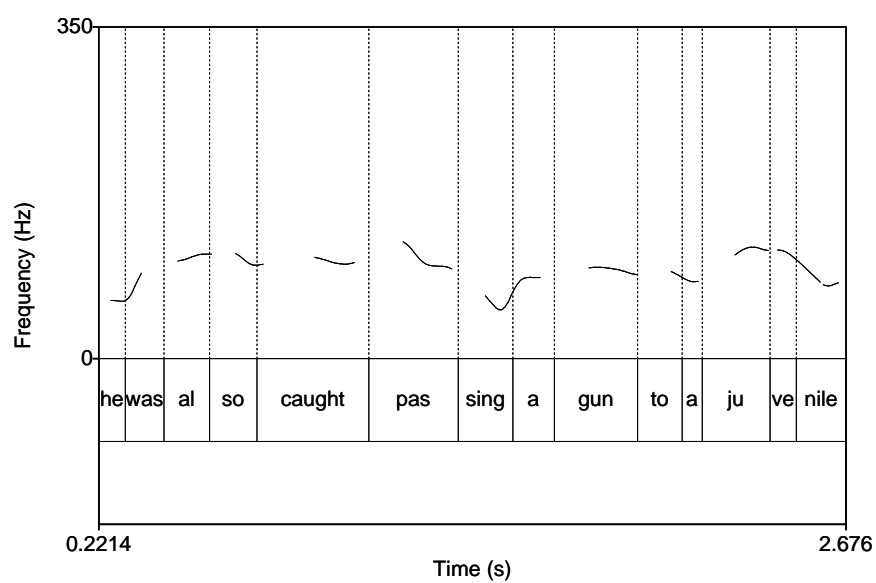
- (1') (a) there was a yóung man / by the name a (hh) / Fréddy Cardóza (hh)//



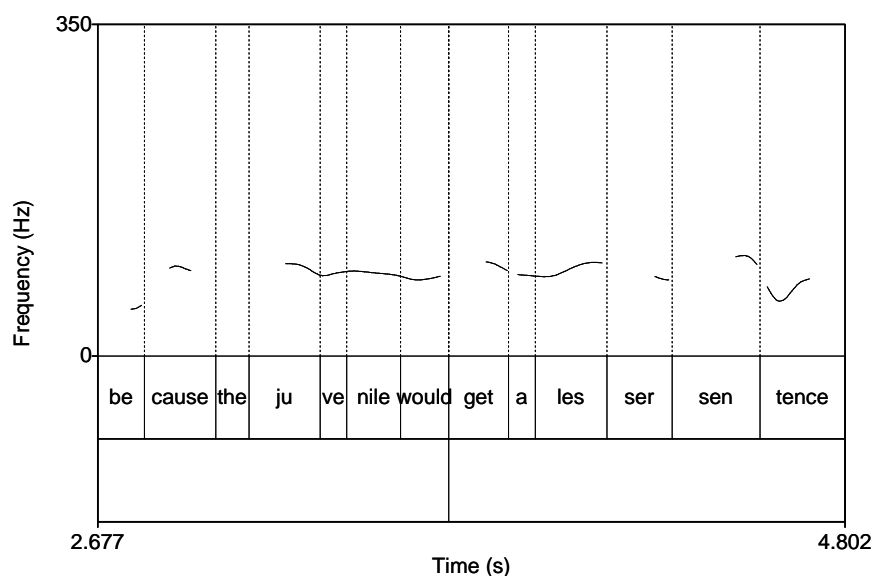
(b) who was caught uh (hh) / with a bullet //



(c) he was also caught / passing a gun/ to a juvenile



- (d) because the juvenile would // get a lesser sentence



3.1.2 Focus centers

The excerpt in (1) shows that an intonation phrase with a single focus may contain multiple pitch accents. Note that while (1a) has three pitch accents, on *yoúng*, *Fréddey* and *Cardóza*, we would not want to claim that this portion of the utterance has three focus constituents. In fact, in this context, the speaker had the option of pitch accenting only the stressed syllable of *Cardóza*, and producing *young* and *Freddy* without pitch accents, or of placing additional pitch accents on any of the other stressed syllables in the utterance. The accent on *Cardóza*, however, is required. Although the other pitch accents can be omitted and still result in a felicitous utterance, the one on *Cardóza* cannot be omitted in this context. Consider the possibilities presented in (2):

- (2) (a) there was a young man by the name a Freddy Cardóza
 (b) % there was a yoúng man by the name a Freddy Cardoza
 (c) % there was a young man by the name a Fréddey Cardoza
 (d) % there was a yoúng man by the name a Fréddey Cardoza

While (2a) is nearly equivalent to the utterance in the original discourse, (2b)-(2d) are not. The alternative utterance in (2b) is felicitous in contexts where there was a man named Freddy Cardoza who was *not* young — for example, in response to a question like *Did you meet an old man named Freddy Cardoza?* The alternative utterance in (2c) is felicitous in contexts where the last name *Cardoza* or an individual with that last name is already under discussion — for example, in response to questions like *Did you meet anyone named Cardoza?* or *Did you meet a man named Eddie Cardoza?* The alternative utterance in (2d), with two pitch accents, is felicitous in the same contexts as (2c), and additionally in contexts that combine the context conditions of (2c) with those of (2b), as in response to the question *Did you meet an old man named Cardoza?* What these examples show is

that if the accent on *Cardoza* were deleted from the intonation phrase, the resulting utterance would be appropriate to a different context. The last accent in the intonation phrase is the one that takes precedence in determining focus. The examples in (2) support the claim that a final pitch accent plays a "key role in defining the patterns of prominence" that signal focus in a sentence, despite the absence of phonetic correlates for this prominence (Ladd 1996).

The corpus data also add to the evidence that despite the relationship between pitch accent and focus, there is not a one-to-one correspondence between them (von Stechow and Uhmann 1987). Not every pitch accent signals a focus constituent. Multiple pitch accents do not typically indicate multiple focus constituents when they occur in the same intonation phrase: some pitch accents play a more important role in determining the focus of a sentence than others. This is in line with the observations of Ladd (1980, 1996) that not all pitch accent is connected to the marking of focus, that at least some pitch accents occur to satisfy phonological constraints. It contradicts theories that posit focus as the single determinant of intonation patterns (cf., the basic focus rule of Selkirk (1984): "a constituent to which a pitch accent is assigned is a focus."). Rather, focus appears to be associated with an obligatory pitch accent of an intonational phrase, typically the "nuclear pitch accent" of the phrase. The nuclear accent has been observed to correspond to the final pitch accent of an intonation phrase (Pierrehumbert 1980, Beckman and Pierrehumbert 1986). Pitch accents that are not nuclear pitch accent in their intonation phrases I will call *secondary accents*.

It is also necessary to distinguish between the word bearing the obligatory pitch accent and the constituent that serves as the focus or *focus constituent* of a sentence, since the pitch accent occurs on only one syllable of a multi-word focus constituent. It is the word bearing the obligatory pitch accent that I call the *focus center*¹. This will typically correspond to Pierrehumbert's nuclear pitch accent.

The excerpt is presented again in (1"). Here, focus centers correspond to the nuclear accents of intonation phrases. In this re-presentation, as in those that follow, focus centers appear in small capital letters.

- (1") (a) There was a young man by the name a Freddy CARDOZA
 (b) who was caught with a BULLET
 (c) he was also caught passing a gun to a JUVENILE
 (d) because the JUVENILE would get a lesser SENTENCE

3.1.3 Focus Domains

While we have now identified the focus centers of the first few utterances of this discourse segment, we have not yet established the domain of focus in these clauses. This is the *focus constituent* of a clause. A focus center on a noun, for example, could correspond to focus on the noun phrase that has that noun as its head, or to focus on a larger constituent containing the noun phrase.

In (1"a), we find an example of the existential *there* construction². It has been observed that this construction typically serves to introduce a new referent or

¹ This is similar in concept to the term "focus exponent" used by Höhle 1982.

² Excerpts containing examples of this construction are discussed in greater detail below in section 3.4.3.

circumstance into a discourse (see section 2.2.1, Chapter 2). In this context, the focus center *Cardoza* signals focus on the complex noun phrase *a young man by the name of Freddy Cardoza*. Note that like many existential there-constructions, this discourse-segment initial sentence cannot be felicitously paraphrased with either a wh-cleft (3b) or an *it*-cleft (3c). The original utterance appears as (3a).

- (3) (a) There was a young man by the name a Freddy CARDOZA
- (b) % Someone who there was was a young man by the name a Freddy CARDOZA
- (c) % It was a young man by the name a Freddy CARDOZA who there was.

The lack of felicitous cleft paraphrases indicates that the utterance has no presuppositions — it is, essentially, all focus. The focus center on *Cardoza*, then, corresponds to focus on the existence of a new individual in the discourse.

In (1"b), the focus center on *bullet* also occurs within a noun phrase corresponding to a new entity in the discourse. In this case, however, the focus center does not appear to signal focus on the noun phrase. Evidence for this comes from the paraphrases that are possible in the discourse context. The original utterance is presented as (4a).

- (4) There was a young man by the name a Freddy Cardoza
- (a) who was caught with a BULLET
- (b) % What he was caught with was a BULLET.
- (c) What happened with him was that he was caught with a BULLET.

The infelicitous paraphrase in (4b) demonstrates that in this context the focus center *bullet* does not signal focus on the noun phrase alone. The failure of this paraphrase indicates that it cannot be presupposed that Freddy was caught with anything. The noun phrase cannot appear by itself in the final portion of the wh-cleft sentence, which has been observed to be connected to a focus constituent (see section 2.2,3, Chapter 2), and will thus serve as one of the focus tests to be used in the presentation of the data from the corpus. The felicitous paraphrase in (4c) thus suggests that the focus center *bullet* (1"b) represents focus on the content of the entire clause instead, since this is what can appear in the portion of the wh-cleft sentence connected to focus.

3.1.4 Summary of approach

The subsequent presentation of data from the corpus treats each of the excerpts discussed in a manner similar to that used in sections 3.1.1-3.1.3 above.

Let us review some terminology that will be useful in discussing the examples. The definitions encode distinctions that I want to make between concepts that are often not distinguished in the literature on prosody in English.

FOCUS: A discourse semantic phenomenon connected to the highlighting of information

Focus is, of course, a cross-linguistic phenomenon. The discussion of its realization in English to be presented here and in the following chapters will rely on the following definitions.

PITCH ACCENT: An accent associated with the syllable that receives the primary stress in a word.

FOCUS CENTER: A word is a *focus center* if it:

- (i) bears a pitch accent; and
- (ii) the pitch accent is obligatory (i.e., cannot be omitted or relocated without affecting the felicitousness of an utterance).

FOCUS CONSTITUENT: A syntactic constituent is a *focus constituent* if it

- (i) contains a focus center; and
- (ii) corresponds to a semantic unit that is being highlighted for some communicative purpose.

The word *focus* has been used to refer to each of these concepts in various different works. I define the expressions above in an attempt to avoid the confusion that may result from the polysemous use of the word "focus".

In the current work, the location of pitch accents and phonological and intonation phrase boundaries are determined by pitch tracking in order to facilitate location of the focus center. Focus centers correspond to those pitch accents that are obligatory, given the contexts in which they occur³. Cleft paraphrasing is then used to determine the focus constituent, the domain of focus signaled by the focus center in the given discourse context⁴. Once these facts have been established, we can examine how the data corresponds to the observations that other authors have made about constructed examples and how it fits in with the hypotheses developed on the basis of these observations.

3.2 ACCENTUATION AND DISCOURSE STATUS

Views of focus that consider it a marker of new information predict that non-presupposed or non-derivable information will serve as the focus of an utterance. Focus will be signaled by the presence of a pitch accent, and will be connected to a constituent containing the pitch-accented word. Several authors have observed that the pitch-accented word that serves as the focus center is either the head of the focus constituent or an argument of that head, but not an adjunct (e.g., Schmerling 1976, Gussenhoven 1983, Selkirk 1984).

³ Determining when pitch accents are obligatory requires consulting native-speaker intuitions. I made initial determination on the obligatory nature of focus centers, and checked these intuitions with other native speakers of English.

⁴ This process also requires the intuitions of native speakers. I determined a range of possible paraphrases, and checked intuitions about felicitous paraphrases with other native speakers of English.

The excerpts to be discussed here establish that the presence of focus can correspond to the non-derivable status of material in discourse, and that "old" material is often not accented, but they also establish that it is not necessarily the case that material in focus is new. The data to be presented here also support the observations of other authors that focus projects through arguments and heads.

3.2.1 Accentuation and new material

Let us first reconsider the excerpt presented as an example in the previous section.

- (1") (a) There was a young man by the name a Freddy CARDOZA
 (b) who was caught with a BULLET
 (c) he was also caught passing a gun to a JUVENILE
 (d) because the JUVENILE would get a lesser SENTENCE

The discussion in section 3.1 established the focus domains for (1"a) and (1"b). We saw that the focus constituent in (1"a) was *a young man by the name a Freddy Cardoza*, while the focus constituent in (1"b) was *(he) was caught with a bullet*. In both clauses, the focus center represents focus on a larger constituent containing that center. In (1"a) and (1"b), these focus constituents represent something new in the context. In (1"a), this is the existence of a discourse referent (an individual). In (1"b), it is a predicate to be applied to that referent. Wh-cleft paraphrases of (1"c) also demonstrate that a focus center associated with a new discourse referent can correspond to focus on a larger constituent. Only a paraphrase that contains *passing a gun to a juvenile* (5b) as the focus constituent is felicitous in this context. (5a) repeats the original utterance.

- (5) There was a young man by the name a Freddy Cardoza who was caught with a BULLET.
 (a) He was also caught passing a gun to a JUVENILE
 (b) What he was also caught doing was passing a gun to a JUVENILE.
 (c) ? What also happened with him was that he was caught passing a gun to a JUVENILE
 (d) % Someone who he was also caught passing a gun to was a juvenile.

The data from this excerpt also fit in with the generalization that pitch-accented arguments can project focus in the focus constituent (see 2.2.2, Chapter 2). In (1"b), for example, *a bullet*⁵ can be analyzed as an argument of the preposition *with*, and the prepositional phrase *with a bullet* can be analyzed in turn as an argument of *caught*. Focus on the constituent *was caught with a bullet* can thus be traced through the levels of syntax to the focus center *bullet*. The focus constituents in the other segments of (1") can be analyzed along similar lines.

The first of the focus centers of the final example, however, is not a new individual in the discourse. The accent on *juvenile* in (1d) appears to be a focus

⁵ *bullet* itself can be analyzed as either the head of the NP *a bullet* or as the head of the NP *bullet*, which in turn serves as the argument within the DP *a bullet*. Whether we assume the DP hypothesis or not, the generalization still holds.

center: it is not optional, unlike the accents on *young* and *Freddy* in (1a), and furthermore, it serves as the nuclear accent — indeed, the only accent — in its intonation phrase. This example will be discussed again in section 3.6, which deals with focus sensitive contexts. Here, the example is relevant because it provides an apparent counterexample to the generalization that focus represents new information in all cases: the focus is centered on *juvenile*, which is not new information in the discourse. Other apparent counterexamples to the idea that focus represents new information — or at least only new information — are addressed in Chapter 4.

3.2.2 Accentuation and de-stressing

The corpus also provides examples in which old material is de-accented. For example, in (1b) the verb *caught* receives a pitch accent and is part of the focus constituent (although it is not the focus center), but when it is repeated in (1c) and is not part of the focus constituent, it does not receive an accent. In (1a) the noun phrase presenting Freddy Cardoza is the focus constituent. In the subsequent segment (1c)/ (1''c), when Freddy is not part of the focus constituent, the speaker uses an unstressed pronoun *he* to refer to Freddy. Other examples to be discussed here demonstrate that in naturally occurring speech, speakers de-stress old material even when it is part of the focus constituent. These data conform to observations made about constructed examples in displaying movement of the focus center.

3.2.2.1 Focus center relocation

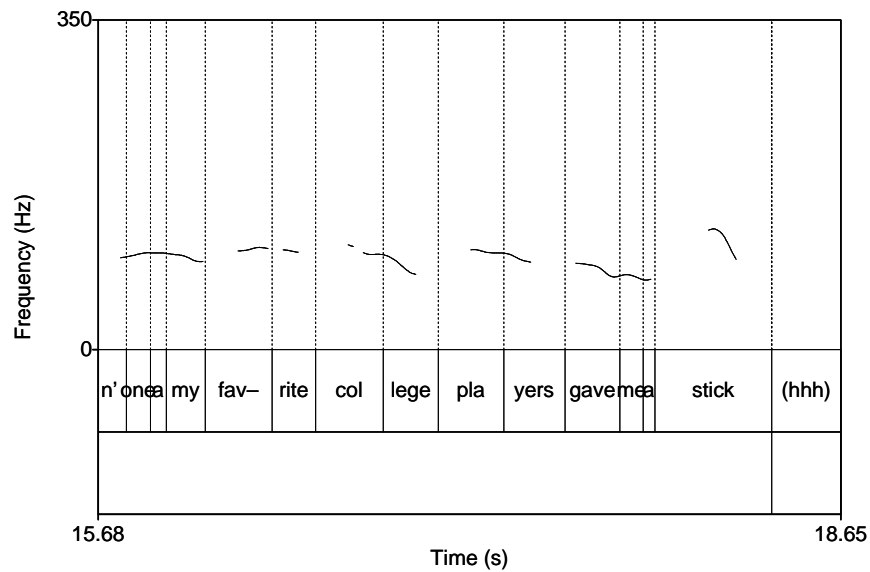
Relocation of the focus center has been observed to occur when some material in the focus constituent is not new (Bolinger 1972, Schmerling 1976, Ladd 1996, inter alia). Excerpts from the corpus support this generalization. An example appears in (6).

- (6) *As background to a story he is about to tell, the speaker explains that he went with his father to attend a college hockey game—*

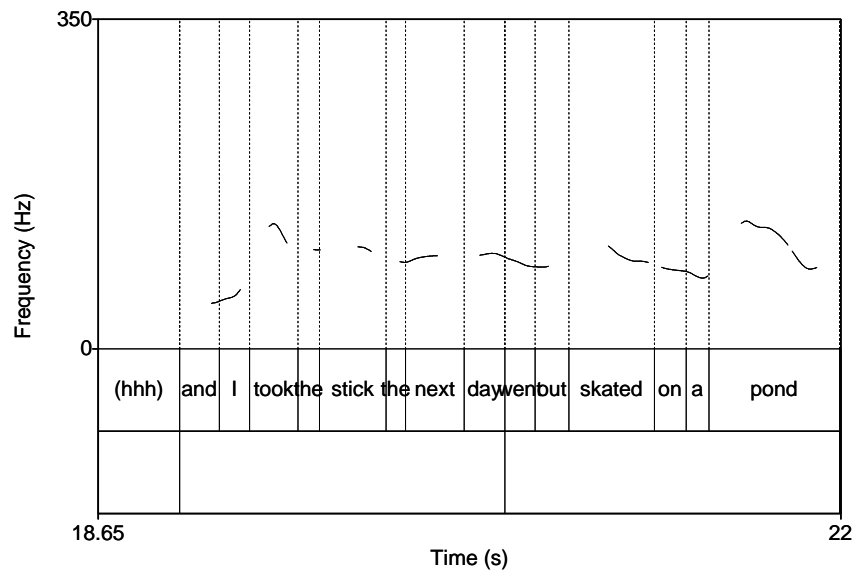
- (a) and one a my fávorite cóllege pláye:rs \ gave me a stíck \\
 (b) and I toók the stick the next day \\\ went out 'n skáted on a pónd \\\

Pitch tracks of this excerpt appear below in (6'a) and (6'b) below.

(6') (a) and one a my fávöríte cóllege pláye:rs \ gave me a stíck \\\



(b) and I toók the stick the next day \\\ went out 'n skáted on a pónđ \\\



The focus centers of the excerpt are represented in (6'').

(6'') (a) and one of my favorite college players gave me a STICK

(b) and I TOOK the stick the next day, went out and skated on a POND

The focus constituent of (6''a) appears to be the entire sentence, as the most felicitous wh-cleft paraphrase, in (7b), demonstrates.

- (7) [I went to a hockey game with my father] and
- (a) what happened was that one of my favorite college players gave me a STICK.
 - (b) ? what one of my favorite college players did was give me a STICK.
 - (c) % What one of my favorite college players gave me was a STICK.

Thus, the focus center on the new discourse entity *a stick* signals focus over the entire clause.

In (6''b), *the stick* does not receive a pitch accent. Instead, *took* serves as the focus center. Rephrasing (6''b) with a wh-cleft is most felicitous in the discourse when the focus constituent in the wh-cleft sentence corresponds to the verb phrase *took the stick the next day*, as in (8a). It is somewhat less felicitous when the focus constituent corresponds only to the verb and its complement, as in (8b), although this may still be a possible paraphrase. When focus of the wh-cleft sentence corresponds to the verb alone, as in (8c), the resulting paraphrase is infelicitous in the context of the discourse. Equally infelicitous is a paraphrase in which the entire clause corresponds to the focus constituent of the wh-cleft, as in (8d).

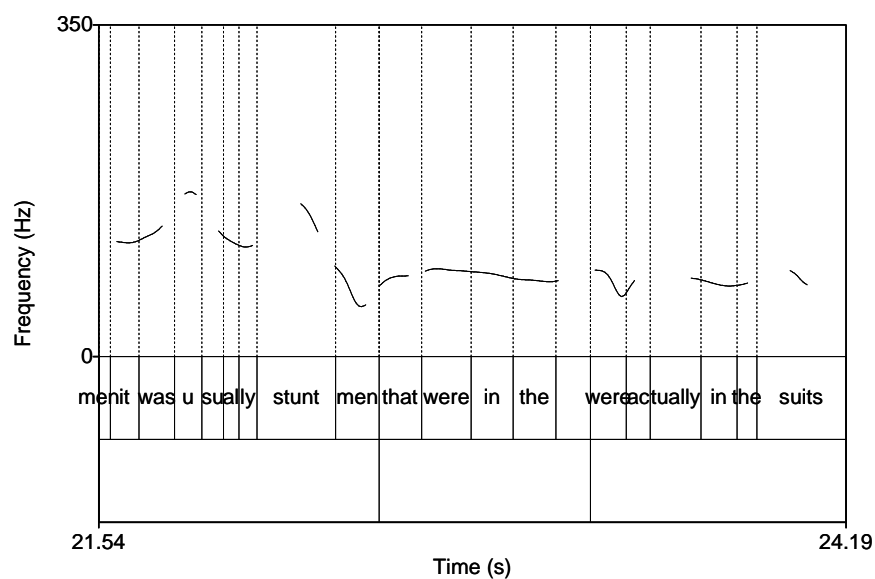
- (8) [I was at a hockey game with my father]
and one of my favorite college players gave me a STICK.
- (a) and what I did was [TAKE the stick the next day]_F and I went out and skated on a POND.
 - (b) ? and what I did the next day was [TAKE the stick]_F and I went out and skated on a POND.
 - (c) % and what I did with the stick the next day was [TAKE it]_F and I went out and skated on a POND.
 - (d) % and what happened was [I TOOK the stick the next day]_F and I went out and skated on a POND.

These data demonstrate that in this context the focus center on the verb *took* corresponds to focus on the verb phrase rather than focus on the verb, or any other possible domain. This is different from the phenomenon observed about (1), where focus was projected through arguments. In (6''b), focus is projected through a syntactic head.

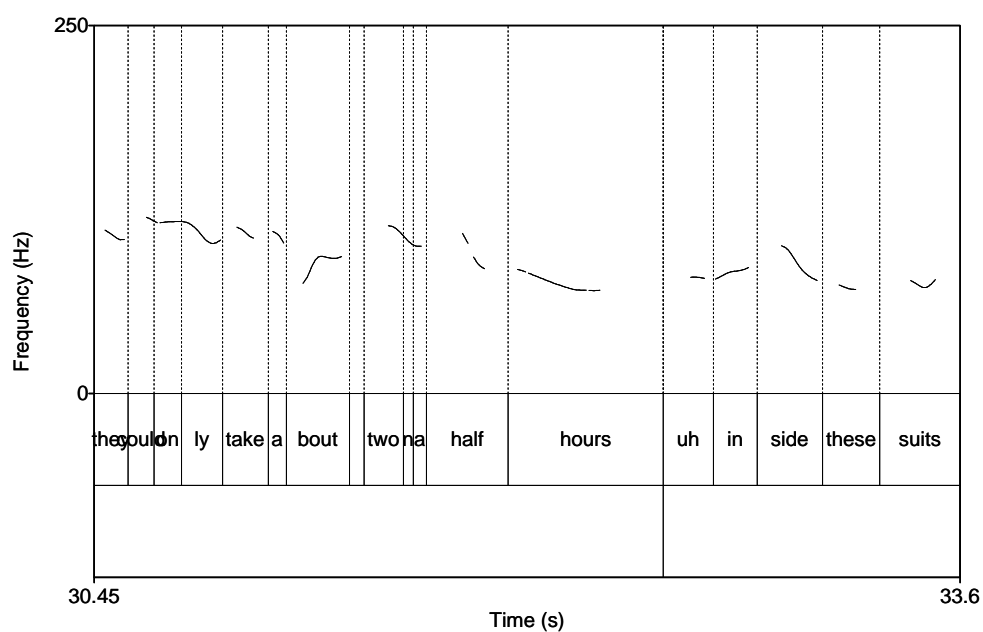
A second example that displays the same phenomenon appears in (9). Pitch tracks appear in (9' a-b).

- (9) *The producer of a television mini-series about the U.S. space program is discussing the technical difficulties involved in the production. He talks about the physical strain on the stuntmen* (See (31) for ellipsed material).
- (a) it was úsually stú:ntmen // that were in the- //were actually in the suíts // ...
 - (b) they could only take about twó and a half hou:rs // uh insíde these suits

- (9') (a) it was úsually stú:ntmen //that were in the-//were actually in the súits
//



- (b) they could only take about twó and a half hou:rs //uh inside these suits



The focus centers are represented in (9").

- (9") (a) It was usually STUNTMEN that were actually in the SUITS...
- (b) They could only take about TWO and a half hours INSIDE these suits.

These sentences parallel each other in that they both contain two focus constituents. The second focus in each is a prepositional phrase containing the word

suits and referring to the same referent in the discourse. The second occurrence of *suits*, however, in (9"b), is not accented. Instead, the focus center is *inside*, the preposition that is the head of the focus constituent. Note that this is new material, despite the semantic similarities between *in* and *inside*. *Inside* is more specific in this context than *in*: while it is typical for items of clothing to appear as the arguments of *in*, it is less typical for them they appear with *inside*.

While the most typical manifestation of phrasal focus is the appearance of a focus center on the complement of a phrasal head (Schmerling 1976, Gussenhoven 1983, Selkirk 1984), in the examples from the excerpts in (6) and (9), we also find focus realized through placement of the pitch accent on the head itself. The authors who have previously observed this phenomenon have argued that it is related to the fact that the argument (*the stick* in (6"b) and *these suits* in (9"b)) is already given in the context, while the head (*took* in (6"b) and *inside* in (9"b)) is not. Thus, focus is most typically projected through arguments, projecting through heads when the discourse context requires (or perhaps allows) that arguments be de-accented. These examples from naturally occurring discourse that have been discussed fit in with the previous observations about marking of focus constituents.

An item from (9") that does not fit as well with the observations and predictions made from constructed examples is the appearance of a focus center on *two* in (9"b).

- (10) It was usually stuntmen that were actually in the suits. ...
- (a) % What they could do inside the suits was only take about TWO and a half hours.
 - (b) ? How long they could take INSIDE the suits was only about TWO and a half hours.
 - (c) % How many hours they could take INSIDE the suits was only about TWO and a half.

Perhaps in part because the sentence contains two focus constituents, it is difficult to find a felicitous wh-paraphrase with *two* in the focus portion of the sentence. The one that comes closest to being felicitous in the context is (10b), which suggests that the focus center on *two* reflects focus on the constituent *about two and a half hours*. A prediction for this phrase in focus is that pitch accent should appear on *hours*, rather than *two*, since *hours* is presumably the head of the phrase in which it occurs. This prediction comes from the observations captured by the accounts of Gussenhoven 1983 and Selkirk 1984/1995. This, however, is not what occurs.

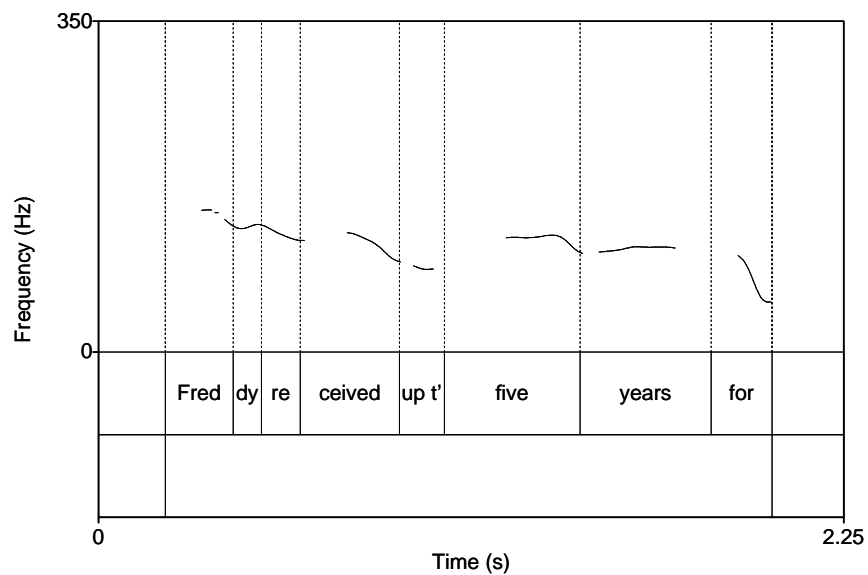
One factor that could be coming into play here is predictability (Bolinger 1972). World knowledge tells us that *hours* are the only relevant units of time here. Two and a half minutes (the next smallest unit of time) would be far too short for the film crew to get anything done, and two and a half days (the next longest unit of time) far too long to be compatible with the adverb *only* in this context. Of all the words appearing in the apparent focus constituent, *two* is the most informative. Perhaps this is why it is the focus center.

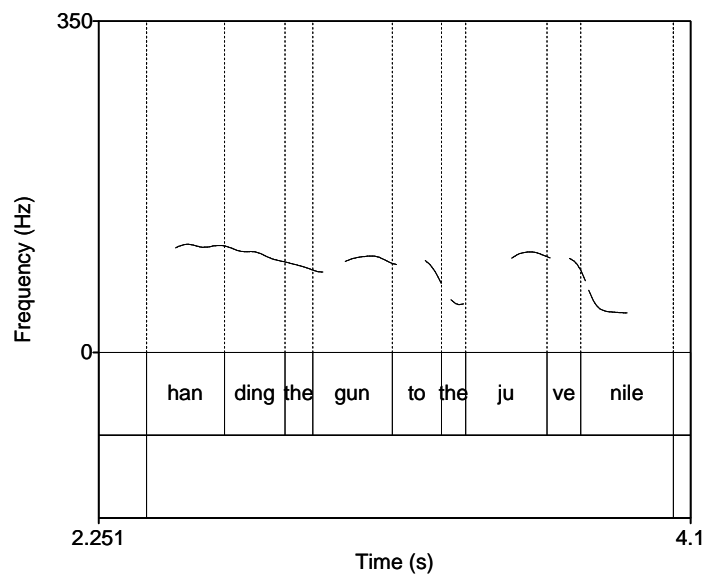
3.2.2.2 *Re-stressing*

Other authors (Ladd 1980, 1996) have observed that discourse-old material can be accented in circumstances in which all the material in the sentence is old. Typically in such situations, the accent is observed to fall on an argument rather than on the head of a focus constituent. This phenomenon can also be illustrated with excerpts from the corpus.

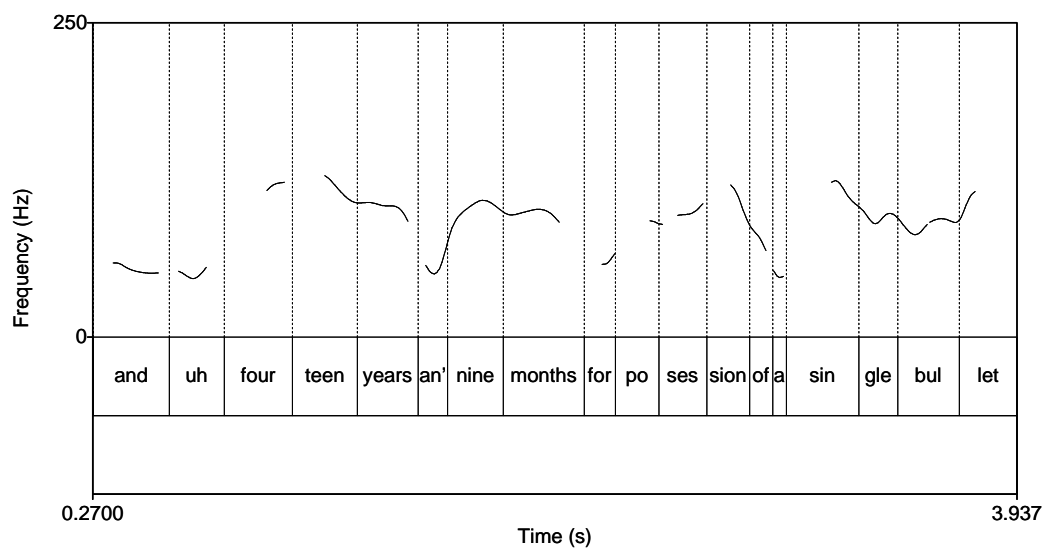
The excerpt presented in (1)/(1') continues as in (1e)-(1g). Again, pitch tracks for the excerpt follow below in (1'e)-(1'g).

- (1) (e) Freddy received up t' five years for // () handing the gún to the juvenile
- (f) and uh fourteen yea:rs/ and níne months // for posséssion of a síngle bullet (hh) //
- (g) but Fréddy álso had a síx page récord
- (1') (e) Freddy received up t' five years for // () handing the gun to the juvenile

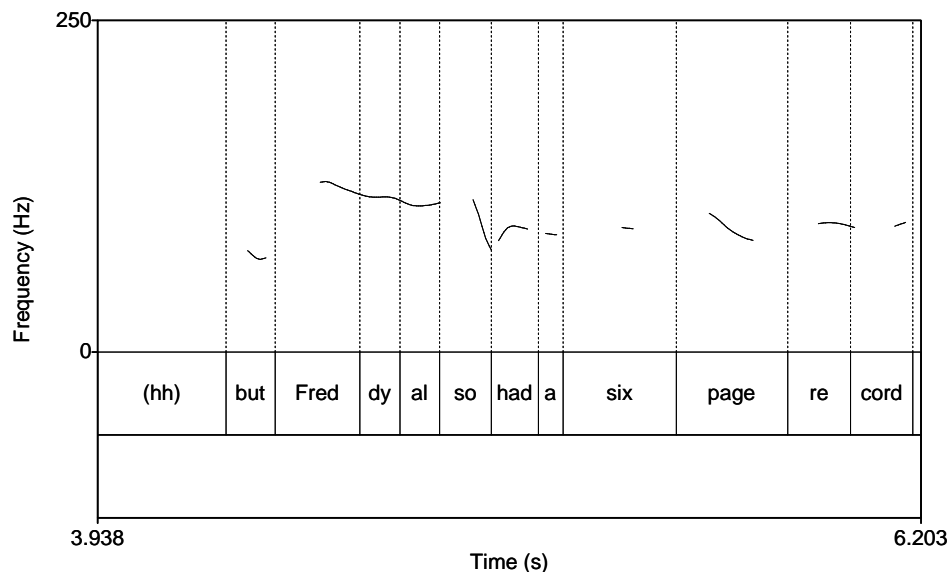




(f) and uh fôurtee:n yea:rs/ and níne mo:nths // for posséssion of a síngle bullet (hh) //



(g) but Fr  ddy   lso had a six page r  cord



The pitch tracks in (1'e)-(1'g) show that pitch accents appear on a variety of material that has already appeared or can be derived from the context: *gun*, *juvenile*, *possession*, *single bullet*, as well as on material that cannot be derived. Focus centers appear in (1''e)-(1''g).

- (1'') (e) Freddy received up to FIVE years for handing the gun to the JUVENILE
 (f) and fourteen years and NINE months for possession of a SINGLE bullet
 (g) but Freddy also had a six page RECORD

The sentences in (1''e) and (1''f) have two focus domains. It is impossible to paraphrase either of these two sentences in English with a *wh*-cleft, because this would involve the use of two *wh*-constituents, something that the grammar of English does not allow. Nevertheless, the clauses can both be understood as answers to the question in (11).

(11) What sentence did Freddy receive for which offense?

The question test is a classic test for focus that has been in use for a long time in the literature on focus (cf., Paul 1880 per Krifka). Here, the test indicates that the focus centers on *five* and *nine* appear to signal focus on *five years* and *fourteen years and nine months*. The focus center on *juvenile* appears to signal focus on *handing the gun to the juvenile* while the focus center on *single* appears to signal phrasal focus on *possession of a single bullet*.

Both (1''e) and (1''f) can also be paraphrased in context with the first focus, that corresponding to the sentence Freddy received, in an *it*-cleft. This not only provides further evidence that *five years* and *fourteen years and nine months* are focus constituents, but also indicates that the additional material — consisting of the offenses — is presupposed or derivable in this context. This is consistent with the mention of these deeds earlier in the story.

- (12) There was a young man by the name of Freddy CARDOZA who was caught with a BULLET. He was also caught handing a gun to a JUVENILE because the JUVENILE would get a lesser SENTENCE.
- (a) It was up to FIVE years that Freddy received for handing the gun to the JUVENILE
 - (b) and (it was) fourteen years and NINE months (that he received) for possession of a SINGLE bullet.

Indeed, there is no conceptually new material in the focus constituents *handing the gun to the juvenile* and *possession of a single bullet*. A possible exception is the word *single*, which does, in fact, serve as the focus center of its phrase. Even this material is derivable, however, given the fact that Freddy is reported to have been “caught with a bullet” — which carries the implicature that there was no more than one bullet in his possession. Thus, the presence of accents in (1"e) and (1"f) cannot be assigned with regard to "newness." The location of the nuclear accent is consistent with Ladd's observation that accent tends to occur on arguments when nothing in the intonation phrase is new. According to his analysis, in such cases the assignment of accent reverts to a preference for arguments rather than heads.

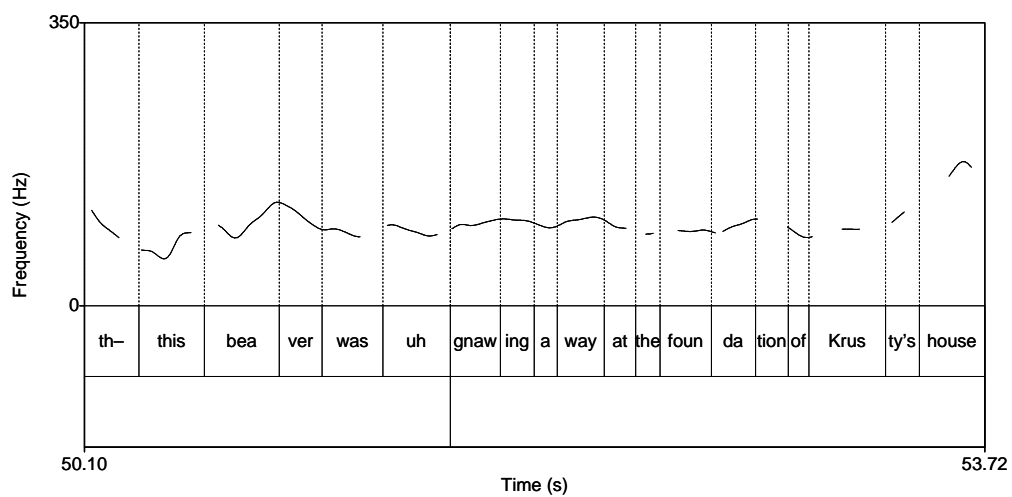
3.3 ITEMS IN CONTRAST

One circumstance in which it has long been noted that discourse-derivable material may receive a pitch accent is when the material contrasts with something else in the discourse. The examples in (1"e) and (1"f) already discussed above illustrate this phenomenon. Both the terms of the sentences Freddy received (*five year vs. fourteen years nine months*) and the offenses for which he received them contrast with each other (*handing the gun to the juvenile, possession of a single bullet*). Many other items in semantic contrast that occur in the corpus are also associated with a pitch accent. Two excerpts will be discussed here.

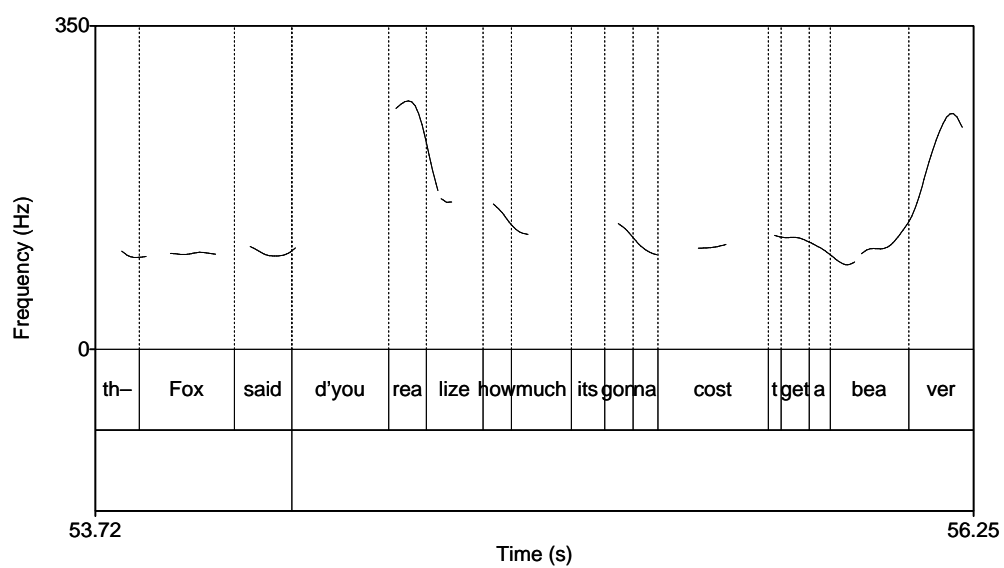
In the excerpt in (13), types of beavers are in contrast.

- (13) *The creator of an animated television series is explaining the problems that arose during a failed attempt to produce a live-action TV spin-off. He explains that he had written a scene in which —*
- (a) this- this beáver wa:s uh //gnawing awáy at the /foundátion of Krusty' s hóuse //
 - (b) the- Fóx said // d'you réalize how much / its gonna cóst /to get a beáve:r (hh)//
 - (c) y- ya we can' t gét a trai- ya / traíned beáver / to gnáw on the woód //
 - (d) a stúffed beaver was even gonna cost a lot //
 - (e) and and ju-// and forgét about / a robótíc beaver// so: y know if//
 - (f) y'kno w if //if it' s a cartoón you ca:n // you can dráw that beáver

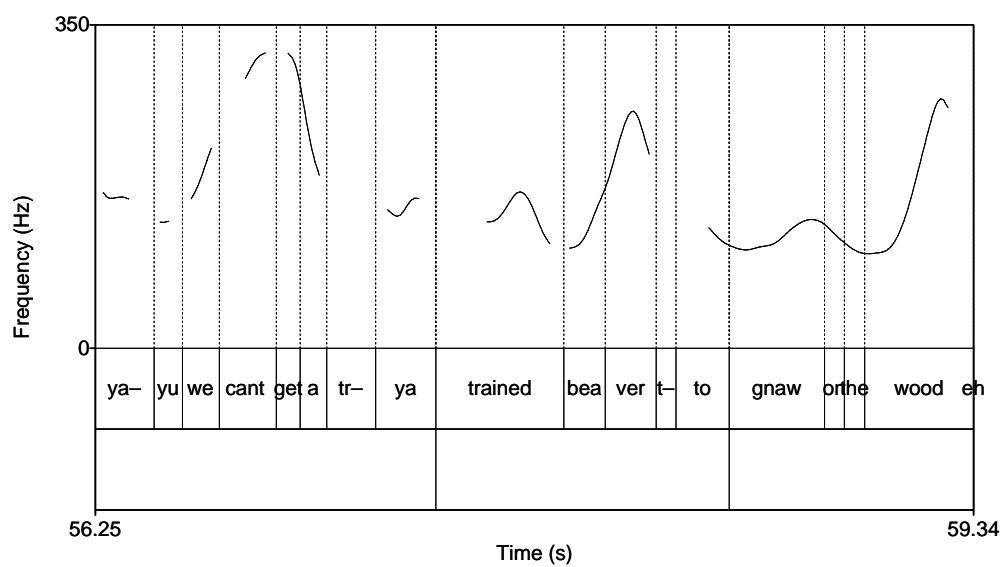
- (13') (a) this- this beáver wa:s uh //gnawing away at the /foundátion of Krusty's hóuse //



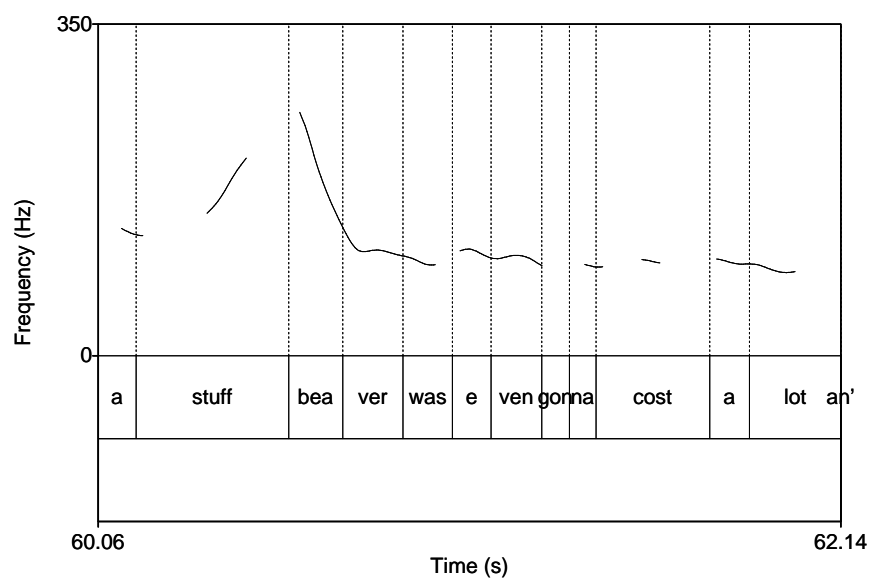
- (b) the- Fóx said // d'you réalize how much / its gonna cóst /to get a beáve:r (hh)//



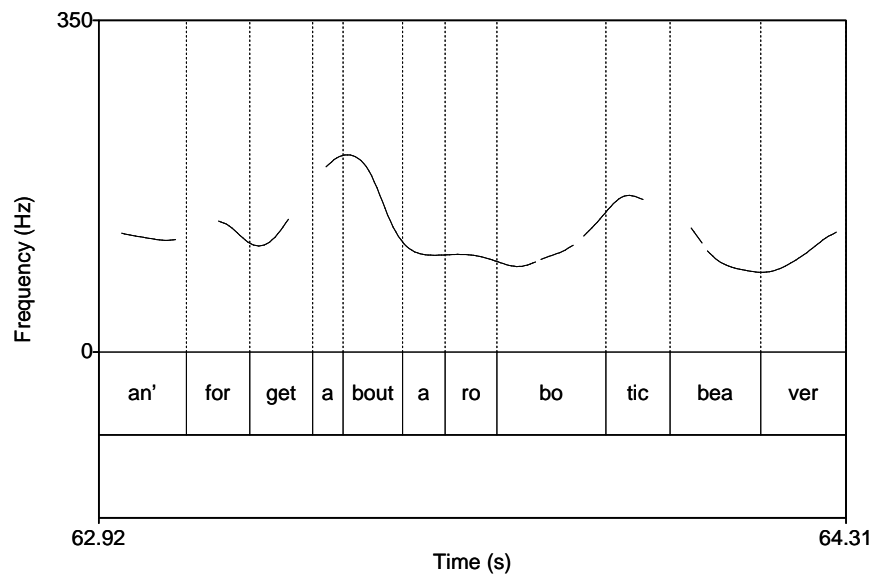
(c) we can't get a trai- ya / trained beáver / to gnáw on the woód //



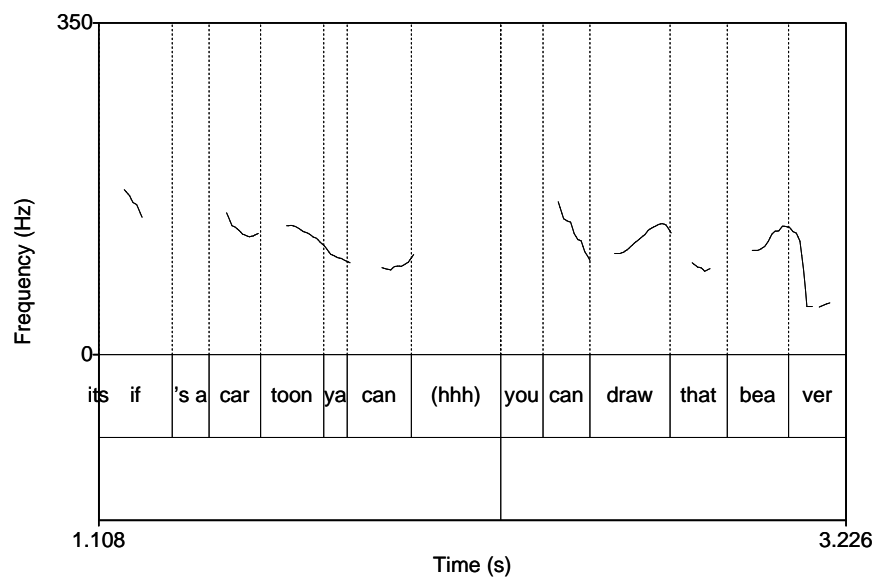
(d) a stúffed beaver was even gonna cost a lot //



(e) and forgét about / a robótíc bea:ve:r//



(f) if it's a cartoón you can (hh) // you can dráw that beaver



- (13") (a) this BEAVER was gnawing away at the foundation of Krusty's HOUSE
 (b) Fox said D'you realize how much its gonna cost to get a BEAVER?
 (c) we can't get a *trained beaver* to gnaw on the WOOD.
 (d) a STUFFED beaver was even gonna cost a lot.
 (e) and forget about a ROBOTIC beaver.
 (f) if it's a CARTOON, you can draw that BEAVER

The sentence in (13"a) apparently contains two focus constituents, centered on *beaver* and *house*. Paraphrasing suggests that the first is a presentational focus, since it can be paraphrased only with a presentational construction. The second signals focus over the verb phrase *gnawing away at the foundation of Krusty's house*, since this corresponds to the material after the cleft in a wh-cleft paraphrase.

- (14) (In the scene) there was this BEAVER
and what the beaver was doing was gnawing away at the foundation of
Krusty's HOUSE.

The accents on *trained* and *beaver* in (13c) do not correspond to focus centers by the definitions that I have been employing thus far in discussion of the corpus. First of all, it is possible that this sentence could have been uttered felicitously in this context without pitch accents on either *trained* or *beaver*, so their presence here appears to be optional. The test in (15) shows that *trained beaver* cannot appear in the focus portion of a wh-paraphrase, which suggests that it does not function as focus in this context. The nuclear accent of the intonation phrase appears on *wood*, and the paraphrase tests in (16) indicate that the focus constituent is the entire sentence. Discussion of these will follow below.

- (15) Fox said: Do you realize what it's gonna cost to get a beaver?
% What we can't get to gnaw on the wood is a trained beaver.

Although it is not the final pitch accent of its intonation phrase, there is a difference between the accent on *beaver* and those that we have examined so far. The accent on *beaver* is the final pitch accent of the intermediate phrase in which it occurs, as it is followed by a phrase accent — which Beckman and Pierrehumbert (1986) consider the boundary tone for an intermediate phrase (1986; see Chapter 2.1.1). Because of this, it has a different phonological status from the other secondary accents occurring in the data that I have discussed so far. It also has a different discourse semantic status from the other secondary accents; I have largely ignored secondary accents in discussing the focus data because I have assumed they appear for metrical-phonological reasons rather than discourse semantic ones (see section 3.1.2). The accent on *trained beaver*, however, does appear to have a discourse semantic function: it appears to signal that the speaker is establishing — or rather, will soon be establishing — a contrast in the discourse (see Rooth 1992 on forward looking contrast).

The wh-cleft paraphrase for the sentence in (13c)/(13"c) that is most felicitous is one that includes the entire sentence in its focus (16e), the complete utterance of the quoted speech. (16a)-(16d) represent paraphrases with the smaller possible constituents as focus (from noun phrase *the wood* to verb phrase *get a trained beaver to gnaw on the wood*).

- (16) Fox said: Do you realize what it's gonna cost to get a beaver?
(a) % What we can't get a trained beaver to gnaw on is the wood.
(b) % What we can't get a trained beaver to do is gnaw on the wood.
(c) % What we can't get is a trained beaver to gnaw on the wood.
(d) ? What we can't do is get a trained beaver to gnaw on the wood.

- (e) What they also said was "we can't get a trained beaver to gnaw on the wood."
- (f) If there's anything we can't do, it's get a trained beaver to gnaw on the wood.

It seems that it cannot be presupposed in the context that there is anything that is cannot be done, as *can't* cannot appear felicitously in the wh-cleft portion of the sentence here⁶. The relatively felicitous paraphrase of (16f) confirms this interpretation, because the conditional does not presuppose that there is anything that can't be done, it only admits this possibility in the antecedent. These facts suggest that the focus domain is the entire sentence, rather than any subconstituent.

The examples in (13d) and (13e) have focus centers on *stuffed* and *robotic* respectively. The paraphrases in (17) and (18) show that (13d) can be felicitously rephrased with a cleft that focuses *a stuffed beaver*, while (13e) can be paraphrased with a cleft that focuses *robotic*, as well as one that focuses *a robotic beaver*.

- (17) Fox said: Do you realize what it's gonna cost to get a beaver? We can't get a trained beaver to gnaw on the wood.
 - (a) % A kind of beaver that was even gonna cost a lot was the STUFFED kind.
 - (b) What was even gonna cost a lot was a STUFFED beaver
- (18) Fox said: Do you realize what it's gonna cost to get a beaver? We can't get a trained beaver to gnaw on the wood. A stuffed beaver was even gonna cost a lot, and
 - (a) and a kind of beaver that I could just forget about was the ROBOTIC kind.
 - (b) and what I had to forget about entirely was a ROBOTIC beaver.⁷

These paraphrases indicate that the focus center on *stuffed* signals focus on the noun phrase, while the focus center on *robotic* could signal focus on the adjective or the noun phrase. Note also that both examples can be paraphrased felicitously using an *as for* construction, which has been associated with the identification of new sentence topics (Reinhart 1982) ((19a),(20a)). The *what about* test, which has been used to help identify sentence topics, can also be used felicitously in context ((19b),(20b)).

⁶ This is somewhat surprising, since pragmatic expectations would seem to allow that there will always be *something* that can't be done, no matter what the context. This is only an implicature, not a presupposition, and apparently not strong enough to be derivable in this context.

⁷ The word *entirely* is necessary in this test to force an idiomatic interpretation of *forget (about)*, meaning "not consider". Without it, the transformation results in bias towards the meaning "not remember."

- (19) Fox said: Do you realize what it's gonna cost to get a beaver? We can't get a trained beaver to gnaw on the wood.
- (a) As for a stúffed beaver, thát was even gonna cost a lot.
 - (b) What about a stúffed beaver? Thát was even gonna cost a lot.
- (20) Fox said: Do you realize what it's gonna cost to get a beaver? We can't get a trained beaver to gnaw on the wood. A stuffed beaver was even gonna cost a lot.
- (a) And as for a robótíc beaver, forget about thát.
 - (c) What about a robótíc beaver? Forget about thát.

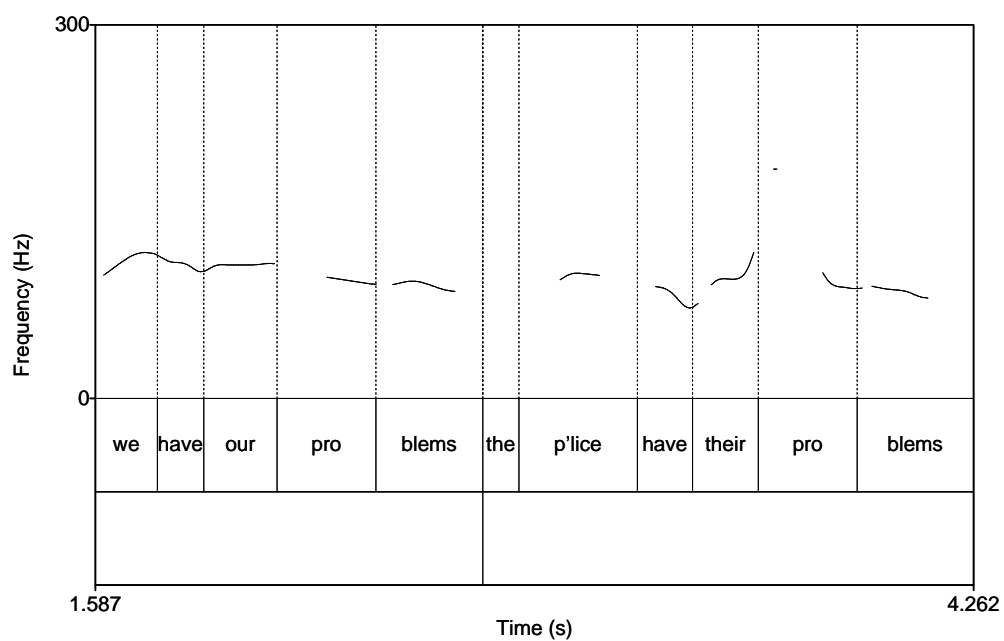
In each paraphrase, the anaphoric *that* occurs in the same position in the sentence as the noun phrase in the original utterance, and like the noun phrase, would also receive an accent. These facts suggest that the focus domains of the paraphrased clauses in (20) including accented *that* is the same as the focus domains of the original examples from the corpus ((13"d), (13"e)).

The excerpt in (13) thus contains examples where accent associated with concepts that are apparently in contrast have different characteristics. The accent on *beaver* in (13c) is optional and apparently does not signal the focus constituent of the sentence, at least not by the wh-paraphrase test used here. The accents on *stuffed* and *robotic* occur at a point in the discourse where the contrast has been established. These accents are not optional in this context, and are the final pitch accents of the intonation phrases in which they occur. Thus, *stuffed* and *robotic* both are focus centers for the sentences in which they occur. Although the constituents containing these centers both pass tests for topic, they may correspond to different focus domains.

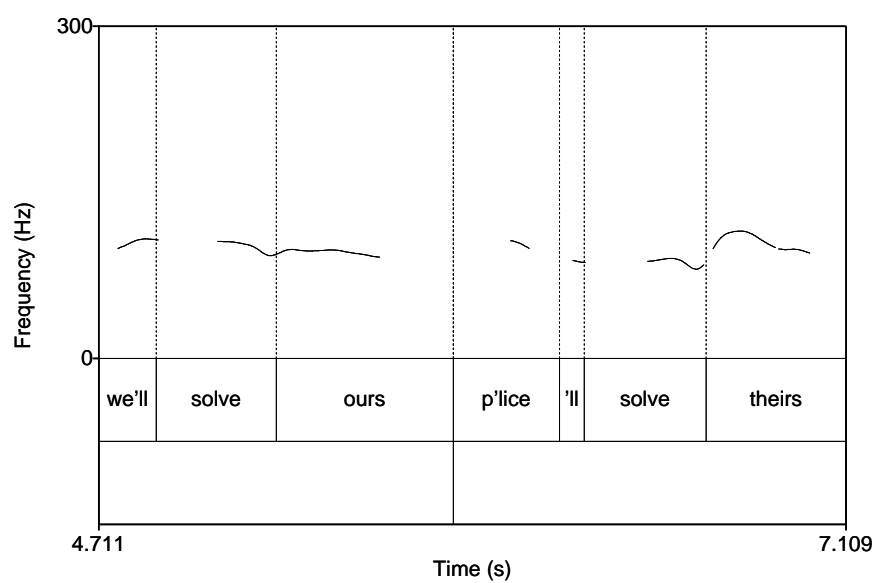
Another excerpt presents the probation department and the police in semantic contrast. This appears in (21).

- (21) *A probation officer explains what the circumstances were before a new program of cooperation between the police and the department of probation was put in place.*
- (a) we have oúr problems // the police have theír problems //
 - (b) we'll sólve ours // the police will solve theírs //
 - (c) probátion will go hóme / at four-thírty and //
 - (d) we expécted / the políce to enforce / our térms of probátion

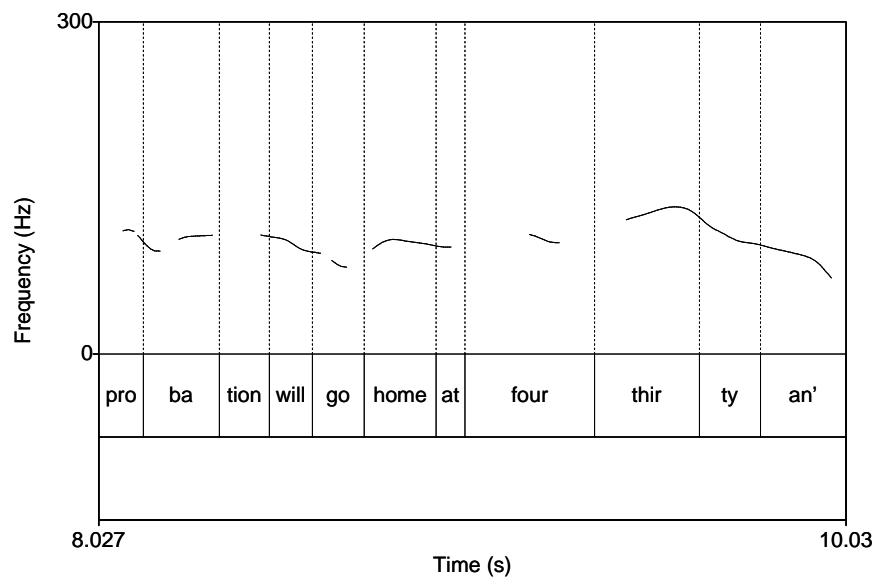
(21') (a) we have our problems // the police have their problems //



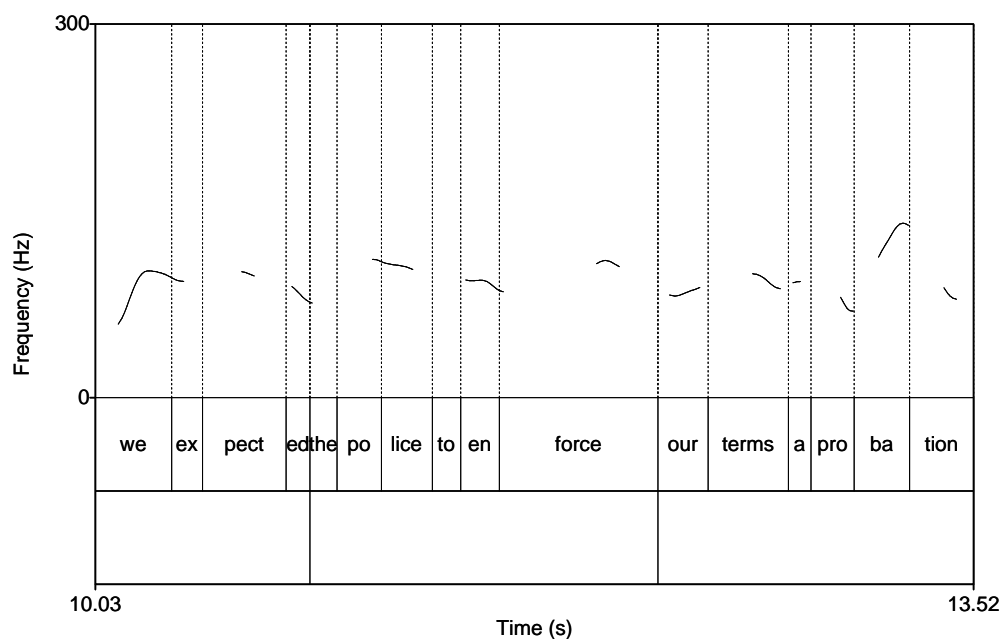
(b) we'll solve ours // police will solve theirs //



(c) probátion will go hóme at four-thírty and //



(d) we expécted / the pólice to enforce / our térms of probátion



As in the excerpt in (13), pitch accents that are not required in the context occur on contrasting material in (21): the accents on *proba tion* in (21c) and *police* in (21d) are like the accent on *beaver* in (13c) in this regard. Also like the accent on *beaver*, the accents on *proba tion* and *police* do not serve as focus centers, because they are not the final pitch accents of their respective intonation phrases. The focus centers of the excerpt are represented in (21").

- (21") (a) We have OUR problems, the police have THEIR problems.
 (b) We'll SOLVE ours, police will solve THEIRS

- (c) probation will go home at four-THIRTY and
- (d) we expected the police to enforce our terms of PROBATION.

An important difference between the accent on *beaver* and those on *probation and police* in (21) is that while the accent on *beaver* occurs before a contrast between types of beavers has been established in the discourse (perhaps signaling that such contrast is imminent), the accents in (21) appear after the contrast between these branches of law enforcement has been set up.

The pitch accented items in (21'a) exhibit different characteristics from those in the examples already discussed. In (21'a)/(21"a), the speaker is establishing a contrast between the problems of probation and the problems of the police. This contrast is accompanied by nuclear pitch accents on *our* and *their*. Wh-cleft paraphrasing indicate that these focus centers represent focus on the noun phrases *our problems* and *their problems*.

- (22) What we have are OUR problems, what the police have are THEIR problems.

A parallel contrast is present in (21'b)/(21"b), but here the focus centers are not parallel elements; rather, the verb *solve* serves as the focus center in the first clause, while the noun phrase *theirs* serves as the focus center in the second. The single pitch accent of the first intonation phrase is associated with the verb *solve*, with the object noun phrase *ours* carrying the phrase accent and boundary tone (see (21'b)). The pitch accent of the second intonation phrase is associated with the object noun phrase *theirs*, which also carries both the phrase accent and boundary tone. Both focus centers appear to indicate focus on the verb phrases, since the most felicitous wh-cleft paraphrases for each of the two clauses in context is the verb phrase.

- (23) We have our problems, the police have their problems.

- (a) What we'll do is solve ours, and the police will solve theirs.
- (b) % What we'll solve is ours, and the police will solve theirs.

- (24) We have our problems, the police have their problems. We'll solve ours,

- (a) What the police will do is solve theirs.
- (b) ? What the police will solve is theirs.

One observation about the sequence in (21"b) is that unlike the focus centers in the other situations we have examined, the focus centers in this context could be relocated without altering the felicitousness of the utterance; nevertheless, a pitch accent must appear on one of the two elements of the verb phrase in both clauses, and in this sense, can be considered obligatory. (25a) is the original form of the utterance, (25b)-(25d) represent the other options possible here.

- (25) We have our problems, the police have their problems.

- (a) we'll sólve ours // police will solve theírs

- (b) we'll solve óurs// police will solve theírs
- (c) we'll solve óúrs// police will sólve theirs.
- (d) ? we'll sólve ours // police will sólve theirs.

(25d) is marked as marginally felicitous primarily because this prosodic pattern would seem to suggest that the speaker was bored. In each of these intonational paraphrases, the accent appears either on the verbal head or on its argument, again supporting the notion that a focus constituent can be signaled by accent on either.

In (21"c) and (21"d), the contrastive parallel is continued. As already noted, pitch accents appear on the contrasting nouns *probation* and *police*, even though these are not the focus centers. In context, the contrasting noun phrases pass the same tests for topic that were applied to the accented examples that did serve as focus centers in (13).

- (26) We have our problems, the police have their problems. We'll solve ours, police will solve theirs.
 - (a) As for probátion, we'll go home at four-thírty.
 - (b) What about probátion? Probation will go home at four-thírty.
- (27) We have our problems, the police have their problems. We'll solve ours, police will solve theirs. Probation will go home at four-thirty
 - (a) And as for the políce, we expected them to enforce our terms of probátion.
 - (b) And what about the políce? We expected them to enforce our terms of probátion.

It should be noted that here, the so-called topics are not new in the discourse, since both probation and the police are quite prominent in this excerpt. They do, however, coincide with shifts in the speaker's attention back and forth from probation to the police.

The focus constituents of the examples in (21"c) and (21"d) can also be argued to be in semantic contrast in this context. The focus constituents represent the same syntactic categories, and they are predicates that apply to individuals in contrast (in this case *probation* and *the police*). The paraphrases in (28) and (29) demonstrate that the focus centers in these sentences indicate verb-phrase focus.

- (28) We have OUR problems, the police have THEIR problems. We'll SOLVE ours, police will solve THEIRS.
 - (a) What we'll do is go home at four-THIRTY.
 - (b) % When we'll go home is four-THIRTY.
- (29) We have OUR problems, the police have THEIR problems. We'll SOLVE ours, police will solve THEIRS. Probation will go home at four-THIRTY

- (a) And what we expected the police to do is enforce our terms of PROBATION.⁸
- (b) % And what we expected the police to enforce is our terms of PROBATION.

Thus, excerpts from the corpus including items in contrast provide several different categories. We find items in semantic contrast that are not associated with a pitch accent or a focus constituent. We find pitch accented items that are in contrast, but do not seem to be focus centers or to occur within focus constituents. We find pitch accented items in contrast that serve as focus centers in focus constituents. We also find pitch accented items in semantic contrast that pass proposed tests for topic; these may or may not occur within the focus constituent of a clause.

Issues of focus and contrast will be taken up again in Chapter 5.

3.4 CONSTRUCTIONS WITH SPECIAL FOCUS PROPERTIES

Several constructions observed to have special focus properties were discussed in Chapter 2 (section 2.2.1). Three that occur in the corpus will be discussed in this section: *it*-clefts, *wh*-clefts and presentational constructions. "Topicalization" with resumptive pronouns occur twice in the corpus, and in both cases the topicalized constituent constitutes a separate intonation phrase as well as a separate syntactic constituent: they are thus invariably focus centers, but more data would be needed to determine whether they actually support the view that such examples represent focus (Prince 1999). Other constructions discussed in section 2.2.1 — e.g., inversion, heavy NP shift — did not occur.

3.4.1 *It*-clefts

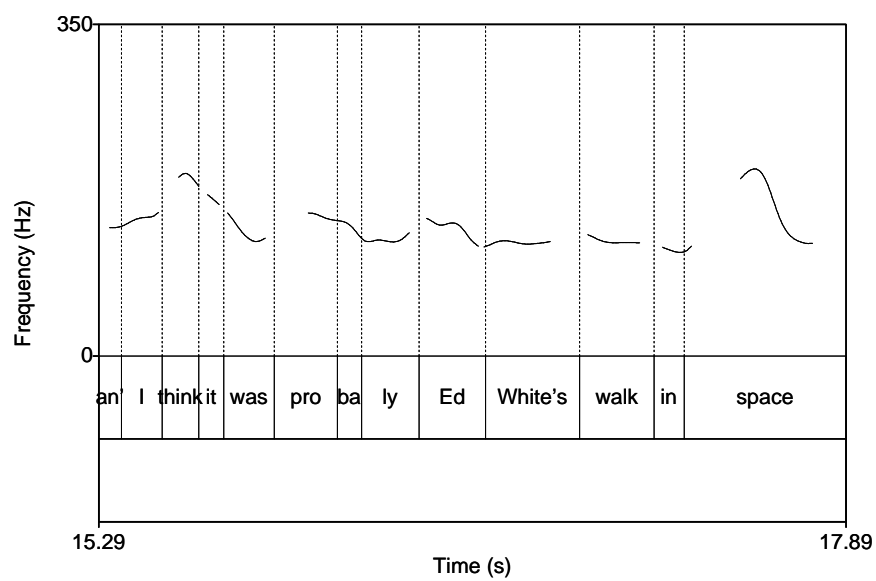
It-clefts occur only rarely in the corpus used as a source of data. In fact, only two of 17 speakers use an *it*-cleft, once each, resulting in total of two *it*-clefts (out of over 1900 clauses). These examples appear below.

- (30) *An author of a book on the U.S. space program is discussing his life-long fascination with space and space travel.*

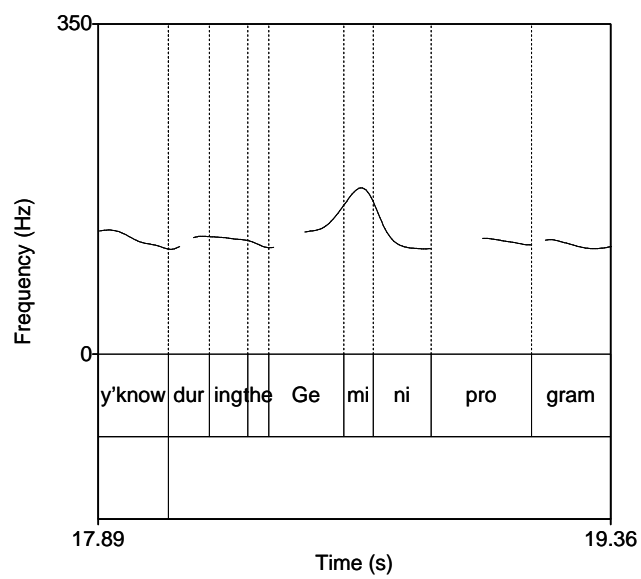
- (a) and I thínk it was próbably Éd White's walk in spáce //
- (b) you know // during the Gémini program //
- (c) that just tótotally hóoked me / on the ástronauts//

⁸ The last occurrence of *probation* is not deaccented, despite the frequent prior use of the word. The last occurs has a different referent, the abstract concept of probation, while the previous occurrences refer to the department of probation. (See van der Does 1994)

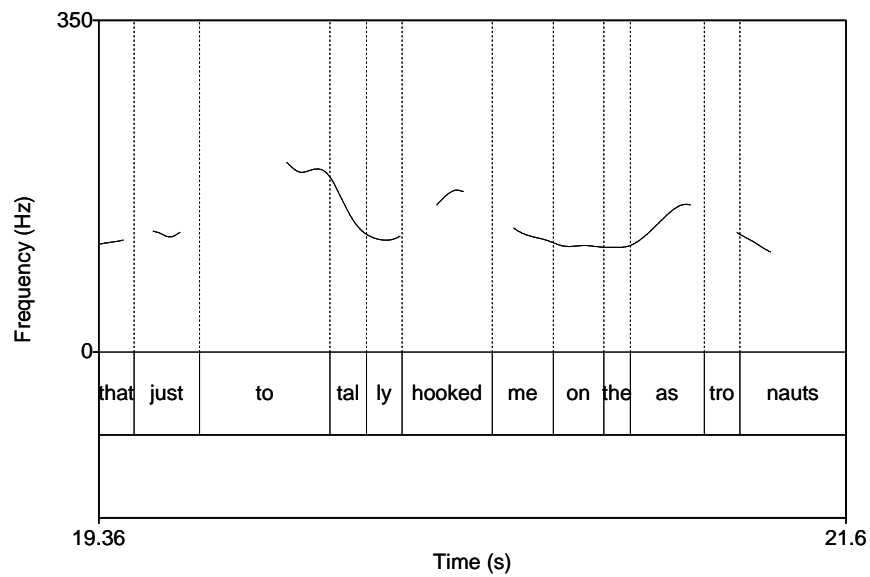
(30') (a) and I think it was probably Ed White's walk in space //



(b) you know // during the Gémini program //



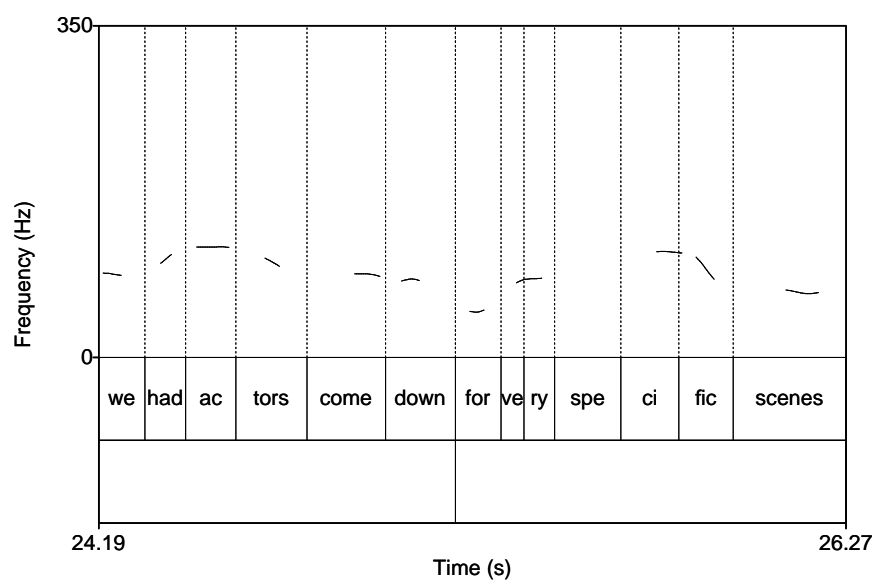
(c) that just tóally hóoked me / on the ástronauts//



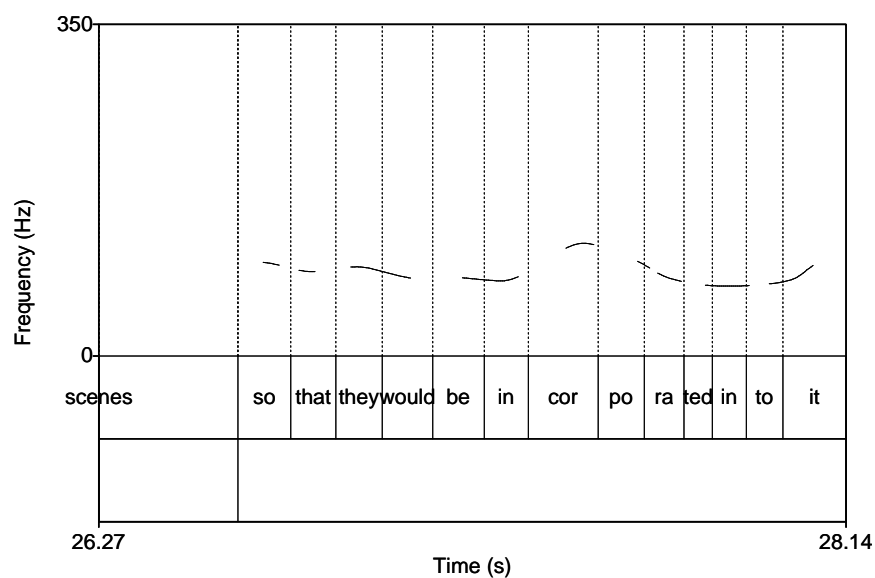
(31) *The producer of a television miniseries on the U.S. space program is discussing the technical difficulties involved in the production.*

- (a) it was úsually stú:ntmen \ that were in the- \were actually in the suíts
\\
- (b) we had áctors come down \ for very spécífic sce:nes (hh) \
- (c) so that they would be incórpórated into it (hh) \

- (31') (a) it was úsually stú:ntmen \ that were in the- \were actually in the suíts
 \ (see (9'a) above for pitch track)
- (b) we had áctors come down \ for very specific sce:nes (hh) \



- (c) so that they would be incó:rporated into it (hh) \



The focus centers of these excerpts are represented in (30'') and (31'').

- (30'') (a) and I think it was probably Ed White's walk in SPACE
- (b) you know, during the GEMINI mission
- (c) that just totally hooked me on the ASTRONAUTS
- (31'') (a) It was usually STUNTMEN that were actually in the SUITS.

- (b) We had ACTORS come down for very SPECIFIC scenes,
- (c) so that they would be INCORPORATED into it

Both clefts contain the focus center of their intonation phrase, and both occur in sentences that contain a second intonation phrase and a second focus center. Observations based on examples of these clefts drawn from written texts (Prince 1981) indicate that the non-clefted material is generally given or presupposed. That is certainly the case here, and these examples from spontaneous speech, limited though they be, bear out the earlier observations. The discourse segment from which (30") is drawn was produced in response to a question about the speaker's strong interest in the U.S. space program, a context which undoubtedly presupposes that the speaker is, in his words, "totally hooked ... on the astronauts." The segment from which (31") is drawn addressed the technical aspects of producing a series on space travel — pragmatic knowledge about space travel allows the necessity of (space)suits in this context to be easily derivable. The nuclear pitch accents in the intonation phrase associated with the material outside the clefts thus occur on derivable or presupposed material. These could be interpreted as the result of neutral accentuation in the absence of focus on this material (Jacobs 1991).

These examples are also consistent with the claim that *it*-clefts represent exhaustiveness of the material in the cleft (É. Kiss 1998). The exhaustiveness of the clefted material conveys that it is the only individual in the situation that satisfies the assertion of the sentence. In (30"), the speaker asserts that Ed White's walk in space was the single event most responsible for hooking him on the astronauts: that is, of all the possible influences, the only *x* such that *x hooked him on the astronauts* was Ed White's walk in space. In (31" a), the speaker asserts that stuntmen were the only people likely to be in the suits; again, of all the people who could possibly be in the suits, the *x* such that *x was in the suits* was stuntmen. In both contexts, this exhaustive interpretation appears to be the intended one. Note, however, that both the clefts contain a modifier (see also section 3.6) that weakens the assertions of the sentences: *probably* and *usually*. The presence of these weakens the exhaustive nature of the cleft focus; despite this, their presence may actually provide stronger evidence for the claim that the cleft represents exhaustive focus than clefts without such qualifiers. It could be that the speakers would find such qualification of their assertions unnecessary if the cleft focus were not exhaustive.

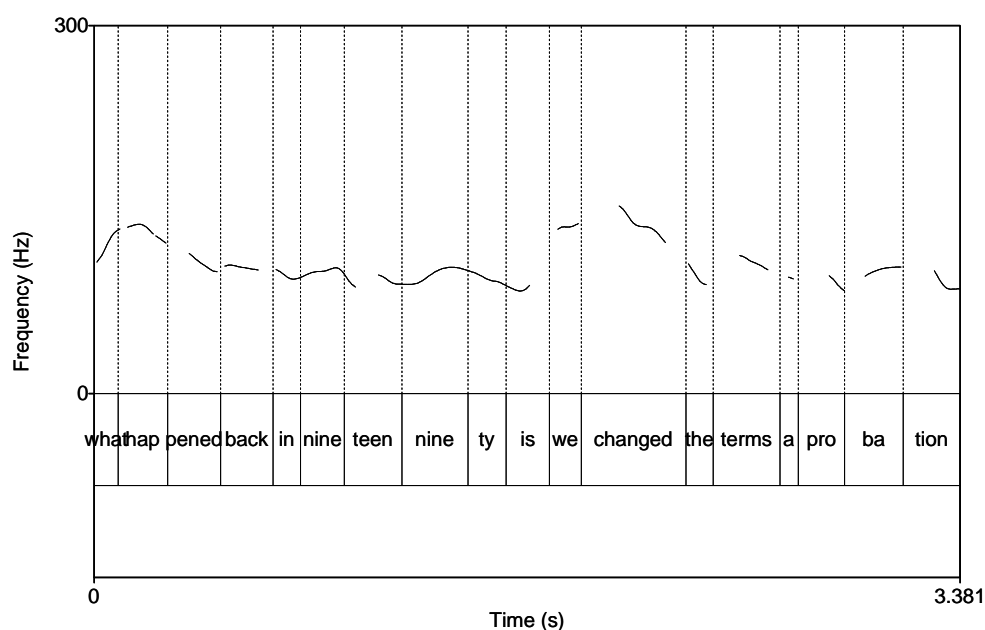
The occurrence of this construction is relatively rare in the corpus. If the *it*-cleft were (along with words like *only*) the primary means of identifying exhaustive focus, the relatively rare occurrence of the construction in the corpus would suggest that exhaustive focus is also relatively rare. In Chapter 4, I argue that the grammar of English provides its speakers with additional means of identifying exhaustive focus.

3.4.2 Wh-clefts

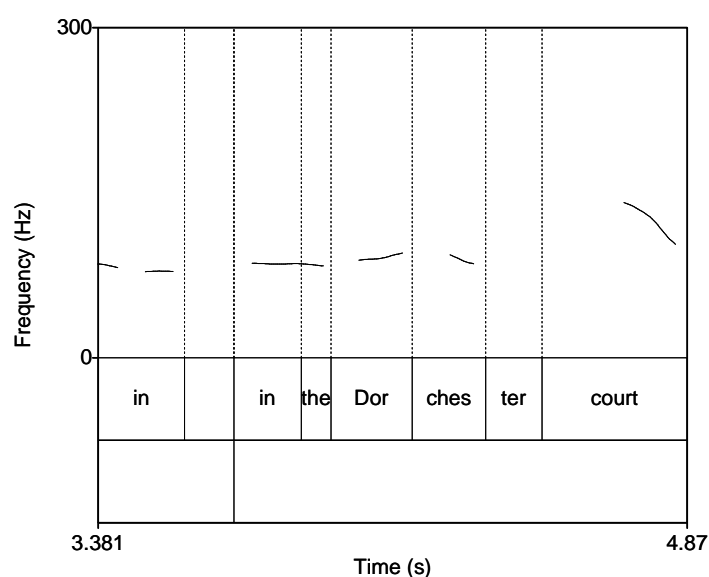
Wh-clefts are only slightly more common in the corpus than *it*-clefts. There are four altogether, two each produced by two different speakers. Examples for each of the two speakers follow in (32) and (33) below, along with the pitch tracks of these excerpts.

- (32) *The speaker has been asked to comment on the history behind a relatively new program intended to curb gang violence that allies probation officers with the police. Before the program was instituted, kids on probation who violated their curfews wouldn't get caught. The speaker explains:*

(a) what happened back in / nineteen ninety is // we changed the / terms of probation

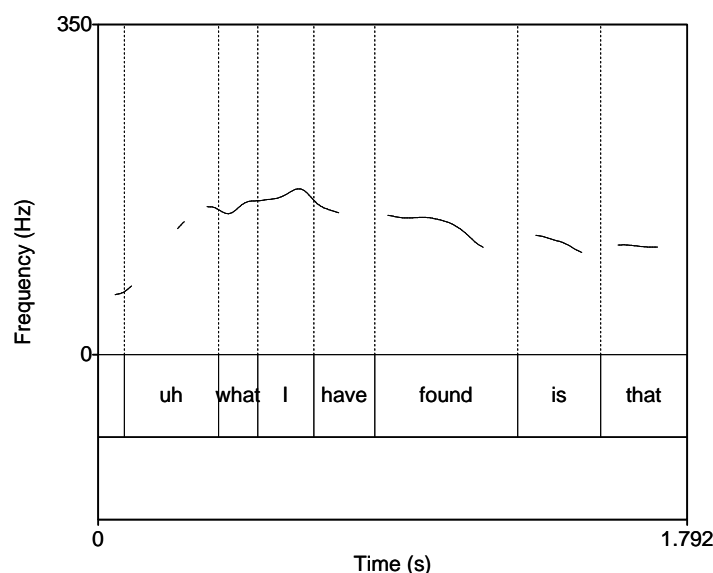


(b) in () in the Dorchester court

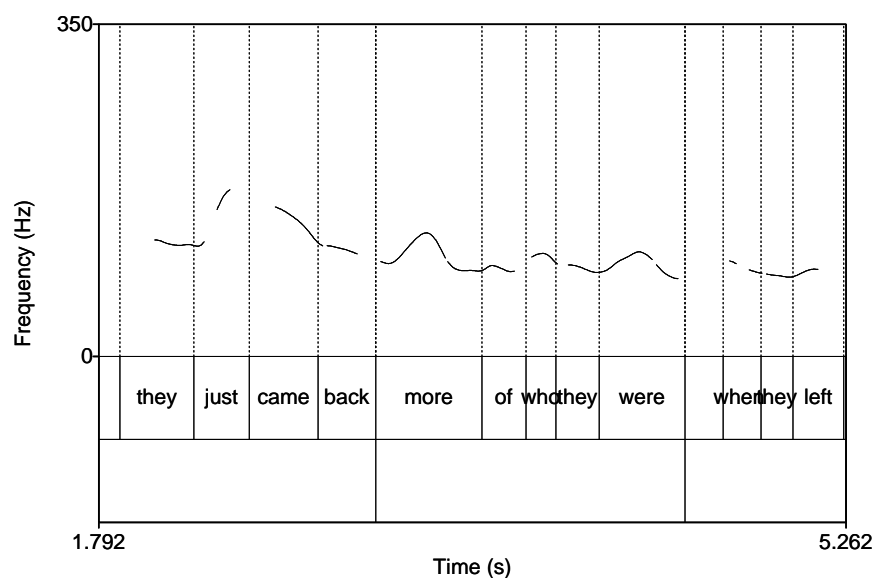


- (33) *The speaker has been asked to comment on what he has learned from talking to former astronauts about how their experiences changed them.*

(a) what I have found is that



(b) they júst came back / móre of who they wére //() when they léft



The current work has relied on the similarity to the question form and the observations made by other authors about wh-clefts to justify employing the wh-cleft as a test for focus constituency in a discourse context. The observations of other authors include the idea that the material in the wh-cleft can be presupposed, while the material after the cleft contains the focus constituent of the sentence. This observation applies also to the examples here: that something happened in nineteen ninety to lead to the founding of the program under discussion (*what happened in 1990* (32a)) and that the speaker came to some conclusion in his experience talking

to retired astronauts (*what I found* (33a)) can both be assumed in their respective contexts.

In all the examples in the corpus, including the excerpts represented here, the nuclear pitch accent of the intonation phrase associated with the presupposed material appears at the beginning of the intonation phrase. This contrasts with the accentuation facts for *it*-clefts, where the nuclear pitch accent of the non-clefted material occurs at the end of the phrase, but is reminiscent of the accentuation patterns in *wh*-questions appearing in the corpus (see section 3.5). This provides further support for the decision to use *wh*-clefts as a test for focus constituency; they appear to make syntactically explicit the nature of the question the speaker is addressing. Whether this accent represents a special case of default accentuation or a special case of focus, however, is a question for which the small sample of examples appearing in the corpus cannot provide an answer.

3.4.3 Presentational Constructions

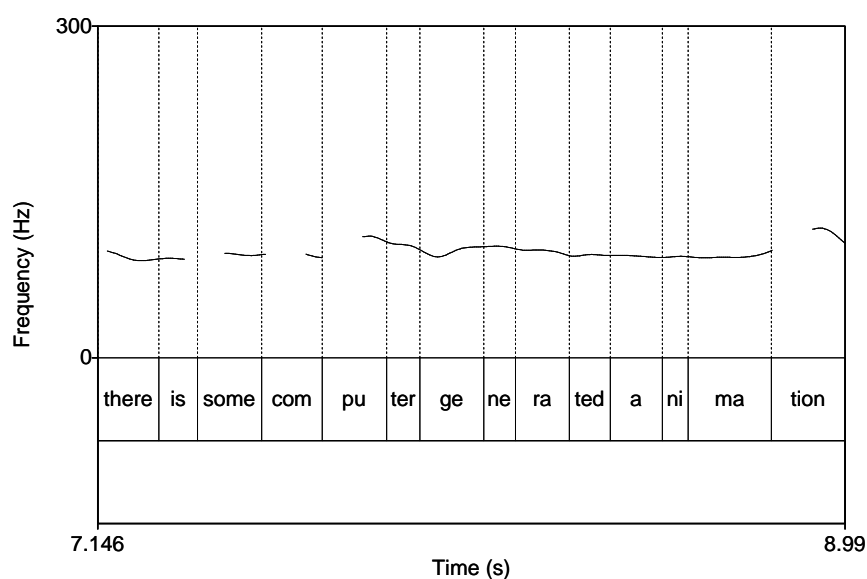
Unlike the cleft constructions, presentational *there* constructions are relatively common in the corpus (52 occur altogether). One example of this construction already appeared in (1). Nine of the 17 speakers in the corpus use this construction at least once, and most of these use it several times.

Another example from the corpus follows below.

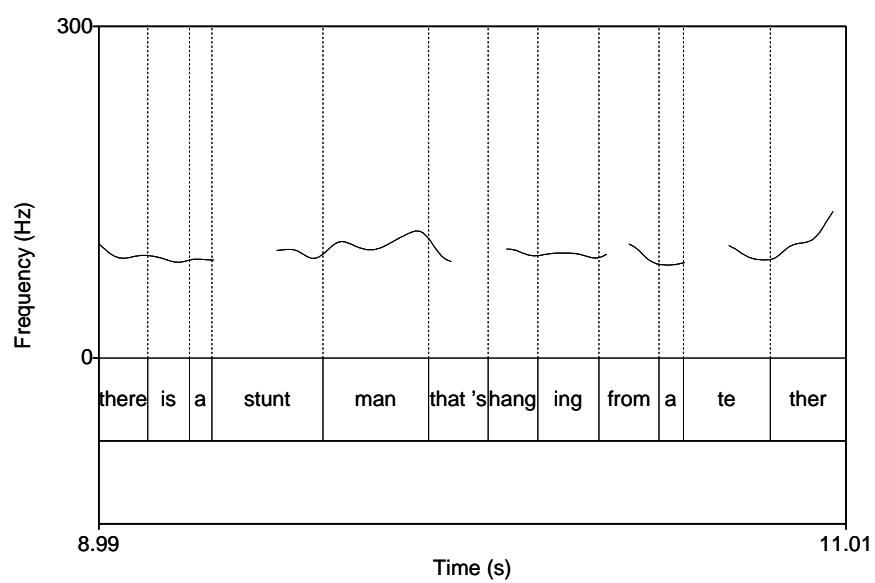
(34) *The producer of a miniseries on the U.S. space program discusses what was involved in the filming of a special effects sequence:*

- (a) there is some cómputer generated animation //
- (b) there is a stúntman / that's hanging from a téther //
- (c) there is this stuntman standing on the floór //
- (d) as the cámera does some interesting things //

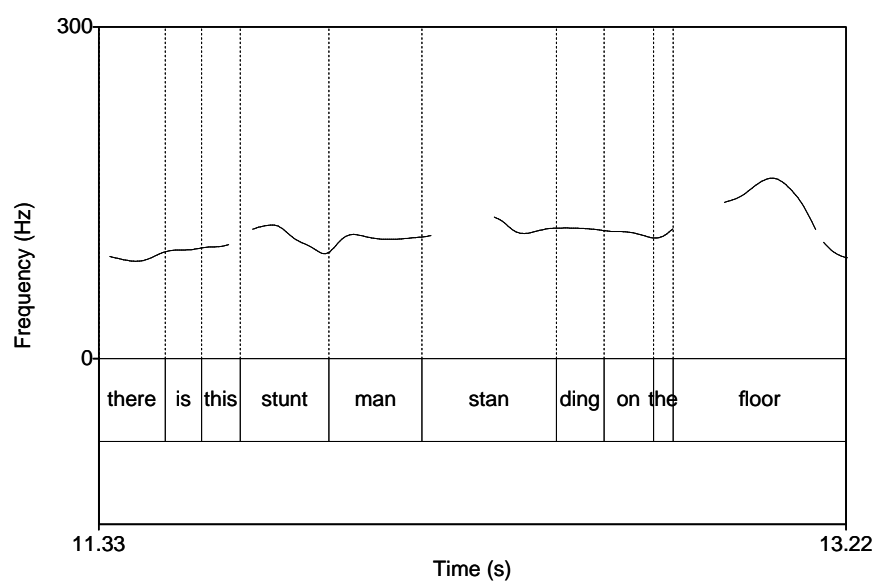
(34') (a) there is some cómputer generated animation //



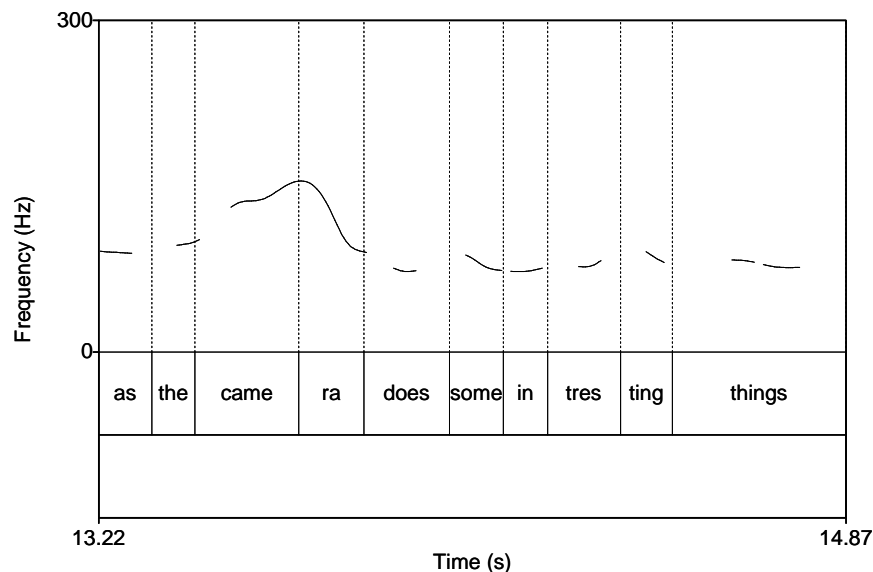
(b) there is a stúntman / that's hanging from a téther //



(c) there is this stúntman standing on the floór //



- (d) as the cámara does some interesting things //



Focus centers are represented in (34").

- (34") (a) there is some COMPUTER generated animation
 (b) there is a stuntman that's hanging from a TETHER
 (c) there is this stuntman standing on the FLOOR
 (d) as the CAMERA does some interesting things

The examples in (34), like the example in (1), introduce new (potential) discourse referents into the context as indefinite noun phrases (*this* in (34c) is an example of the colloquial indefinite use of the demonstrative). These data conform to the observations made by other authors (Rochemont and Culicover 1986) about presentational constructions. Despite the frequency of these constructions in the corpus, they appear only with forms of the verb *to be*. None appear with any of the verbs observed to permit this construction in written texts and examples constructed for linguistic analysis.

The excerpt in (34) serves to provide some examples of the individuals and items involved in the scene, and is not proposed by the speaker as an exhaustive list of these. The speaker switches from the there construction to an alternative for presentation in the last line of this excerpt (34"d), when the newly introduced referent is one that has not been explicitly mentioned in the context but can be presupposed on any movie shoot, *the camera*. The focus center on *camera* signals that the noun phrase is the focus constituent here just as in the preceding lines — it, too, is being presented, but as the only definite noun phrase, does not appear in a there construction. Note that, unlike the discourse segment initial example in (1), the segments of this excerpt can be paraphrased in context with a *wh*-cleft.

- (35) What we have in the sequence is
 (a) some COMPUTER generated animation

- (b) a stuntman that's hanging from a TETHER
- (c) this stuntman standing on the FLOOR
- (d) and the CAMERA doing some interesting things

This paraphrase demonstrates not only that the items of the list serve as focus constituents, but that the camera is also part of this list despite the fact that it does not appear in the same construction as the other elements.

It is worth noting that in (34d) the nuclear accent of the intonation phrase is on *camera*, the subject of the verb *does*, rather than on the verb's object *some interesting things*. Various theories of accent assignment (Selkirk 1984, 1996; Ladd 1996; Gussenhoven 1984) capture the observation that the pitch accent that signals focus typically occurs on the object of a verb rather than its subject. This observation is, for the most part, borne out by the examples from the speech corpus. It is not, however, borne out here. One could argue that the relatively uninformative nature of *some interesting things* makes it less "accentable" than the other argument of the verb, *camera* — and thus *camera* becomes the site of nuclear pitch accent. This fits in with the idea that the speaker is using utterance to bring the camera into the scene, just as he used the *there*-constructions in the previous segments: it is the presence of the individual object the speaker is highlighting, not what the object is doing.

3.5 QUESTIONS

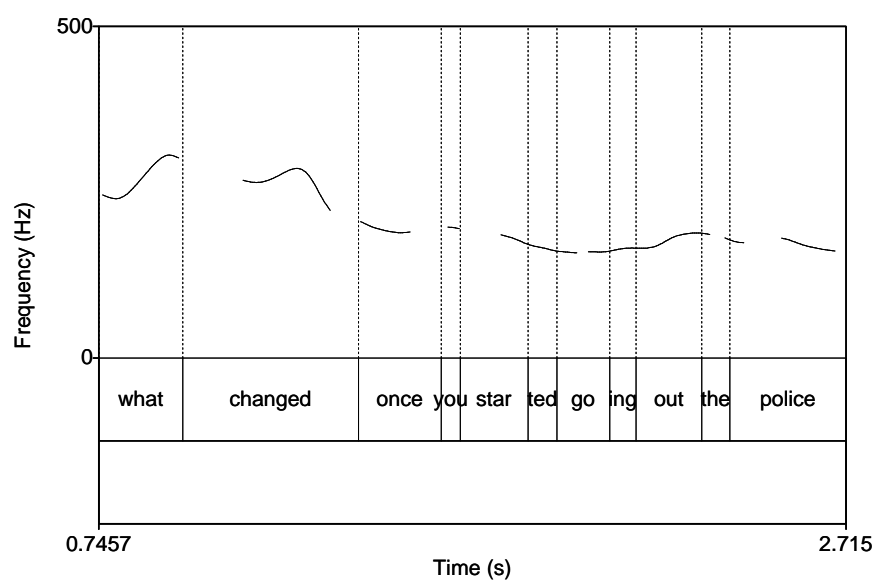
Because the corpus is collected from interviews, numerous examples of questions occur. Wh-questions will be addressed in a separately subsection from polarity (yes-no) questions.

3.5.1 Wh-questions

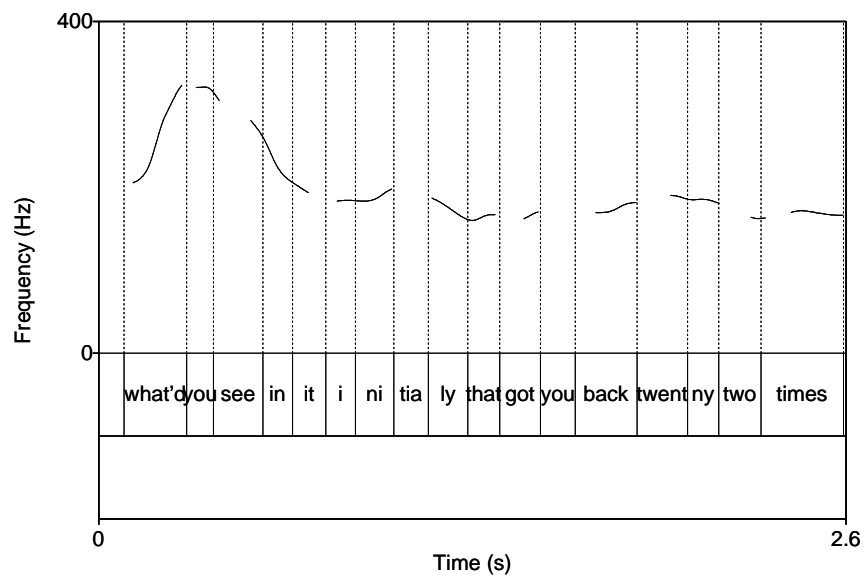
In the interview situations that these questions are posed, they are rarely, if ever, intended to elicit the brief answers we might expect in casual conversation (e.g., *Where are you going on vacation this summer? The Outer Banks*). Nor are they intended to elicit the full-sentence answers that foreign-language teachers and linguists are so fond of (e.g., *We are going on vacation to the Outer Banks this summer*). The questions are intended to invite the person being interviewed to speak expansively about a particular topic or to elicit a particular story of which the interviewer is aware. It is for this reason that we must be careful about generalizing the observations made here to wh-questions in general until further research is conducted on the intonation of questions in natural discourse. Another reason to be cautious is the fact that there were only three different interviewers used in the corpus.

One striking fact about the wh-questions in this corpus is that the typical intonation pattern nearly always includes a pitch accent on the initial wh-word itself. Recall that a similar pattern also occurred with the wh-clefts appearing in the corpus. Four examples of this pattern follow, representing all three interviewers from the corpus and wh-constituents corresponding to syntactic subjects (36), objects (37) and adjuncts (39 and (41).

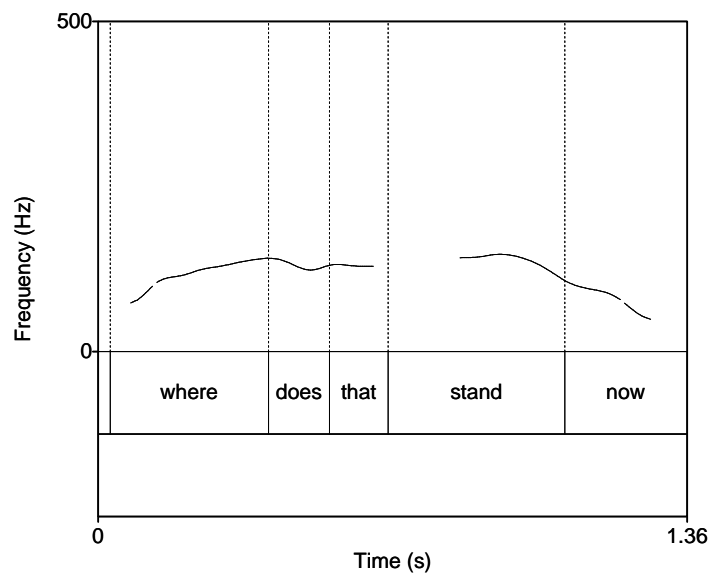
(36) what changed once you started going out with the police



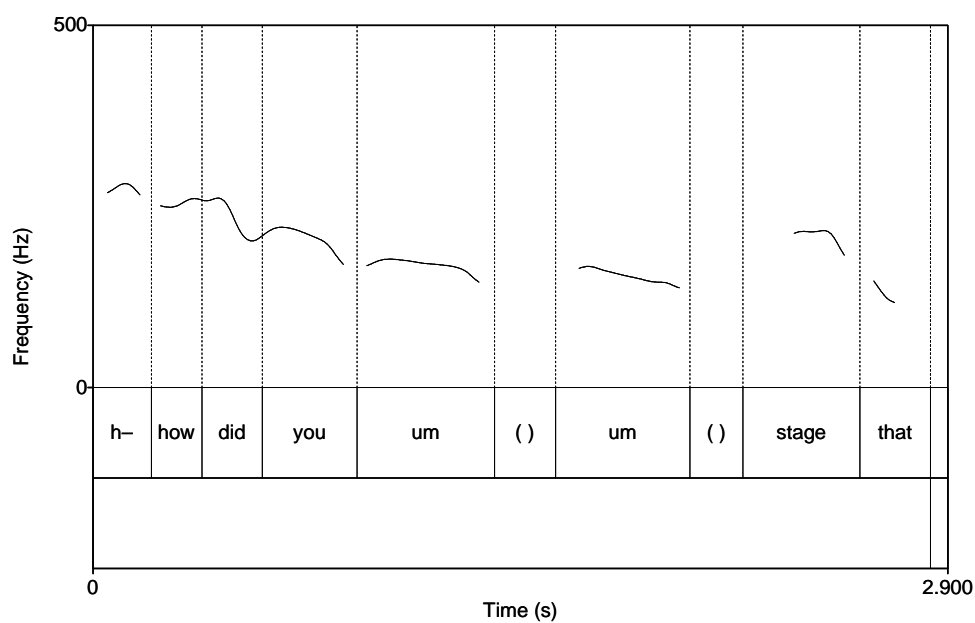
(37) what'd you see in it initially that got you back twenty-two times



(38) whére does that stánd now



(39) h- hów did you um () um () / stáge that



This connection between wh-items and accent is interesting because it has long been observed that in contexts where wh-elements are not fronted, they are typically accented. Two such contexts are echo questions and multiple wh-questions.

- (40) (a) You ate whát?
(b) Whó ate whát?

Testing for focus in questions is difficult, in part because it is not entirely clear what the focus constituent of a question represents: if the focus constituent of a declarative corresponds to the wh-constituent in the question that the declarative sentence answers, what does the focus constituent of an interrogative correspond to? A number of proposals argue that the focus constituent of a wh-question is the wh-constituent itself (Lambrecht and Michaelis 1998, Rochemont 1985, É.Kiss 1998). This proposal puts wh-questions in opposition to declaratives, where the focus constituent tends to (but does not always) occur at the end of the clause. The accentuation pattern noted in the corpus is intriguing in light of such views: the consistent presence of a pitch accent on the wh-word would seem to lend support to this hypothesis. Adopting this view, however, would require addressing the fact that the focus centers of wh-questions (within the wh-constituent) do not correspond to the nuclear pitch accents of intonation phrases. If these secondary accents are obligatory, they could be treated as focus centers by the definition used here. Further investigation into the possible discourse-semantic role of secondary pitch accent may provide observations that help address this issue.

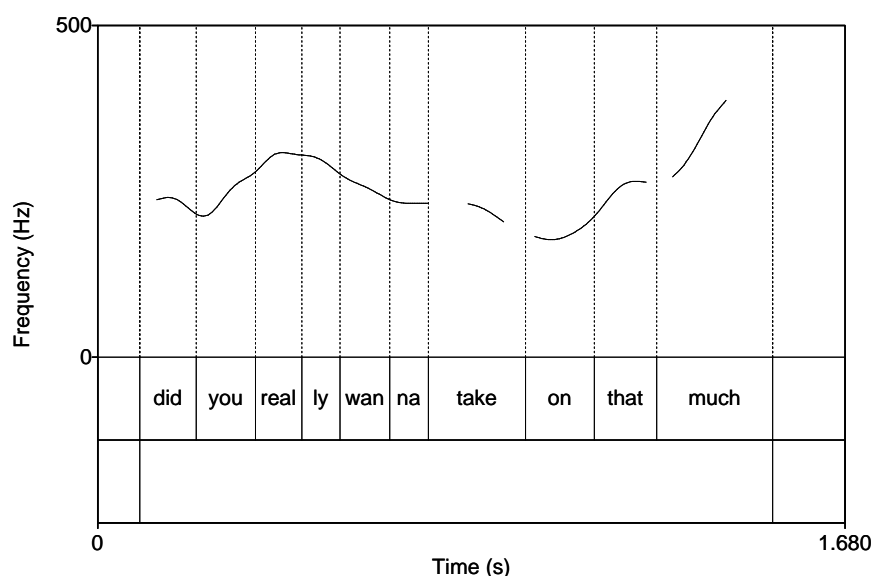
3.5.2 Polarity questions

Polarity (yes-no) questions are relatively rare in an interview setting, again likely related to the fact that the goal of the interviewer is to get her subject to expand on the topic at hand, something that a polarity question is not likely to accomplish. Some of the polarity (yes-no) questions that do appear in the corpus show the rising intonation typically observed to be associated with questions in English. An example follows:

- (41) *The interviewer remarks on the huge scope of a miniseries on the U.S. space program that her subject has recently produced.*

It seems quite scary to me to have a twelve part series on space travel to have to do, with this large budget for television.

did you reállly wanna take ón that much



Testing for focus in yes-no questions presents a problem, just as it does for wh-questions. While it is easy to locate the final pitch accent of the phrase, it is not clear that this marks focus as it does in declarative sentences.

(41") Did you really wanna take ON that much?

The final pitch accent on *on* indicates that the verb *take on* is serving as what would be the focus center in a declarative — for accented verbs with particles, it is typically the case that the prepositional particle bears the pitch accent. The verb phrase, however, seems more like what has been described as sentence topic: the highlighted portion of the question corresponds to what can be presupposed in this context. The *what about* and *as-for* tests, which can be used felicitously here, demonstrate this:

(42) It seems quite scary to me to have a twelve part series on space travel to have to do, with this large budget for television.

(a) What about taking on that much? Is that what you really wanted to do?

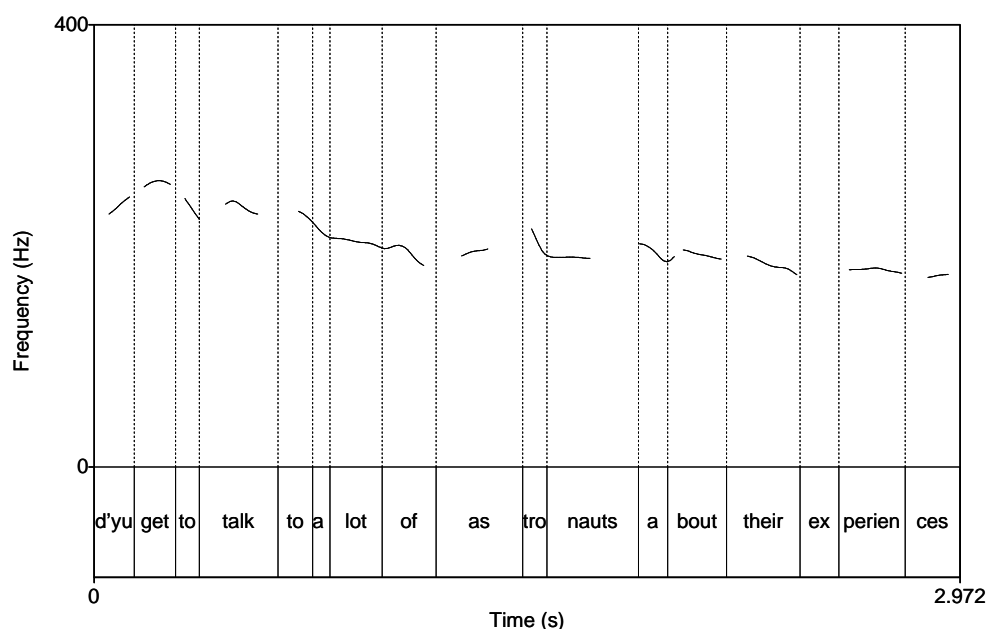
(b) As for taking on that much, is that what you really wanted to do?

The previous context shows that the interviewer takes for granted that her interview subject took on a great deal in producing the project: what she questions here is whether this was his intention.

Most of the polarity questions in the corpus differ from the example in (41) in that they do not show the rising intonation that has typically been noted to signal questions. This has been observed in other discourse contexts by other researchers as well (Geluykens 1988, 1989). The example in (43) shows the more common pattern evident in the corpus.

(43) *The interviewer ask the author of a book on the U.S. space program:*

d'you get to talk to a lot of ástronauts about their experiences



We have again the same problem with determining what discourse semantic function the nuclear pitch accent here serves. Once again, the question can be rephrased in context with the *what about* and *as-for* tests.

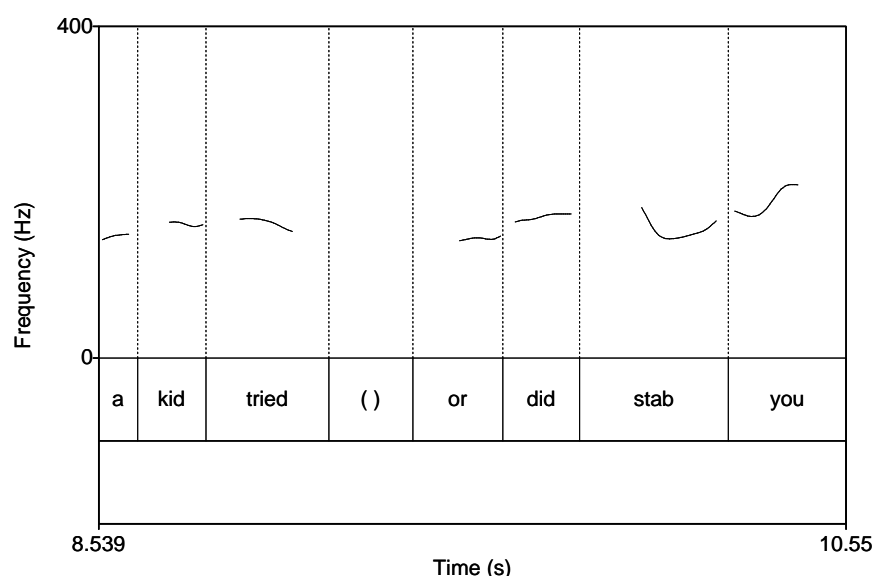
- (44) (a) What about the astronaut's experiences? Did you get to talk to a lot of them about that?
- (b) As for the astronaut's experiences, did you get to talk to a lot of them about that?

The relatively rare occurrence of the rising intonation can be explained by appealing to the interview context of the corpus: the interviewer is aware that the subjects know that they are there to answer questions. Perhaps this makes intonational cues for questions less important, particularly in the presence of syntactic cues like subject-auxiliary inversion. The interviewer is also serving as a host to her interview subject guest, and this may be a pragmatic situation that affects the form of questions. In some of the contexts in the corpus, a question with the typical rising intonation contour would sound more demanding than would perhaps be polite, given the social context.

It is not clear, however, that the rising intonation pattern typically associated with questions is any less common here than in other types of discourse: Geluykens 1988 argues that that "the claim that rising intonation (and more particularly, final rises) is the normal pattern for polar questions lacks empirical justification." The data in the corpus fits in with his view that the pattern is may not as typical as has been claimed.

The question intonation does occur in the corpus in questions where the syntactic cue of subject-auxiliary inversion is absent, as in (45).

(45) a kid tried () or díd stáb you



In this excerpt, the interviewer corrects her original utterance, which apparently was going to be *A kid tried to stab you*, changing it to *A kid did stab you*. This example shows the rising intonation that has been traditionally linked to polarity questions.

Couper-Kuhlen (1986) and Hirst (1998) argue that a distinction must be made between syntactic questions and the pragmatic speech act of asking for information: "rising intonation is not, contrary to what has often been claimed, a way of turning a statement into a syntactic question, but rather [indicates] that a syntactic statement is being used pragmatically as a request for information." (Hirst 1998: 65). The example in (45), as well as others in the corpus, clearly fits in with this view. The interviewer already knows that her subject was stabbed: she cannot really be asking *Did a kid stab you?* Her utterance serves instead as a request for more information about the circumstances of the stabbing.

The number of questions in the corpus is limited and the circumstances behind the questions in this type of discourse are perhaps somewhat atypical. It would not be wise to generalize the observations made about these examples to other types of discourse without further investigation.

3.6 FOCUS SENSITIVITY

Many authors have noted that changes in focus can affect the truth conditions of a sentence in certain circumstances. Examples from the corpus illustrating three of these circumstances will be discussed below. These include contexts in which focus falls within the scope of focus-sensitive particles. These contexts will be discussed in section 3.6.1. Other focus-sensitive contexts include quantificational and modal contexts, which will be discussed together in section 3.6.2.

3.6.1 Focus-sensitive particles

What follows is a discussion of examples from the corpus that include the particles *only* (31"/(9"b), *even* (13"), *also* (1") and *too* (46), which have been claimed to be sensitive to focus. In constructed examples, changes in focus have

been noted to change the truth conditions of sentences including focus sensitive particles (Stechow 1990; König 1991; Jacobs 1991). None of these items are extremely frequent, but all occur in the corpus. Data from the corpus provides evidence that the truth conditions of sentences including *only* are focus-dependent. Sentences with *also*, *even* and *too*, on the other hand, show that only their presuppositions are dependent on focus.

A previously discussed excerpt that includes *only* appears below.

- (31") *The producer of a television miniseries on the U.S. space program is discussing the technical difficulties involved in the production.*⁹

It was usually STUNTMEN that were actually in the SUITS. We had ACTORS come down for very SPECIFIC scenes, so that they would be INCORPORATED into it. But the STUNTMEN could honestly —

- (9"b) They could only take about TWO and a half hours INSIDE these suits.

This sentence, without intonation information, is potentially ambiguous. The paraphrases in (47) represent possible meanings.

- (47) It was usually STUNTMEN that were actually in the SUITS ...
- (a) % It was only INSIDE the suits that they could take TWO and a half hours.
 - (b) It was only TWO and a half hours that they could take INSIDE the suits.
 - (c) % It was only TWO and a half hours INSIDE the suits that they could take.

The third theoretically possible reading is one that relates *only* to both focused expressions. The second paraphrase — the intended meaning, we can assume — is felicitous in the context, and thus context likely assists in disambiguation, but prosody also disambiguates here. The infelicitous reading in (47a) corresponds to a version of the utterance in which *two* was not accented and *inside* (or *suits*) was, such that it served as the focus center of the intonation phrase containing *only*. In the utterance that actually occurs in the corpus, there are two different intonation phrases, one with *two* as its nuclear accent, and a second with *inside*. In this example, *only* associates with the focus in the intonation phrase in which it occurs, not with the focus of the other intonation phrase, resulting in the intended meaning paraphrased in (47b). This reading offers the proposition that [*the stuntmen*] *could take two and a half hours inside the suits* and the proposition that *they could take no more than two and a half hours inside the suits*.

The alternate reading expressed by the first paraphrase has different truth conditions from the reading the speaker apparently intends. It offers the proposition that [*the stuntmen*] *could take two and a half hours inside the suits* and the proposition that *There was no other means by which they could take two and a half hours*. This reading would be appropriate in a context like this: the suits provided protection that allowed the stuntmen wearing them to endure some hazardous or uncomfortable environment for a relatively long period of time. If the stuntmen

⁹ See the excerpts in (31) and (9) for pitch accent information.

weren't wearing the suits, they wouldn't have been able to endure the environment as long as two and a half hours. Thus, they could take two and a half hours only if they were inside the suits.

The alternate reading expressed by the third paraphrase is rather implausible here, but again, it shows that *only* interacts with focus to affect the sentence's truth conditions. Specifically, this reading would mean that the only thing they could take under any circumstances was two and a half hours inside the suits. It offers the proposition that *they could take two and a half hours inside the suits* and the proposition that *There was nothing other than two and a half hours inside the suits that they could take*.

Only contributes to the meanings of these sentences differently because of the semantic nature of the constituent it associates with. The intended reading (the one that occurs in the corpus) focuses the amount of time the stuntmen could typically stay in the suits. This reading would be false if it were in fact the case that they could typically stay in the suits for a longer period of time, say four hours. *Only* adds to the asserted content the notion that two and a half hours was the maximal amount of time the stuntmen could endure¹⁰. The reading in (47b), which does not occur, focuses the means by which the stuntmen were able to endure for as long they did. It would be false if it were the case that they could endure just as long without the suits, or by some other means, like a breathing apparatus. Here, *only* adds to the asserted content that there was no other means by which the stuntmen could endure.

The excerpt in (31)/(9"b) thus provides an example of a context in which the domain of focus affects the truth conditions of a sentence: the constituent that associates with *only* determines what truth conditions will apply. This example from natural discourse thus supports the observation made by other authors that focus can affect truth conditions.

The excerpt in (1") also contains a particle that has been claimed to associate with focus, the word *also*.

- (1") *A parole officer tells a story to help illustrate the effectiveness a program intended to reduce violent crime committed by youthful offenders.*¹¹

There was a young man by the name a Freddie CARDOZA who was caught with a BULLET

- (c) he was also caught passing a gun to a JUVENILE
- (d) because the JUVENILE would get a lesser SENTENCE

As demonstrated in earlier discussion of this example (see (5) in section 3.2.1), the focus center on *juvenile* represents focus on *passing a gun to a juvenile*. Without the information provided by context or intonation, the sentence in (1"c) could be compatible with any of the paraphrases in (48). These paraphrases employ a cleft construction that takes into account the meaning of *also*.

¹⁰ See Horn (1996, 1996b) on scalar implicature. *Only* also generates the implicature that two and a half hours isn't very long. This is an implicature because it can be canceled with the follow up utterance... *not that two and a half hours wasn't a long time*.

¹¹ See the excerpt in (1) for pitch accent information.

(48) Freddie Cardoza was caught with a BULLET ...

- (a) % Someone who was also caught passing a gun to a juvenile was Freddy
- (b) % Something he was also caught passing to a juvenile was a gun.
- (c) % Someone he was also caught passing a gun to was a juvenile.
- (d) Something he was also caught doing was passing a gun to a juvenile.

As was the case with the example (31)/(9**b**), only one of these paraphrases is acceptable in the discourse, (48d). The post-cleft material here corresponds to what was previously identified as the focus constituent.

Prosodic information in the original utterance distinguishes between the paraphrases in (48a), (48b) and (48c/d). The paraphrases themselves make it clear what contexts would be appropriate for each, and I will not spell these out further. The paraphrase in (48a) represents what would be generated if the focus center fell on the syntactic subject of the sentence (which appeared as a pronoun in the original discourse). The paraphrase in (48b) represents what would be generated if the focus center fell on *gun*. The paraphrases in (48c) and (48d) both correspond to the actual intonational form of the sentence in (1**c**), which is ambiguous between focus on the phrases *a juvenile* and *passing a gun to a juvenile*.

The paraphrasing tests demonstrate that focus plays a crucial role in determining felicitousness, in that the focus domain of the utterance (*passing a gun to a juvenile*) is reflected in what can serve as a felicitous paraphrase for that utterance.

Does focus, however, play a role here in the truth conditions of the sentence, as it did in (31)/(9**b**)? The paraphrases in (48) all assert the same proposition: *Freddy was caught passing a gun to a juvenile*. As the paraphrases indicate, what *also* adds to the sentences are presuppositions (as observed in Horn 1969; see also Horn 1996 for a reclassification of these as implicatures rather than presuppositions). The association of *also* with different focus constituents result in different presuppositions for the sentence, but the requirements for falsifying the propositional content of the sentence will be the same regardless (Beaver 1997). The propositional content of the paraphrases in (48) would be falsified only if it was not the case that Freddy was caught passing a gun to a juvenile. The validity or invalidity of the presuppositions (or implicatures, as in Horn 1996) cannot really be said to affect the propositional content in these contexts. Thus, while we find examples in the corpus in which *only* associates with focus and affects the truth conditions of the sentence, no such examples with *also* occur. This is in keeping with the observations of Horn (1969, 1996). It is also compatible with the claim made in É. Kiss (1998) that the focus associated with *only* is different from that associated with *also*. It is not, however, clear whether this difference is due to the differences in meaning between *only* and *also* or due to differences in the focus itself, as É. Kiss argues. I will argue in Chapter 5 that the differences É. Kiss observes are due to the meanings of focus sensitive particles rather than the meaning of the focus.

The particle *even* has been claimed to display behavior similar to that of *also* in that its meaning interacts with focus to affect the presuppositions of a sentence (e.g., König 1991). This observation is borne out by examples from the speech corpus.

(13") *A TV series creator is discussing the objections that his TV studio had to the pilot episode of a series he proposed. The episode included the appearance of a beaver.*¹²

- (c) We can't get a trained beaver to GNAW on the wood.
- (d) A STUFFED beaver was even gonna cost a lot.
- (e) And forget about a ROBOTIC beaver.

As previous discussion of this example determined (see data in (17) in section 3.3 and discussion thereof), the focus constituent of (13"d) is the entire clause. Paraphrases with clefts that take into account the meaning of *even* appear in (49). There are two paraphrases that are felicitous in the context.

- (49) Fox said "Do you realize how much it's gonna cost to get a beaver?". We couldn't get a trained beaver to gnaw on the wood.
- (a) % Something else surprising about a stuffed beaver was that it was gonna cost a lot.
 - (b) Something surprising was that a stuffed beaver was gonna cost a lot.
 - (c) Something else that was gonna cost a lot, surprisingly, was a stuffed beaver.
 - (d) ? Another kind of beaver that was gonna cost a lot, surprisingly, was the stuffed kind.

The fact that (49c) is a felicitous paraphrase supports the previous conclusion that the focus domain here is the noun phrase *a stuffed beaver*, but the felicitous nature of (49b) indicates that the focus center on *stuffed* can also be understood as representing focus over the entire proposition *a stuffed beaver was gonna cost a lot*. Prosody distinguishes between the paraphrase in (49a) and that in (49c). The paraphrase in (49a) represents what would be generated if the focus center fell on *cost*. This would be appropriate in a context where the speaker was discussing, for example, the disadvantages of a stuffed beaver: it doesn't look realistic, it can't be programmed to move, and, to top it all off, it even costs a lot.

What should be noted about the paraphrases in (49) is that all assert that it is the case that a stuffed beaver would be expensive. The association of *even* with different focus constituents might possibly result in different presuppositions (Horn 1969) or implicatures (Horn 1996) for the sentence, but the requirements for falsifying the propositional content are the same for all four paraphrases. They would be false if it were not the case that a stuffed beaver was going to cost a lot. Again, the validity or invalidity of presuppositions or implicatures do not really affect the propositional content of the sentence. Thus it is clear that *even* differs from *only* in that its interaction with focus does not influence the truth conditions of a sentence.

We might expect that observations similar to those about *also* could also be made about the particle *too*, since they are similar in meaning. The data indicate

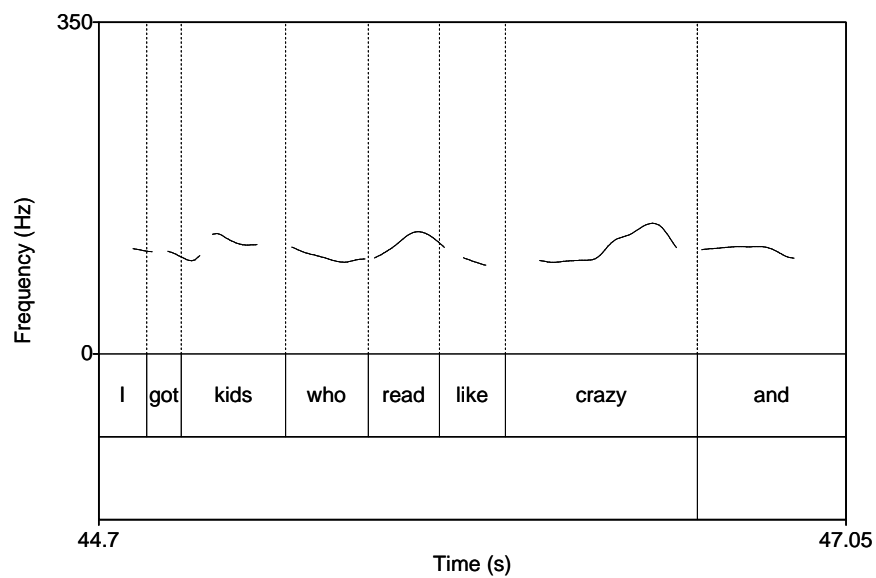
¹² See the excerpt in (13) for pitch accent information.

that *too* behaves differently in certain respects, however. Consider an excerpt from the corpus that includes a sentence containing *too*.

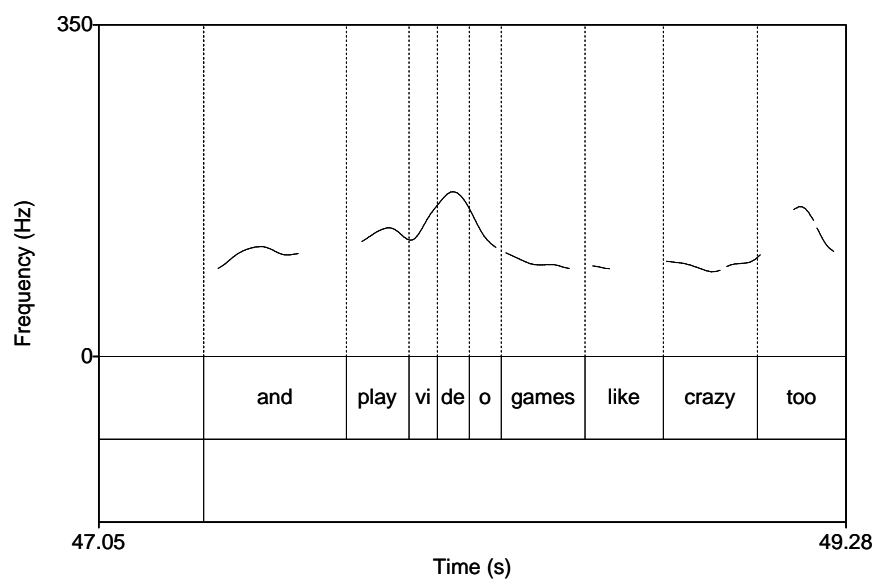
(50) *The speaker is discussing the outcome of his attempts to encourage his children to entertain themselves with a variety of activities.*

- (a) I got kids who reád like crázy and
- (b) and play vidéo games like crazy tóo

(50') (a) I got kids who reád like crázy and



- (b) and play vidéo games like crazy tóo



One difference between *also* and *too* is that in current American English, the distribution of *too* is more restricted syntactically, which may account in part for its more limited occurrence in the corpus¹³. Cruttenden (1986) observes that *too* typically attracts accent, and the example in (50b) supports his observation. In fact, in (50b), *too* is the recipient of the intonation phrase final accent, the one identified as the nuclear pitch accent (Pierrehumbert 1980, Beckman and Pierrehumbert 1986). The intonation phrase encompasses the entire segment represented in (50b). This means either that the accent on *too* is the focus center or that another item is the focus center but is not the nuclear pitch accent of the intonation phrase. Whichever of these situations apply, the intonation phrase in (50b) differs from those we have examined thus far.

In the previous examples including focus-sensitive particles, the particle itself was located before the focus constituent, rather than within it. The focus particles in the earlier examples could not serve as focus centers, even when they bore a pitch accent. If *too* were focus-sensitive and the only focus center in (50b), then it would be sensitive to itself in some way — this is clearly not what claims about the focus sensitivity of *too* intend. So, what is the relevant focus center here? A second obligatory pitch accent occurs in the segment *and play video games like crazy too*. Since focus centers are defined as the obligatory accents, the following representation of the focus centers is plausible:

- (50") (a) I got kids who read like CRAZY ¹⁴
 (b) and play VIDEO games like crazy TOO

Wh-paraphrases provide clues as to what the focus constituent is here. These rule out the noun phrase *video games* and the clause as possible focus constituents.

- (51) [In my particular experiment,] I got kids who read like crazy.
 (a) % What they also play like crazy are video games.
 (b) What they also do like crazy is play video games.
 (c) What they also do is play video games like crazy.
 (d) % What else about them is they play video games like crazy.

It appears that a focus center on *video games* corresponds either to focus on *play video games like crazy*, or *play video games* since these represent the most felicitous wh-cleft paraphrases¹⁵.

¹³ *Also* occurs 11 times in the corpus, *too* only four, each time used by the same speaker. *Too* can occur only immediately after the syntactic subject or at the end of a clause, and there are apparent prosodic constraints on its appearance. Consider:

The kids in my neighborhood sometimes play video games.

(a) The adults, too, sometimes play video games/The adults also sometimes play video games.
 (b) *The adults in my neighborhood, too, play video games/The adults in my neighborhood also play video games.
 (c) *The adults sometimes too play video games/ The adults sometimes also play video games
 (d) The adults play video games, too/The adults play video games also

¹⁴ Note that the secondary accent on *read* provides a forward looking contrast, like the example in (13"c). This example will be addressed again in Chapter 5. Here, I am only addressing the sentence in (50"b).

The paraphrases in (52) test for the association of focus with *too* by using the same test previously used for sentences with *also*.

- (52) [In my particular experiment,] I got kids who read like crazy.
- (a) ? Something else about 'em is that they play video games like crazy.
 - (b) ? Something else they do is play video games like crazy.
 - (c) Something else they do like crazy is play video games.
 - (d) % Something else they play like crazy are video games.
 - (e) % Some other people who play video games like crazy are kids.

Like the paraphrases proposed for the utterance containing *also*, the paraphrases for *too* involve differences in presuppositions but no differences in truth-conditions. Thus, it should be clear that any sensitivity *too* displays to focus does not affect truth conditions. The fact that (52c) is the most felicitous of the paraphrases suggests that the focus constituent of the original sentence is *play video games*, rather than *play video games like crazy*.

The paraphrase in (52e) is not a genuine possibility for this utterance, even in a different context, because the clause and intonation phrase in which *too* appears does not include a lexical subject. Still, it might seem reasonable to expect that *too*, like *also*, can associate with a subject in focus to affect the presuppositions of a sentence, as might be the case in a sentence like *KIDS play video games like crazy, too* (52e). There are, however, no examples of the association of *too* with focus on the syntactic subject in the corpus.

It is only the context that determines which of the paraphrases in (52a) through (52d) is most felicitous. Since the focus structure itself is ambiguous, the prosodic information of the intonational phrase cannot distinguish between these here. In all of these paraphrases, the post-cleft material corresponds to focus constituents that can be signaled by a pitch accent on *video games*. The focus-sensitivity of *too* is thus like that of *also*. One difference between the two particles is that *too* must come after the focus with which it associates. It is also accented — thus intonation phrases in which it occurs serve as apparent exceptions to the generalization that nuclear accent signals focus.

What the data discussed here show is that the nature of the interaction between pitch accent and the particles identified as focus-sensitive differs depending on the meaning of the particle. The association of focus with *only* affects the truth conditions of a sentence. The association of focus with *also*, *even* and *too* do not.

3.6.2 Other focus sensitive contexts

Other contexts that have been identified as being focus sensitive are contexts including modal operators and quantifiers. An interesting fact about the data in the corpus is that it is relatively common for the contexts identified as focus sensitive to overlap with each other. Note that the excerpts discussed in the subsection on focus-

¹⁵ Even these seem a little strange here — but in the same way the original utterance does. Giora (1988) argues that well-formed texts generally follow a graded informativeness requirement, with the least informative information appearing first. This sequence would appear to violate that: pragmatic reasoning would suggest that kids are more likely to play video games like crazy than to read like crazy, making *who read like crazy* the more informative material — yet it occurs first.

sensitive particles all represent quantificational or modal contexts as well: the context of the excerpt in (31'')/(9''b) includes the temporal quantifier *usually* and the example itself includes the modal *could*; the excerpt in (1''b) is followed by a conditional context (see (53) below for further discussion); the excerpt in (13'') includes a modal use of *gonna* in contrafactual circumstances; and the excerpt in (50'') presents generic facts about the speaker's children. Because of this tendency in the data, examples of the additional contexts will be presented and discussed together rather than in separate subsections.

Let us first revisit an excerpt that has already been discussed in some detail, (1''). We will turn our attention to (1''d), presented here again as (53a).

- (53) There was a young man by the name a Freddy CARDOZA who was caught with a BULLET. He was also caught passing a gun to a JUVENILE because (if a criminal charge resulted)
- (a) the JUVENILE would get a lesser SENTENCE.
 - (b) it was the JUVENILE who would get a lesser SENTENCE.
 - (c) what the JUVENILE would get was a lesser SENTENCE.
 - (d) Of the two of them, the one who would get a lesser SENTENCE was the JUVENILE.

This sentence contains two focus centers (see (1'd) for pitch tracking). Unlike other examples with multiple focus constituents discussed in this chapter, a question with two wh-constituents cannot be felicitously inserted into the discourse in order to establish focus domains for these focus centers. Instead, we find that there are two possible paraphrases in context. In one, an *it*-cleft, the focus constituent corresponds to the noun phrase *the juvenile* (53b). In the second, a wh-cleft, the focus constituent corresponds to the noun phrase *a lesser sentence* (53c). There is, in this context, no felicitous wh-cleft paraphrase representing focus over the noun phrase *juvenile* unless the cleft is prefaced with a restriction on the individuals *who* refers to (*of the two of them*), as in (53d). É. Kiss (1998) argues that *it*-clefts represent a different types of focus from that signaled by pitch accent alone; this question will be taken up in greater detail Chapters 4 and 5.

The cleft paraphrases in (54) intended to capture the meaning of the modal *would* show that it is sensitive to the focus constituent corresponding to *a juvenile*, since this is the material that can appear felicitously after the cleft.

- (54) There was a young man by the name a Freddy CARDOZA who was caught with a BULLET. He was also caught passing a gun to a JUVENILE because (if a criminal charge resulted)
- (a) The one who would get a lesser sentence was the juvenile.
 - (b) % The thing that the juvenile would get was a lesser sentence.

This focus-sensitivity, like that observed to occur with *only*, has the potential to affect truth-conditions of the sentence (Rooth 1996). The clause adds to the context something like the conditional *If anyone got a lesser sentence, it would be the juvenile*, which would be falsified by someone other than the juvenile receiving a lesser sentence (in this context, only Freddy). This is a different result than that which would occur if *would* associated instead with *a lesser sentence*. In that case,

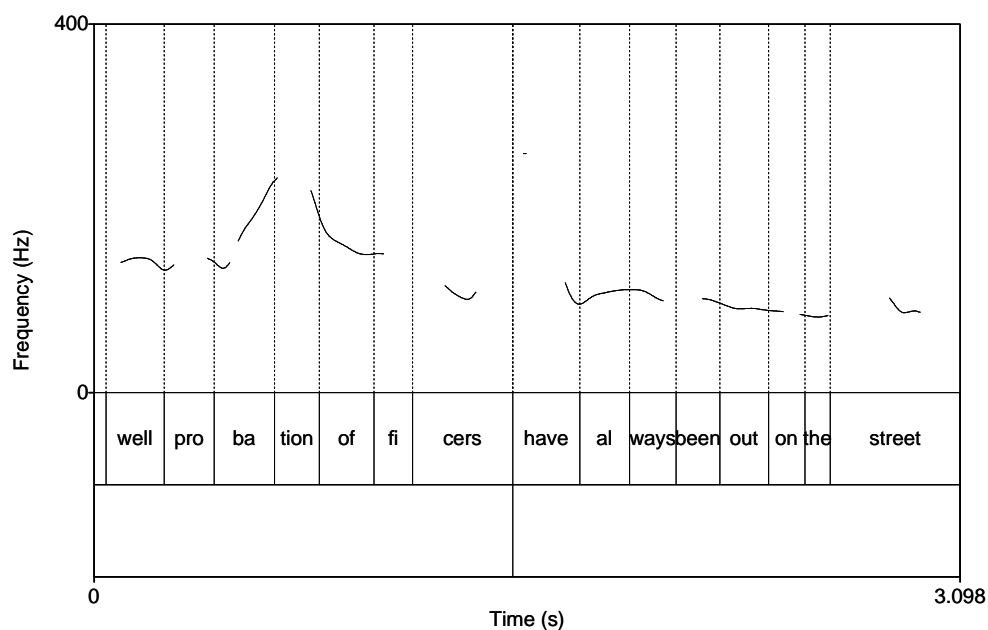
the clause would add to the context something like the conditional *If the juvenile gets anything, it would be a lesser sentence*. This conditional would be falsified by the juvenile receiving something other than a lesser sentence (in this context, only a harsher sentence than Freddy would receive). Thus, the sensitivity of *would* to the focus constituent does appear to have an effect on truth-conditions, although in this context, the requirements for falsification converge *because Freddy receives a lesser sentence than the juvenile* and *the juvenile receives a harsher sentence than Freddy* are essentially equivalent.

A new excerpt includes both the temporal quantifier *always* and a generic context.

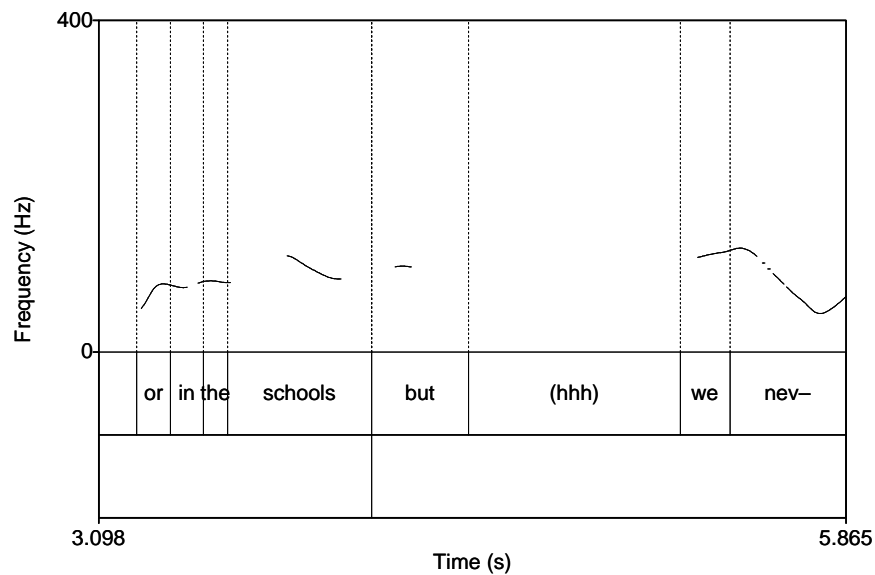
(55) *The speaker, a probation officer, has been asked to talk about what a new program that he helped create in response to gang activity was supposed to accomplish. He begins:*

- (a) probátion officers // have álwáys been out on the streét () /
- (b) or in the schoóls // but (hh) we név-
- (c) we got away from wórking at níght

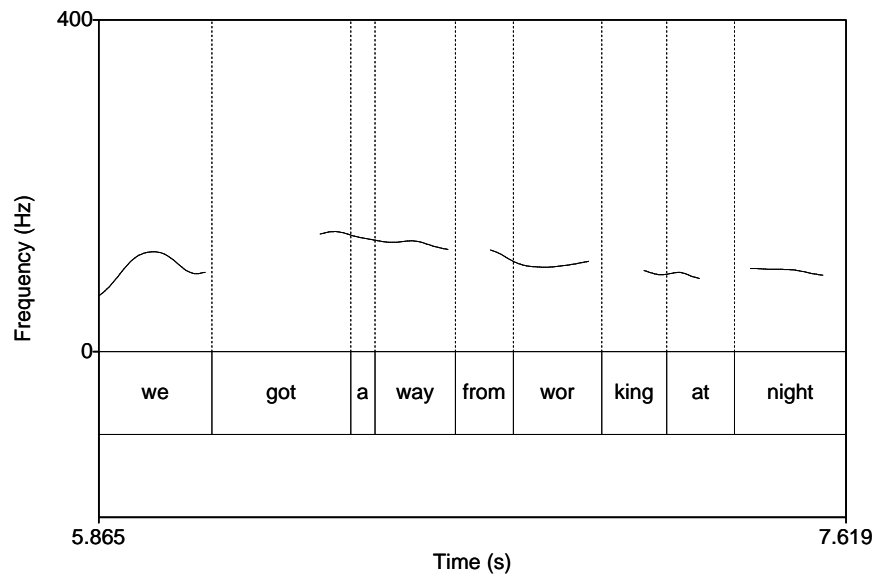
(55') (a) probátion officers // have álwáys been out on the streét () //



(b) or in the schools // but (hh) we név-



(c) we got away from working at night



The pitch track in (55'a) shows that a marked pitch accent occurs on the stressed syllable of *probation* and that of a boundary tone occurs on the final syllable of *officers*. These facts indicate that the noun phrase *probation officers* constitutes a separate intonation phrase. The less marked accent on *street* serves as the nuclear accent of the intonation phrase in which it occurs. Focus centers for the excerpt are represented in (55").

- (55") (a) Probation officers have always been out on the STREET
 (b) or in the SCHOOLS
 (c) but we got away from working at NIGHT

Wh-paraphrases indicate that the main focus constituent of the sentence in (55a) is defined by the pitch accent on *street*, not the pitch accent on *probation*.

- (56) (a) Where probation officers have always been is out on the street.
- (b) % Someone who has always been out on the street are probation officers.
- (c) As for probation officers, they have always been out on the street.
- (d) % What about probation officers? They have always been out on the street.

The constituent associated with the accent on *probation* passes the *as-for* test for new topics, although it doesn't do as well with the *what-about* topic test, as (56c) and (56d) demonstrate. The accent on *probation*, then, does not seem to be functioning as a focus center, because there is no constituent in which it appears that passes the test for focus. It can also be argued that *probation officers* is not a focus constituent because the sentence in (55"a) cannot be understood as the answer to a multiple wh-question like *Who has always been where?* (see (11) above). Finally, while phonological constraints require that every intonational phrase contain at least one pitch accent, it can be demonstrated that the pitch accent on *probation* is not semantically obligatory. The context allows for its de-accentuation — that is, the sentence could have been uttered as a single intonation phrase, with accents on *always* and *streets*, as in the original form of the utterance: *probation officers have always been out on the street*. This excerpt, then, includes a nuclear pitch accent that appears to serve as another counterexample to the generalization that nuclear pitch accents signal focus (see discussion of accentuation of *too* in section 3.6.1).

The temporal quantifier *always* in (55"a) appears to be sensitive to the focus constituent *out on the street*. Cleft paraphrases that take into account the meaning of *always* show that, in context, this phrase can appear felicitously as post-cleft material.

- (57) (a) A place where probation officers have always been is out on the street
- (b) % People who have always been out on the street are probation officers.

Since the post-cleft material matches up with the focus constituent, *always* appears to be sensitive to the focus constituent here. The cleft paraphrase in (57b) shows that the accented (but, as it has been argued, not focused) constituent *probation officers* cannot appear felicitously in the post-cleft material. Like the focus sensitivity of *would* and *only*, the focus sensitivity of *always* affects the truth conditions of the sentence. The sentence in (55"a) and its paraphrase in (57a) add to the context something like the conditional *Whenever probation officers were working anywhere, they were working on the street*. This would be false if probation officers were found to be working elsewhere, but not on the street. The speaker, in fact, amends this conditional by adding *or in the schools*. On the other hand, a sentence corresponding to the infelicitous paraphrase in (57b) would add to the context something like the conditional *if someone was working on the street, it was a probation officer*. This would be false if someone working on the street was not a probation officer.

The last sentence of the excerpt (55"c) also presents a modal context describing a general situation that obtained in the past. Wh-paraphrases here indicate that the focus constituent signaled by the focus center on *night* is *working at night*. This phrase can also be placed felicitously in an *it*-cleft.

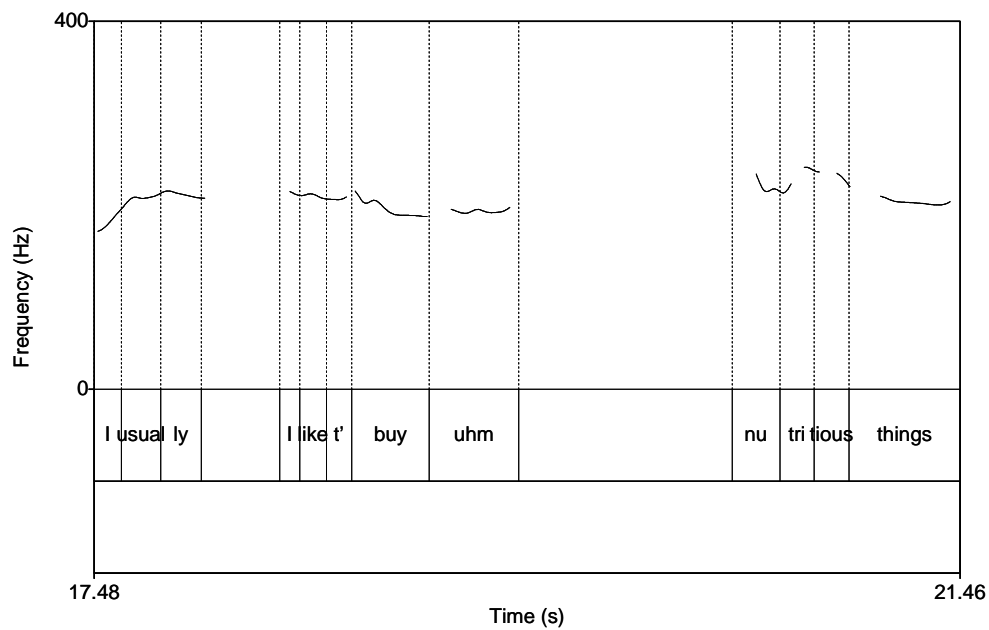
- (58) Probation officers have always been out on the STREET or in the SCHOOLS
but
- (a) What we got away from was working at NIGHT
 - (b) It was working at NIGHT that we got away from
 - (c) % When we got away from working was at NIGHT

This context, too, appears to be focus sensitive, and the focus constituent plays a role in the truth conditions. The sentence in (55"c) and its paraphrases in (58) indicate that the focus constituent is not *at night* but *working at night*. Sentences with this focus structure can be understood to add to the context something like the conditional *if we got away from anything, it was working at night*. This would be false if the probation officers had not gotten away from working at night but had gotten away from something else. On the other hand, the same sentence with *at night* as the focus constituent would add to the context something like the conditional *if we got away from working at anytime of the day, it was at night*. This would be false if it were not at night but another time of day that probation officers had gotten away from working. Thus, this modal context demonstrates a sensitivity to focus that can influence the truth conditions of a sentence.

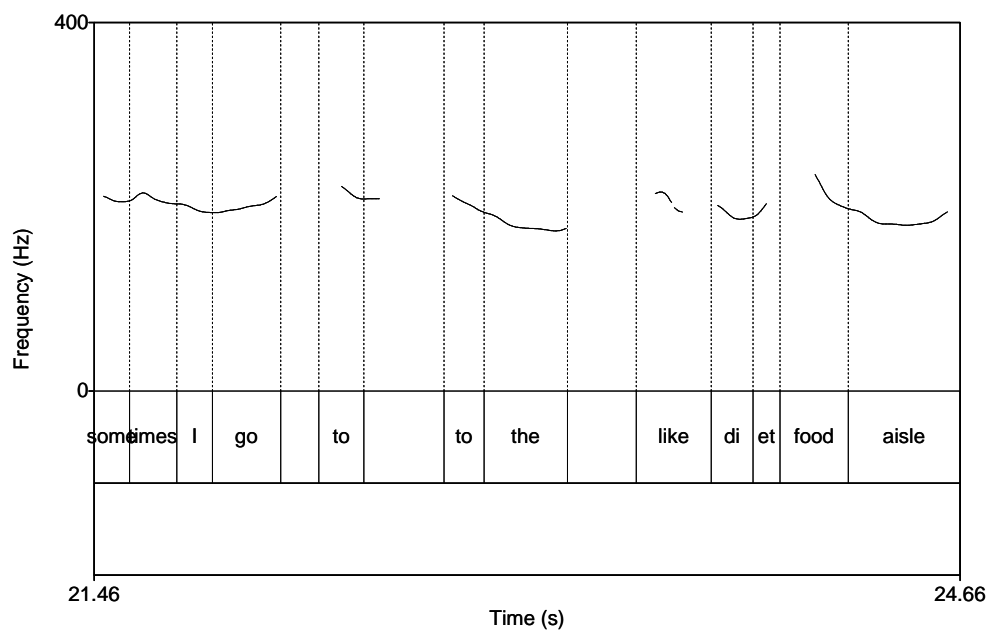
Another excerpt shows a similar relationship between focus and the temporal quantifier *usually*.

- (59) *A college student talks about her typical trip to the grocery store.*
- (a) I úsually () like to buy uhm (hh) nutrítious things
 - (b) sometimes I gó to the () like diet fód aisle

(59') (a) I úsually () like to buy uhm (hh) nutrítious things



(b) sometimes I gó to the () like diet fód aisle



(59') (a) I usually like to buy NUTRITIOUS things

(b) sometimes I go to the like diet FOOD aisle

The focus center on *nutritious* corresponds to focus on the noun phrase *nutritious things*, as *wh*-paraphrases demonstrate. An *it*-cleft paraphrase is also felicitous in this context.

(60) *A college student talks about her typical trip to the grocery store.*

- (a) What I usually like to buy are NUTRITIOUS things.
- (b) % What I usually like to do is buy NUTRITIOUS things.
- (c) It's usually NUTRITIOUS things that I like to buy.

The sentence in (59"a) adds to the context something like the conditional *if I like to buy anything, it is usually nutritious*, and would be false if what the speaker liked to buy was not usually nutritious. The paraphrase in (60b), on the other hand, reflects focus on the phrase *buy nutritious things*. It would add to the context something like the conditional *if I like to do anything, it is usually to buy nutritious things*. This would be false if what the speaker liked to do was usually something other than buying nutritious things. Again, we find that in context, the meaning of *usually* combines with focus to affect truth conditions.

The temporal quantifier *sometimes*, however, does not appear to have this property. Wh-paraphrases suggest that the focus center on *food* could correspond to either focus constituent *the diet food aisle* or *go to the diet food aisle*. Either paraphrase is felicitous in context.

(61) I usually like to buy NUTRITIOUS things

- (a) Where I sometimes go is the diet food aisle
- (b) What I sometimes do is go to the diet food aisle.
- (c) % Someone who sometimes goes to the diet food aisle is me.

An *it*-cleft with *the diet food aisle* is infelicitous here. The clefts in (61) also take into account the meaning of *sometimes*, and help to demonstrate that *sometimes* interacts with focus to influence the presuppositions of a sentence. The paraphrase in (61c) represents a sentence in which the syntactic subject serves as a focus constituent — something like *Í sometimes go to the diet food aisle*. A shift in focus does not change the truth conditions, however: all the paraphrases in (61) would be false under the same circumstances, essentially only if the speaker never goes to the diet food aisle. So, while the focus sensitivity of universal or quasi-universal temporal quantifiers like *always* and *usually* affects the truth conditions of a sentence, the existential temporal quantifier *sometimes* influences only sentence presuppositions. This difference is to be expected. *Some(times)* is a symmetric quantifier, so the restrictor of quantification does not result in truth conditional differences.¹⁶

An excerpt containing a number of noun phrase quantifiers follows in (62).

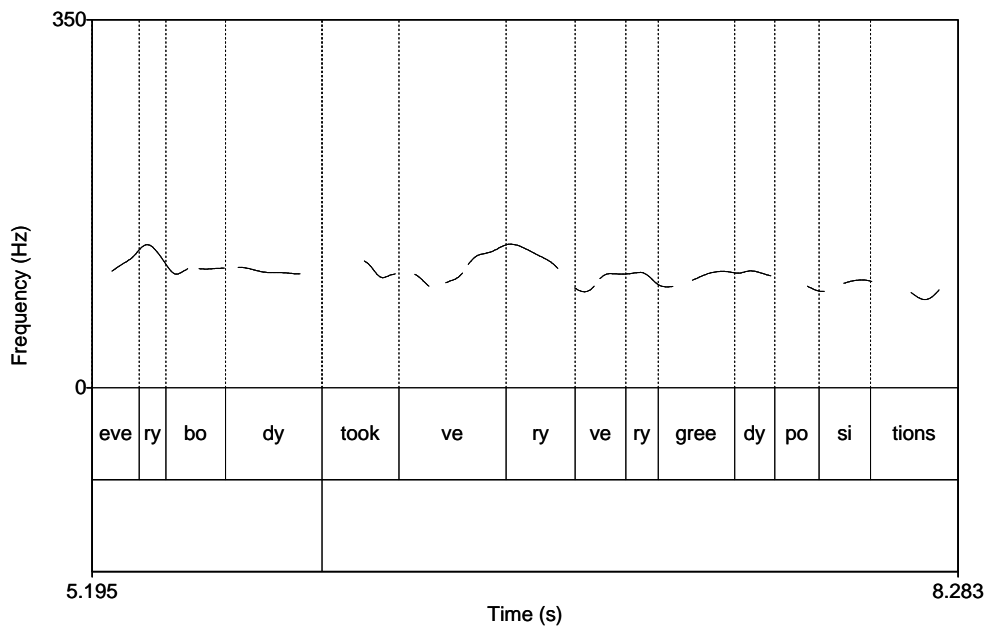
(62) *The creator of an animated TV series discusses the reasons that a series spin-off has never been developed. During discussions with the network:*

- (a) éverybody // took véry véry greedy posítions //

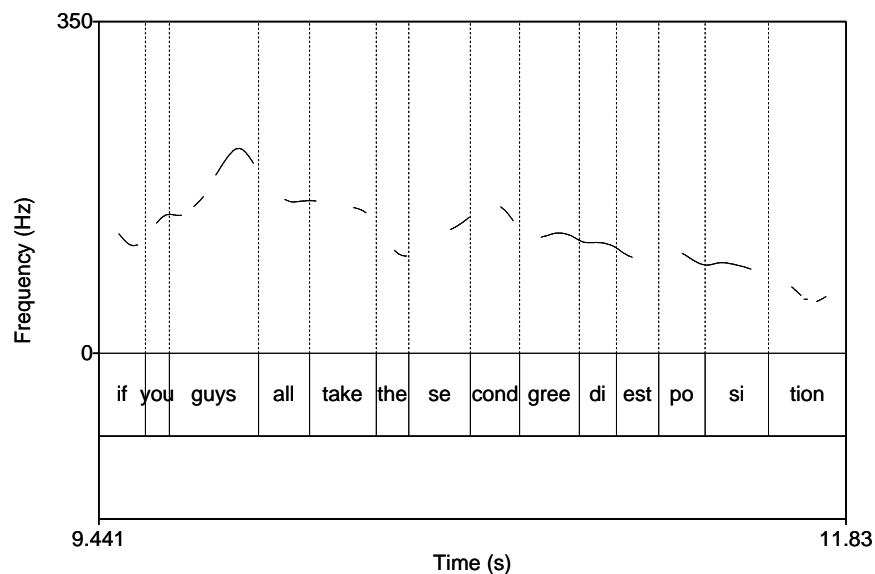
¹⁶ That is, *Some dogs eat chocolate* and *Some chocolate eaters are dogs* are true in exactly the same circumstances. Compare to *Every dog eats meat* and *Every meat eater is a dog* which are not true in the same circumstances: *every* is asymmetric, as are *usually* and *always*.

- (b) I said // look // hey// if you guys all take the second greediest position //
- (c) we can do this thing // we can do it // it'll be fun//
- (d) and you'll still make lots and lots of money // but //
- (e) they wouldn't // take the second greediest position //
- (f) everybody wanted uh all the money //

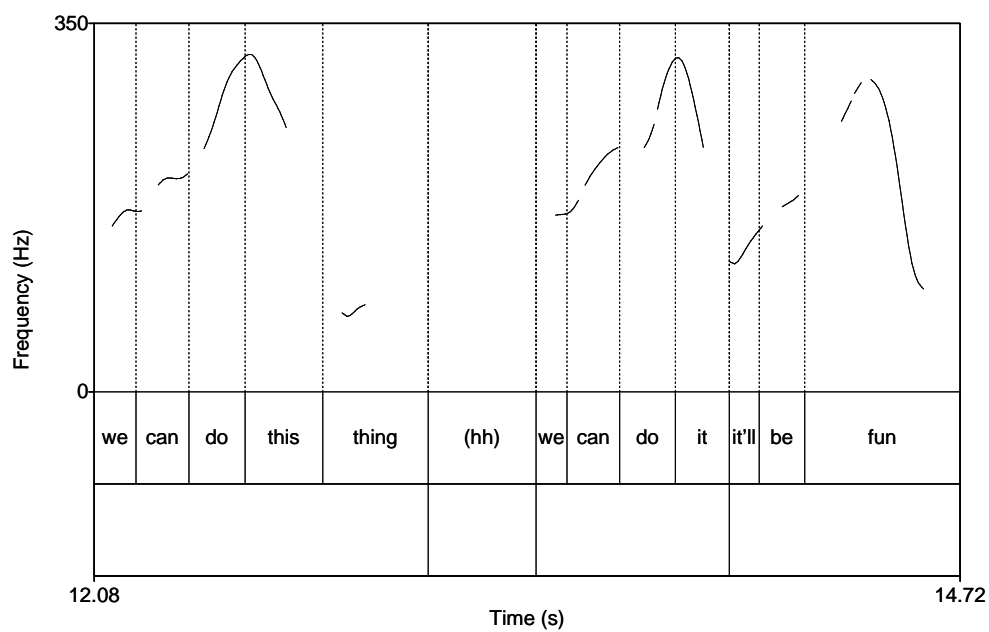
(62') (a) everybody // took very very greedy positions //



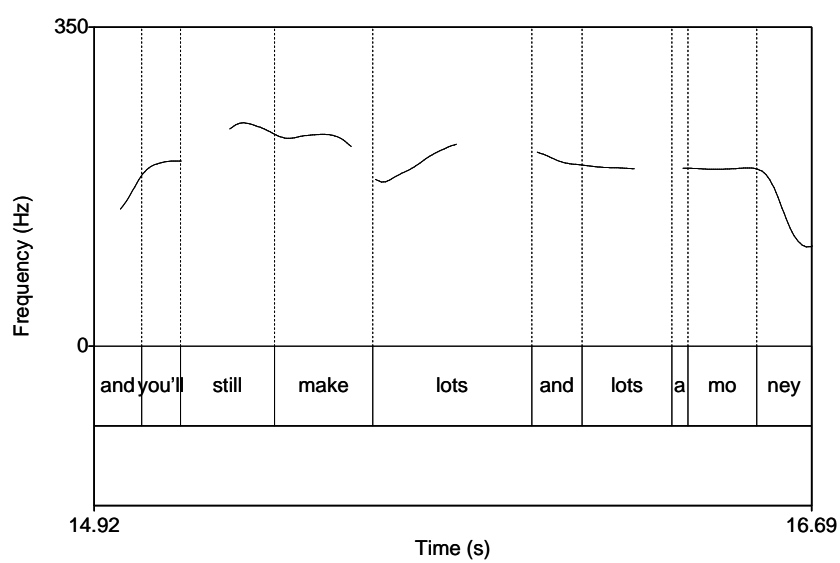
- (b) I said // look // hey// if you guys all take the second greediest position //



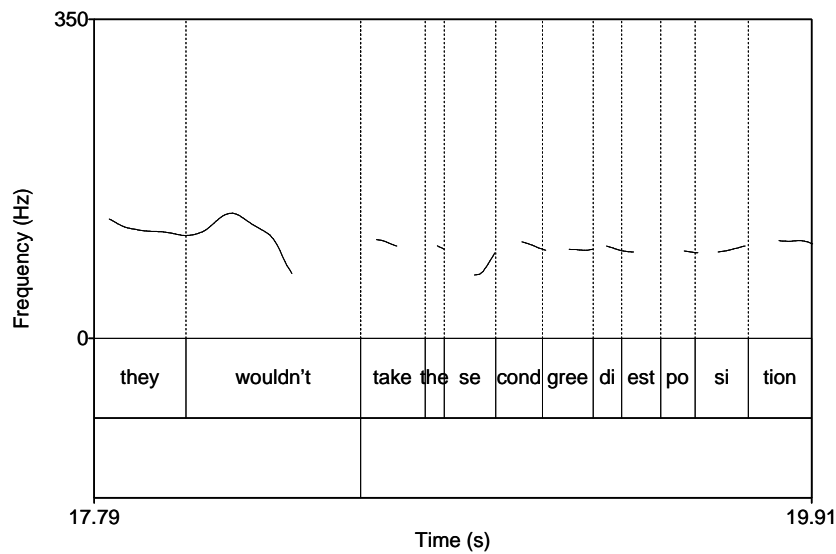
(c) we can dó this thing // we can dó it // it'll be fún//



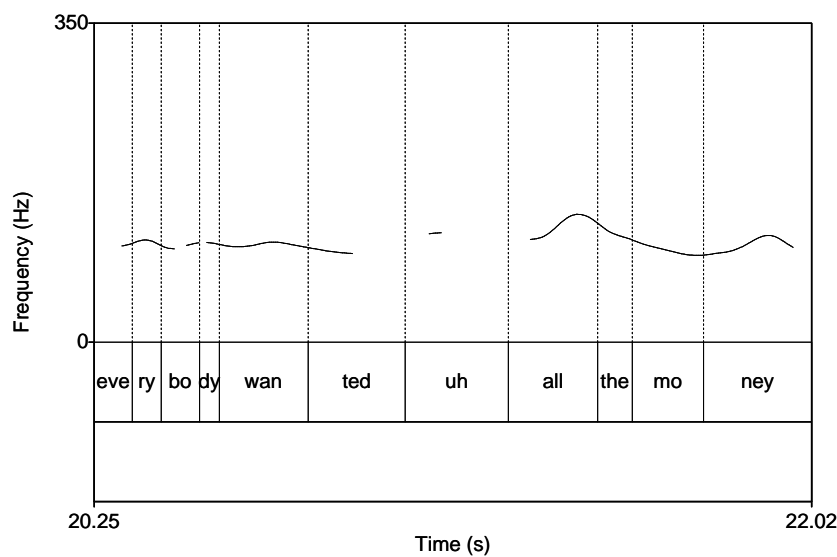
(d) and you'll stíll make lóts and lots of money // but //



(e) they wouldn't // take the sécond greediest position //



(f) everybody wanted uh áll the money //



The proposed focus centers are represented below:

- (62") (a) everybody took very very greedy POSITIONS //
- (b) [I said] if you guys all take the SECOND greediest position,
- (c) we can DO this thing. We can DO it. It'll be FUN.
- (d) And you'll still make LOTS and lots of money.

- (e) But they WOULDN'T take the SECOND greediest position,
- (f) Everybody wanted ALL the money.

The segments in (62'a) and (62'e) are others one in which the single nuclear accent of an intonation phrase does not constitute a focus center (see discussion of (55'a) above). The boundary tones evident on *took* and *take* make it clear that *everybody* and *they wouldn't* each comprise a complete intonation phrase. Like the accent on *probation* in (55'a), the accents on *everybody* and *wouldn't* can be omitted without affecting the felicitousness of the sentences, provided the clauses in (62'a) and (62'e) are uttered as single intonation phrases. As such, (62'a) also presents an exception to the notion that a nuclear pitch accent always represents focus.

Unlike *probation officers* in (55'a), however, neither *everybody* nor (*they*) *wouldn't* passes tests proposed for topics. In the context of (55'a), probation officers were already a salient concept. Neither *everybody* nor (*they*) *wouldn't* are salient in their respective contexts. The paraphrases in (63) and (64) would indicate that neither of these represents sentence topic.

(63) *The creator of an animated TV series discusses the reasons that a series spin-off has never been developed.*

- (a) % As for everybody, they took very very greedy POSITIONS
- (b) % What about everybody? They took very very greedy POSITIONS.

(64) And you'll still make LOTS and lots of money.

- (a) % As for what they wouldn't do, it was take the second greediest position.
- (b) % What about what they wouldn't do? They wouldn't take the second greediest position.

The data in (63) is in keeping with the observations of Reinhart (1983) that quantifiers do not serve felicitously as sentence topics. This infelicitousness could, however, be an artifact of the test, as others have argued that universal quantifiers can occur as topics (Szabolsci 1986).

I point out these exceptions to justify the representation of focus centers provided in (62"), which will serve as the basis for discussion to follow.

The focus constituent signaled by the focus center on positions apparently corresponds to the verb phrase *take very very greedy positions*, rather than the noun phrase *very very greedy positions*, as evidenced by wh-paraphrasing.

(65) [During discussions with the network]

- (a) What everybody did was take very greedy POSITIONS.
- (b) % What everybody took was very greedy POSITIONS.
- (c) % What POSITION everyone took was a very greedy one.

The universal quantifier *everybody* does appear to interact with focus to affect truth conditions. The paraphrase in (65a), corresponding to the actual utterance of the discourse, adds to the context something like the conditional *if a*

person did anything, then he took a very greedy position. This does indeed seem to be what the speaker intends here. This would essentially be falsified if any person in the context did not take a greedy position. The paraphrase in (65b), on the other hand, would contribute something like the conditional *if a person took anything, then he took a very greedy position.* This is different from the paraphrase in (65c), which might be argued to correspond to a sentence with a pitch accent on *greedy*. This would add something like the conditional *if a person took a position at all, then he took a very greedy one.* The paraphrase in (65b) would be false if a person took something, but it was not a greedy position. The paraphrase in (65c) would be falsified by a person in the context taking a position other than a greedy one, but not by a person taking no position at all. Again, while all three paraphrases might be true in the same circumstances, the requirements for their falsification are different. They therefore have different truth conditions. These are dependent on the domain of focus in the sentence, and thus *everybody*, like *always* and *only*, appears to interact with focus to affect the truth conditions of a sentence.

A similar circumstance arises in (62"b), where we find *all* appearing with the second person plural pronoun *you guys*.

- (66) [During discussions with the network], everybody took very greedy POSITIONS. And I said, hey, look —
- (a) What position you guys could all take is the SECOND greediest one.
 - (b) What you guys could all take is the SECOND greediest position.
 - (c) What you guys could all do is take the SECOND greediest position.
 - (d) % Someone who could take the SECOND greediest position is all you guys.

This example from (62"b), is like (62"a) (see also (65)), in that the universal quantifier (*everybody* vs. *you guys all*) serves as the subject of the clause. The example with *all* differs from the one with *everybody*, however, because it does not supply any real evidence that the interaction of expressions including *all* with focus constituents results in different truth conditions. The possible paraphrases with focus constituents that include the focus center are all felicitous, demonstrating that the context does not distinguish between them.

A second example including *all* as part of the focus constituent and in a different syntactic position (object), (62"f), displays similar behavior: the paraphrases with focus constituents that include the focus center are equally felicitous. Thus, it also fails to provide evidence that *all* interacts with focus constituents to result in different truth conditions.

- (67) ... It'll be fun. And you'll still make lots and lots of money. But they WOULDN'T take the SECOND greediest position.
- (a) What everybody wanted was ALL the money.
 - (b) What was true of everybody was that they wanted ALL the money.
 - (c) What the situation was was that everybody wanted ALL the money.
 - (d) % Someone who wanted ALL the money was everybody.

The data from the corpus suggest that *everybody* (and by extension, probably other quantifiers including the morpheme *every-*) interacts with focus to affect truth conditions, but the data does not establish that quantifiers including *all* behave in a similar fashion. These differences could result either from the different discourse contexts (which does not provide a means of disambiguating between the focus constituents proposed in (67)) or of some difference in the characteristics of *all* and *every*. This issue will not be explored any further here.

In (62"d), the quantificational expression *lots and lots of* serves as a focus center.

(68) [During discussions with the network], everybody took very greedy POSITIONS. And I said, hey, look — if you guys all take the second greediest position, we can DO this thing. It'll be FUN.

- (a) And what'll still happen is that you'll make LOTS and lots of money.
- (b) ? And what you'll still do is make LOTS and lots of money.
- (c) % And what you'll still make is LOTS and lots of money.
- (e) % And who will still make LOTS and lots of money is all you guys.

The paraphrases suggest that the domain of focus signaled by the focus center on *lots and lots* is the entire clause rather than the verb or object noun phrase. The sentence in (62"d) thus can be seen to add to the context the conditional *whatever happens, you will make lots and lots of money*. The paraphrase in (68b) would add to the context something like *whatever you do, you will make lots and lots of money*. The paraphrase in (68c) adds something like *whatever you make, you will make lots and lots of money*, while (68d) adds something like *whoever makes lots and lots of money, you will make lots and lots of money*. The truth conditions of these possible paraphrases are apparently the same, since all four, felicitous and infelicitous, would be false in the same circumstances: if the addressees did not make lots of money.

The data in the corpus indicate that focus interacts with some of the modal and quantificational contexts to alter truth conditions, and interacts with others to influence the presuppositions that make a particular utterance felicitous in its context. Focus in contexts including *always*, *usually* and *everybody*, for example, can change the truth conditions of a sentence, while focus in contexts using vague quantifiers like *lots and lots* affects only the presuppositions of a sentence. The data examples including *all*, on the other hand, do not provide evidence of focus sensitivity, although it is not clear whether this is due to the limited information about focus sensitivity that the available data provide or due to some difference between *all* and *every*.

3.6.3 Accentability of focus sensitive lexical items

One fact of accentuation that pitch tracking of data from the corpus brings to light is that many of the items that have been claimed to be focus sensitive (whether or not the data from the corpus bear this out), are themselves attractive to pitch accent. We saw earlier that *too* is the bearer of the (final) nuclear pitch accent of the intonational phrase in which it occurs. Pitch tracks throughout this chapter suggest that other items that interact with focus, like *also*, *only*, *always*, *usually*, *everybody*, *etc.* are attractive to accent, most typically secondary accent, since they are not

typically part of the focus. It remains to be seen whether the accent-attractiveness of focus sensitive items it can be validated in other kinds of speech corpora. If it can be, the purpose of this accentability could provide a fertile area of study for those interested in the interaction of prosody and meaning.

3.6.4 Generalizations about focus sensitive contexts

The data support observations previously made about focus sensitive contexts. Focus in contexts with additive particles (König 1991) like *even* and *also* affect the presuppositions or implicatures (Horn 1996) of a sentence, while in other contexts focus can interact with meaningful elements to affect the truth conditions of a sentence.

3.7 SUMMARY

This chapter has provided a survey of excerpts appearing in the corpus that are relevant to observations made in previous studies of focus. Data from the corpus provide clear evidence that there is not a one-to-one correspondence between pitch accent and focus. The role of secondary pitch accent in signaling focus is unclear, and the connection between secondary accent and meaning is an issue that calls for future research. The generalization that focus is signaled by *nuclear* pitch accent, on the other hand, is for the most part supported by the data in the corpus, although occasional exceptions arise.

Excerpts relevant to accentuation and discourse status demonstrate that while many earlier observations based on constructed examples are borne out, there are also clear counterexamples; Chapter 4 addresses these in more depth. Excerpts including items in contrast indicate that the concepts of focus and contrast may need to be distinguished from each other; Chapter 5 addresses the issues raised by these data.

While the previous observations about *it*- and *wh*-clefts were borne out by the data in the corpus, these constructions occurred rarely. Much more common are presentational *there* constructions; these support the existing generalizations about the construction.

Polarity questions in this corpus prove to be atypical in certain respects, supporting the observation of others that rising intonation is not as widely used in yes-no questions as is generally held (Guluykens 1988, 1989). The unusual circumstances in place in formal interviews, the source of the corpus, may also be a factor in the nature of the intonation pattern in questions. *Wh*-questions in the corpus typically had a secondary pitch accent associated with the *wh*-constituent, providing some evidence that support the claim that focus in *wh*-questions is the *wh*-constituent itself. A better understanding of the role that secondary accent plays in communication will perhaps shed more light on this matter.

Contexts claimed to show focus sensitivity were examined. Many of these also bear out earlier observations, and data from the corpus make it quite clear that finer distinctions can also be made in categorizing the type of interaction these different contexts have with focus constituents.

Any speech corpus would likely be equally as rich a source of focus-related data. If I have accomplished nothing else in the presentation of these data, I hope that I have demonstrated the value of a speech corpus-based approach to informing existing linguistic generalizations and theories — especially for a research area as dependent on intonation and discourse context as focus is.

Chapter 4: Given information in focus

The corpus provides examples of nuclear pitch accent associated with non-derivable information, consistent with a view that associates focus with new information (see Chapter 2, section 2.2.1-2.2.2) and equally consistent with the idea that focus represents the existence of alternatives (see Chapter 2, section 2.2.3). It also provides examples of the de-accentuation of given entities. There are, however, excerpts in which information that is clearly given in the discourse appears with a nuclear pitch accent as a focus center (see Chapter 3, section 3.1.2 for discussion of focus centers). These examples appear to be counter evidence to the idea that focus represents new information, or at least, only new information. Many of these examples are clearly contrastive, and as such, belong to a category that has already been identified as problematic for the idea that focus represents (only) new information. Others, however, are not clearly contrastive and thus present a problem for the view that focus represents new information that must be addressed separately. It is these examples of focus that are neither new nor explicitly contrastive that will be treated in this chapter.

While such examples cannot be explained by approaches that appeal to default accentuation (see section 4.3.1) and contrast (see section 4.3.3), they do provide support for hypotheses that claim focus can be associated with exhaustiveness (see section 4.3.4). Furthermore, the relevant examples also provide evidence that focus can represent exhaustive satisfaction of a proposition even in the absence of explicit marking in the syntax that is claimed to be obligatory for exhaustive focus in É. Kiss 1998 (see section 4.4).

Let us now turn to an excerpt from the corpus that allows us to illustrate the properties of different kinds of focus in context.

4.1 DATA TO BE CONSIDERED

Consider the excerpt in (1). It contains items that are new and accented (*a stick*, (1a)), given and unaccented (*the stick* (1b)) and *it*, (1d)), and given and accented (*the stick* (1d)).¹

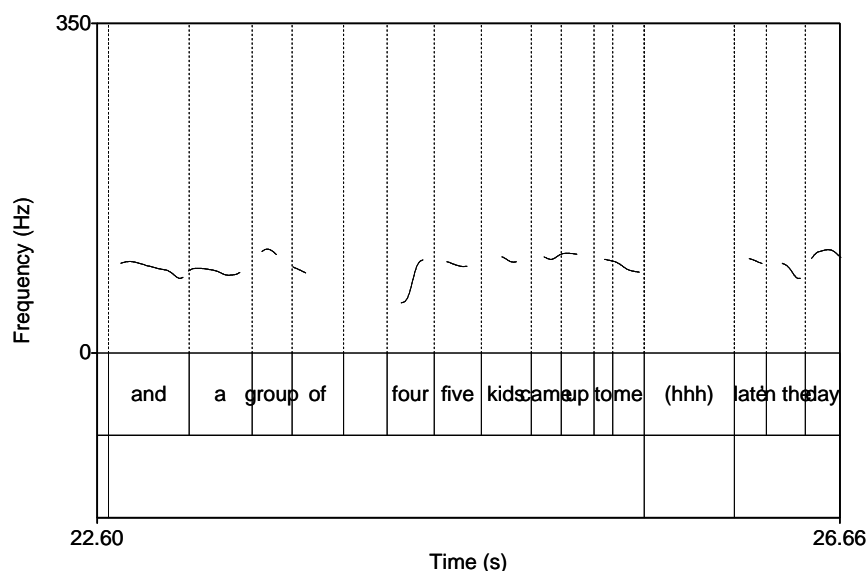
- (1) *The speaker is relating a story about a confrontation that he had with some street gang members when he was a child. He explains that he went with his father to attend a college hockey game--*
- (a) and one a my fávorite /cóllege pláye:rs / gave me a stíck //
 - (b) and I toók the stick the next day // went out 'n skáted on a pónd (--) //
 - (c) and a grouúp of (-) / four five kids came úp to me (hh) // late in the dáy //
 - (d) they wanted the stíck// 'n I wouldn't gíve it to 'em (--) /

Annotation of the location of pitch accents and prosodic boundaries are based on pitch analysis of the excerpt. Pitch tracks for (1a) and (1b) appear in

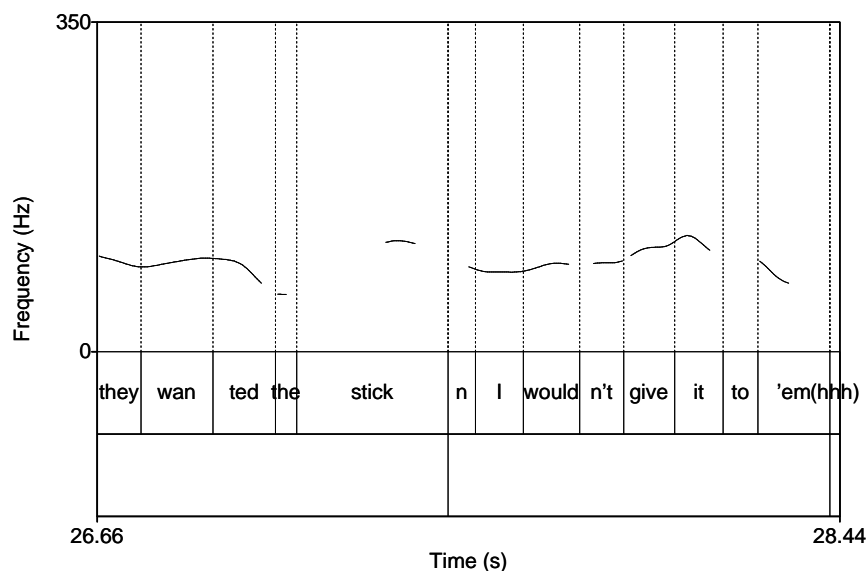
¹ (/ = phon phrase boundary; // = intonational phrase boundary; ´ = pitch accent ; -: lengthened syllable; (hh)= breath; (-)= pause)

Chapter 3 as (6a) and (6b). Pitch tracks for (1c) and (1d) appear below as (1'c) and (1'd).

(1') (c) and a group of (-) /four five kids came up to me (hhh) // late in the day



(d) they wanted the stick // 'n I wouldn't give it to 'em (--)



The excerpt is also represented in (1"). The location of pitch accent and prosodic boundaries have been used to determine the focus center of each segment, which was taken to be equivalent with an obligatory accent of a intonational phrase (typically corresponding to the nuclear pitch accent, from Pierrehumbert 1980; see Chapter 3, section 3.1 for a more detailed discussion of approach). These focus centers are represented in (1") and the examples that follow with capital letters.

(1") (a) and one of my favorite college players gave me a STICK

- (b) and I TOOK the stick the next day, went out and skated on a POND
- (c) and a group of four five kids came UP to me late in the DAY
- (d) they wanted the STICK and I wouldn't GIVE it to them

4.2 ACCENT ON NEW MATERIAL

In (1a)/ (1a), we find the indefinite noun phrase *a stick* marked with the nuclear pitch accent and thus appearing as the focus center. As predicted by theories of focus that emphasize the non-presupposed nature of focus, this is new material. The appearance of a focus center on the object noun here could correspond to focus on the noun phrase, focus on the verb phrase or focus on the entire clause. Rephrasing the sentence in question with a wh-cleft in the context of the discourse indicates that it represents focus on the clause.

- (2) [I was at a hockey game with my father] and
 - (a) what happened was [one of my favorite college players gave me a STICK]_F
 - (b) % what one of my favorite college players did was [give me a STICK]_F
 - (c) % what one of my favorite college players gave me was [a STICK]_F

The only paraphrase that is felicitous in context is the one that places the entire clause to the right of the wh-cleft (2a), corresponding to focus on the complete content of the clause. Wh-clefts with focus constituents that correspond to the verb phrase ((2b)) and noun phrase ((2c)) are not felicitous, indicating that these constituents are not the focus of the original utterance in (1a)/ (1"a).

The excerpt in (1) also provides an example in which given information does not receive a nuclear accent. In (1"b), the noun phrase *the stick*, co-referential with *a stick* in (1"a) is not accented (example repeated for reference).

- (1") (a) and one of my favorite college players gave me a STICK
- (b) and I TOOK the stick the next day, went out and skated on a POND
- (c) and a group of four five kids came UP to me late in the DAY
- (d) they wanted the STICK and I wouldn't GIVE it to them

Instead, the nuclear accent surfaces on the verb *took*. This most likely represents focus on the verb phrase *took the stick the next day*, as the wh-cleft paraphrases in (3) indicate (see section 3.4.2, Chapter 3 for additional discussion of this example).

- (3) [I was at a hockey game with my father]
and one of my favorite college players gave me a STICK.
 - (a) and what I did was [TAKE the stick the next day]_F and I went out and skated on a POND.
 - (b) ? and what I did the next day was [TAKE the stick]_F and I went out and skated on a POND.

- (c) % and what I did with the stick the next day was [TAKE it]_F and I went out and skated on a POND.
- (d) % and what happened was [I TOOK the stick the next day]_F and I went out and skated on a POND.

This evidence indicates that the accent on *take* in (1b)/ (1"b) represents focus on the verb phrase rather than on the verb. While the most typical realization of verb phrase focus is through the location of the nuclear pitch accent on the complement of verb (Schmerling 1976, Gussenhoven 1983, Selkirk 1984, see also Chapter 2, Section 2.4.2), here we find verb phrase focus realized through placement of the pitch accent on the verb itself. This is another example of the documented phenomenon that transitive verbs receive the nuclear accent when their complements are not new, and adds to the evidence that accent interacts with givenness (for more detailed discussion of accounts of this interaction, see Chapter 2, section 2.4.1 and Chapter 3, section 3.2). Informally, a story that is consistent here is that the given status of the referent of *stick* disallows its receiving the nuclear accent, and so it falls instead on the verb.

4.3 FOCUS ON GIVEN INFORMATION

More problematic for notions of focus that appeal to the notion of new or non-presupposed information is the occurrence of *the stick* in (1d)/ (1"d). Here, *stick* receives the final nuclear accent of its intonational phrase and of its clause, despite the fact that it is explicitly given in the context. Not only does *stick* receive the accent, but it is also the only word in its intonational phrase or clause that can receive the nuclear accent. Other focus centers are not possible in this context, as (4b) and (4c) show. Representation of the actual occurrence in (1d)/ (1"d) is repeated as (4a).

- (4) I TOOK the stick the next day, went out and skated on a POND,
and a group of four, five kids came UP to me, late in the DAY.
- (a) They wanted the STICK, and I wouldn't GIVE it to them.
- (b) % They WANTED the stick, and I wouldn't GIVE it to them.
- (c) % THEY wanted the stick, and I wouldn't GIVE it to them.

Note that in the given context, the stressed syllable of *wanted* could have felicitously received a pitch accent, but only if *stick* was also accented, thus preserving the role of *stick* as the bearer of nuclear pitch accent and the focus center. If *wanted* were to receive the nuclear pitch accent of the intonation phrase (with *stick* de-accented), it would get a contrastive interpretation that is not entirely felicitous here: it might occur in a context where it was actually expected that they did not want the stick. Focus on the verb *wanted* thus would convey something equivalent to the paraphrase *it wasn't that they didn't want the stick (it's just that I wouldn't give it to them)*, which does not seem to be what the speaker had in mind.

In example (5) below, (5a) is the actual occurrence in the corpus (as in (1a)), (5b) is the felicitous (but unattested) alternative with pitch accent on both verb and noun. Either of these would correspond to the representation in (1"d) and (4a), since *stick*, as the bearer of the nuclear pitch accent is the focus center in each. Example

(5c) represents an infelicitous alternative, corresponding to the representation of focus center in (4b).

- (5) and I *toók* the *stíck* the next day // went out 'n *skáted* on a *pó:nd* (--) //
and a *gróup* of (-) / four five kids came *úp* to me (hh) // late in the *dáy* //
- (a) they wanted the *stíck* // 'n I wouldn't *gíve* it to 'em (--) //
- (b) they *wánted* the *stíck* // 'n I wouldn't *gíve* it to 'em (--) //
- (c) % they *wánted* the *stick* // 'n I wouldn't *gíve* it to 'em (--) //

This accentuation of an entity given in the discourse context requires further consideration of the factors involved in accentuation and the assignment of focus, and the differences between the occurrence of *a stick* in (1a), *the stick* in (1b) and *the stick* in (1d)/(4a).

One difference between the example in (1d)/(4a) and the examples from earlier in the discourse is the type of constituent that is the sentence focus in each of the three contexts. Evidence from wh-cleft paraphrasing presented in (2) and (1) above indicated that both of the earlier examples fall within a verb phrase focus. Paraphrasing the clause in (1d)/(4a) with a wh-cleft in context indicates that the accent on *stick* most likely represents focus on the noun phrase, rather than on the verb phrase (as in (6b)).

- (6) I *TOOK* the *stick* the next day, went out and skated on a *POND*,
and a group of four, five kids came *UP* to me, late in the day.
- (a) What they wanted was the *STICK*, and I wouldn't *GIVE* it to them.
- (b) % What it was with them was that they wanted the *STICK*, and I
wouldn't *GIVE* it to them.
- (c) Why they came up to me was that they wanted the *STICK*, and I
wouldn't *GIVE* it to them.

The wh-cleft paraphrase with focus on the noun phrase (as in (6a)) is more felicitous than one with focus on the verb phrase (as in (6b)). This felicitous paraphrase presupposes that the group of kids wanted something from the speaker — an implicature of the previous sentence *A group of kids came up to me*.

Also felicitous is a paraphrase that focuses the entire clause *they wanted the stick* (as in (6c); in Chapter 6, I will argue that this paraphrase corresponds to a different kind of focus from that on the constituent *the stick*, compatible with the notion of information focus (É. Kiss 1998).

4.3.1 Issues of accent

The fact that the accent in (1d)/(4a) appears to represent focus on a given entity might potentially fit within an explanation like that given by Ladd (1980, 1996) for other circumstances in which given items receive the nuclear accent. In Ladd's account, givenness defines the potential for nuclear accentuation, not the potential for focus itself. In certain cases, where everything in a new discourse segment is given, a nuclear accent must still be assigned to something. It would then be possible for a given entity to be accented via default rules for accentuation

(see Chapter 2, Section 2.4.1 for a more detailed account of Ladd's approach). This explanation is not very satisfying when applied to the example in question, however. One problem with it is the fact that there is apparently new material in the clause -- the verb *wanted* -- and yet, as (4b) and (5c) show, the nuclear accent cannot surface on it. Some might respond to this problem by pointing out that the paraphrase in (6a) indicates that the content of the verb *wanted* is presupposed in this context, since its appearance in the wh-cleft is felicitous. Perhaps it might be argued that the presupposed status of *wanted* prevents it from receiving the nuclear accent, and thus the accent surfaces on *stick*.

This attempt at explanation, however, also highlights another problem with applying this approach to the example in question. The wh-cleft test paraphrase in (6a) indicates that the accent on *stick* represents focus on the noun phrase, rather than focus on the verb phrase that includes *wanted*. This suggests that the reason *wanted* does not receive the nuclear accent is that it is not part of the sentence focus. While pitch accent can be assigned to items that are not part of the sentence focus (see Chapter 2, Section 2.1 and 2.4.1, also Ladd 1980, 1996; Pierrehumbert 1980, among others), nuclear pitch accent -- the pitch accent that signals focus -- typically does signal focus. Since the verb *wanted* is not part of the focus (as determined by the wh-cleft focus test), we would not in fact expect the nuclear accent to appear on it. The realization of nuclear accent on *stick* in the example in (1d) does not prove to be a counterexample to Ladd's approach; his approach is, rather, simply not relevant here, given that the focus center appears to represent noun phrase focus.

4.3.2 The issue of discourse shift

Another possibility that I will consider here is that *the stick* receives an accent because it is new in its discourse segment (despite its recent occurrence in the discourse). It could be argued that the focus on *the stick* signals a shift in the discourse. However, it does not seem likely that this is the only reason that *stick* is accented here: even if the title of this story were "The Stick," in which case the stick would be expected to be a salient discourse topic throughout the narrative, the nuclear pitch accent would still fall on *stick*.

4.3.3 The issue of contrastivity

Another often observed case of given information in focus is information that is contrastive. Various authors have argued that the nuclear pitch accent that occurs on items in contrast represents a different kind of focus from the one that is associated with new information (Rochemont 1986, É. Kiss 1998). Typically, the contrast is an explicit one (see Chapter 3, section 3.3 for further discussion). In the problematic example from (1d), however, there is no explicit contrast. It could be argued that there is an implied contrast with some other item that can be assumed to be present in the context based on pragmatic factors: *They wanted the stick rather than my wallet*. Such an explanation, however, is not intuitively very satisfying, in that the example does not in fact seem to imply such a contrast. This intuition is supported by explicitly spelling out the proposed contrast in the context of the example, as in (7b); a representation of the utterance from the corpus in appears again as (7a).

- (7) I TOOK the stick the next day, went out and skated on a POND,
and a group of four, five kids came UP to me, late in the DAY.

- (a) They wanted the STICK, and I wouldn't GIVE it to them.
- (b) % They wanted the STICK rather than my WALLET, and I wouldn't GIVE it to them.

The formulation in (7b) is markedly odd in this context. First, it carries an implicature that the speaker would have given the group of kids his wallet if the wallet was what they wanted (I label this an implicature because it could be canceled by a follow-up utterance such as *I wouldn't have given them my wallet, either*). The context provides us no reason to believe that the speaker intended to communicate this idea, making an implicit contrast between the stick and some other item appropriate to the context unlikely. Second, and perhaps more fatally, the formulation in (7b) presupposes that there is an expectation that the group of kids wanted the wallet. This presupposition is simply not supported by the context (although, as the paraphrase in (6a) indicates, it can be presupposed that the group of kids wanted something from the speaker). The data in (7) thus indicate that the problematic example is not contrastive.

4.3.4 The issue of exhaustiveness

É. Kiss (1998) specifically allows for the existence of focus that is neither non-derivable nor contrastive. She argues for a distinction between focus of the new information type and focus of the type associated with a quantification-like operation (see Chapter 2, Section 2.4.3.2 for more detailed discussion), which she calls information focus and identificational focus, respectively. She argues that identificational focus need not be contrastive in English, but that it must be exhaustive: focus performs “exhaustive identification on a set of entities given in the context or situation.” (É. Kiss 1988:248) The focus constituent, then, represents the complete set of items that satisfy the proposition, such that nothing else (in the relevant domain) satisfy it. She further argues that in English identificational focus is typically marked with pitch accent together with the presence of an overt focus operator like *only* or use of an it-cleft construction.

The problematic example *the stick* from (1d), unlike the unproblematic example *a stick* from (1a), can, in fact, be felicitously paraphrased in context with an it-cleft construction, as in (8).

- (8) I TOOK the stick the next day, went out and skated on a POND,
and a group of four, five kids came UP to me, late in the DAY.

It was the STICK they wanted, and I wouldn't give it to them

- (9) [I was at a hockey game with my father]

% and it was a STICK that one of my favorite college players gave me

Example (9) demonstrates that the focus center of (1a) cannot be placed felicitously in an it-cleft construction.

If we accept É. Kiss' s arguments that the it-cleft represents identificational focus, then the fact that the example in (1d) can be placed in an it-cleft construction makes focus on the given entity *the stick* potentially much less problematic. Perhaps it is an example of identificational focus, which does not, according to É. Kiss ,

“mark the nonpresupposed nature of the information it carries.” (É. Kiss 1998:248), and thus, like the problematic example, need not be non-derivable in the discourse.

4.3.4.1 *Testing for exhaustiveness*

É. Kiss emphasizes the exhaustiveness of identificational focus, so determining whether the noun phrase focus *the stick* in (1d) can be argued to represent identificational focus depends on whether it is exhaustive. É. Kiss uses two tests for exhaustiveness to support her argument that the it-cleft represents exhaustive identification of the item in the cleft, while other syntactic constructions do not produce exhaustive identification of the item in focus. The first test, proposed by Sczabolsci 1981, involves coordinating the noun phrase in focus with another noun phrase (as in (9a)) and comparing the results with the sentence containing the item whose exhaustiveness is in question (repeated here, (9b)). If the sentence containing the item being tested is a logical consequence of the sentence containing the coordinate structure, then it is not exhaustive; if it is not a logical consequence, then it is exhaustive.

- (10) One of my favorite college players gave me a STICK, and I TOOK the stick the next day, went out and skated on a POND. And a group of four, five kids came UP to me, late in the DAY.
- (a) They wanted MY WALLET AND THE STICK, and I wouldn't give them to them.
- (b) They wanted THE STICK, and I wouldn't give it to them.

The comparison indicates that, at least in this complete context, (10b) is not a logical consequence of (10a). In this situation, if it were true that the group of kids wanted the speaker's wallet and his stick, it would not be true that they wanted the stick alone. Thus, the problematic example passes the first test for exhaustiveness. The unproblematic occurrence earlier in the discourse, *a stick* in (1a), does not pass this test for exhaustiveness.

- (11) [I was at a hockey game with my father]
- (a) and one of my favorite college players gave me a PUCK and a STICK.
- (b) and one of my favorite college players gave me a STICK.

Here, (11a) does in fact appear to entail (11b). That is, if the hockey player had given the speaker a puck and a stick, it would also be true that he had given the speaker a stick. In this context, there is no sense conveyed that the speaker received only a hockey stick and nothing else. The occurrence of *a stick* in ((1a) and *the stick* in ((1d) thus appear to be different in this regard.

The problematic example also passes a second test for exhaustiveness (Farkas p.c. in É. Kiss 1998).

- (12) ... A group of four five kids came UP to me, late in the DAY.
They wanted the STICK.
- (a) No, they wanted my WALLET (but I gave them the STICK instead).

- (b) No, they wanted my WALLET, too (but it was the STICK that I refused to give them).

In the follow-up sentence (12a), *No* serves to negate the proposition *they wanted the stick*, replacing it in the discourse with *they wanted my wallet*. In (12b), however, the felicitous presence of *too* indicates that here *No* doesn't negate the proposition *they wanted the stick*, but serves instead to negate the property of exhaustiveness, the meaning that they wanted the stick and nothing else. This test also indicates that the focus in the problematic example is exhaustive. The appearance of *a stick* in (1a), on the other hand, does not pass this test.

- (13) [I was at a hockey game with my father] and one of my favorite college players gave me a STICK.

- (a) No, he gave me a PUCK.
- (b) % No, he gave me a PUCK, too.

The presence of *too* in the follow-up sentence in (13b) seems odd here. This appears to be because the only interpretation of *No* is that it negates the proposition *one of my favorite college players gave me a stick*. There appears to be no exhaustiveness in this context for the *No* to negate.

These tests thus suggest that the focus in (1d) appears to express the exhaustive subset of elements *x* in the context such that *they wanted x* holds, while the focus in (1a) does not.

4.3.4.2 A problematic test?

One issue that has been raised² regarding Farkas's test for exhaustiveness is the fact that the presence of *No* is not actually necessary for exhaustiveness to disappear. The data in (14) show that this is the case both for the problematic example that I have argued is exhaustive and for the it-cleft paraphrase that É. Kiss proposes represents (exhaustive) identificational focus.

- (14) ... A group of four five kids came UP to me, late in the DAY.
They wanted the STICK / It was the STICK they wanted.
- (a) No, they wanted my wallet too (but it was the stick that I refused to give them). (cf. (12b))
- (b) They wanted my wallet too (but it was the stick that I refused to give them).

There is, in fact, very little difference in this context between the utterance that includes the word *No* and the one that does not. In (14a)/(12b), I have argued, *No* negates the exhaustive nature of the focus. What happened to exhaustiveness in (14b), where it has not been explicitly negated?

When we apply a similar treatment to the example that has not been argued to be exhaustive, we get a different result.

² Specifically, by an audience member at the a presentation of an earlier version of this at the 74th Annual Meeting of the Linguistic Society of America, January 2000.

(15) [I was at a hockey game with my father] and one of my favorite college players gave me a STICK.

(a) % No, he gave me a PUCK, too. (cf (13b))

(b) He gave me a PUCK, too.

While the utterance with an occurrence of *No* (15a)/(13b) is odd, the one without *No* (15b) is fine. The contrast between (14) and (15) suggests there is a crucial difference between the focus center on *a stick* and the one on *the stick*. Only the contexts argued to be exhaustive ((14)) allow for the overt presence of negation -- this is the basis of Farkas's test. Both contexts, however, allow for the addition of another entity that satisfies the proposition into the discourse context (*They wanted my WALLET/He gave me a PUCK*). Nevertheless, the addition of *my wallet* in (14b) is different from the addition of *a puck* in (15b). While (14a) and (14b) are essentially equivalent, (15a) and (15b) are not. That is, in its context, (14b) apparently conveys something equivalent to *No*, even though it is not overtly expressed, while (15b) apparently does not.

These data suggest an answer to the objection raised to Farkas's test, the question about the disappearance of exhaustiveness in contexts like (14b), absent negation. It is well known that *No* need not be overt. Consider the example in (16).

(16) *Speaker A and Speaker B are discussing a mutual acquaintance, Alex.*

SPEAKER A: Alex finished his dissertation in 1995.

(a) SPEAKER B: (No,) Alex finished his MASTERS in 1995.

(b) SPEAKER B: (%No,) Alex finished his MASTERS in 1995.
Isn't it amazing that one person can accomplish so much in a year?

Whether speaker B utters the word *No* or not, speaker A can infer from (16a) that speaker B believes that Alex did not finish his dissertation in 1995. It has been argued (Hirschberg 1989) that this inference arises through conversational implicature, since it can be cancelled by additional information, as in (16b). Whatever the explanation, something similar seems to be occurring in (14b).

The exhaustive nature of the focus on *the stick* in either the it-cleft or non-clefted versions in (14) is explicitly negated in (14a) and implicitly negated in (14b). Possible further continuances presented in (17) show that whether or not *No* appeared in the first denial (which Farkas assumes is a denial of exhaustiveness) it cannot appear again.

(17) ... A group of four five kids came UP to me, late in the DAY.
They wanted the STICK / It was the STICK they wanted.

(No,) they wanted my WALLET, too

(a) (%No,) they also wanted my JACKET.

(b) (%No,) in fact, they wanted SEVERAL of my possessions.

The possible continuances in (17) now correspond to possible continuances for the example that has been argued to be non-exhaustive (see (15),(18))

(18) [I was at a hockey game with my father] and one of my favorite college players gave me a STICK.

(%No,) he gave me a PUCK, too

(a) (%No,) he also gave me a JACKET.

(b) (%No,) in fact, he gave me SEVERAL souvenirs.

The data in (17a-b) show that the property that originally allowed the felicitous occurrence of *No* with *too* has vanished, and that it does so whether or not *No* appears in the utterance. In either case, the discourse has the same continuance possibilities as (18), argued to contain a non-exhaustive focus.

If the denial of exhaustiveness occurs through mechanisms similar to those operating in (16), though, why can it not be cancelled -- or in this case, restored? The speaker cannot maintain the exhaustiveness of *the stick* as the *x* that satisfies the proposition *they wanted x* without denying *they wanted my wallet*, which would lead to a contradiction. The speaker can, however, through his continuance, re-establish the exhaustiveness of *the stick* with respect to another proposition. This is what the continuance in (12b) “*but it was the stick that I refused to give them*” achieves, in that *the stick* is offered as the exhaustive subset of items in the context that satisfy the proposition *I refused to give them x*.

It is not a problem for Farkas’s *No-too* test that a similar result occurs without the presence of *No*. Her test for exhaustiveness depends on whether *No* and *too* can occur felicitously together. I have presented arguments here to show that the test does in fact distinguish between the circumstances in which focus is argued to represent exhaustiveness and those in which it does not. The negation of the exhaustive nature of a focus, furthermore, like the negation of a proposition, can apparently be accomplished without the overt appearance of *No*, through a mechanism like conversational implicature. Although the negation of a proposition can be cancelled in such circumstances, the negation of the exhaustive nature of a focus cannot, because restoration of exhaustiveness would lead to a contradiction in the discourse.

This discussion supports the intuition that the pitch accent on *a stick* is represents something different from the pitch accent on *the stick*. First of all, these focus centers represent different domains of focus: the clause for the focus center on *stick* in (1”a), and the noun phrase for the focus center on *stick* in (1”d). Furthermore, the focus on the clause in (1”a) does not necessarily convey that a stick was the only thing the speaker received from the hockey player. In (1”d) the speaker conveys through focus on *the stick* that the stick was the single thing that the group of kids wanted from him — thus the exhaustiveness of the focus in this context.

4.4 MARKING IDENTIFICATIONAL FOCUS

The evidence presented in the previous section suggests that noun phrase focus can occur on given entities that are not contrastive, and that this type of focus shares with the identificational focus proposed by É. Kiss (1998) the property of

exhaustiveness. É. Kiss also makes the claim that in English identificational focus occurs only in an it-cleft or in the overt presence of a focus operator like *only*. É. Kiss's proposal provides an explanation for the presence of focus on given entities, like the example that I have argued represents exhaustive focus. The example, however, is problematic for her claim that exhaustive (identificational) focus must be marked in syntax with an it-cleft or focus operator, since there is no such marking associated with it. The example suggests that focus can in fact be expressed by a constituent bearing a pitch accent even when this constituent is not accompanied by a focus operator. This position is also taken by Bush and Tevdoradze (to appear).

Excerpts that include sentences with multiple focus constituents also provide evidence that identificational focus can be realized by pitch accent alone, without the presence of a focus operator or it-cleft. The excerpt represented in (1) contains two examples of sentences with multiple focus constituents, in (a) and (b).

(19)³ *The speaker is discussing the technical aspects of shooting a television series on the space program.*

- (a) It was usually STUNTMEN that were actually in the SUITS.
- (b) We had ACTORS come down for very SPECIFIC scenes,
- (c) so that they would be INCORPORATED into it

É. Kiss claims that identificational can iterate, while information focus does not. If true, this means that any sentence with more than one focus must have identificational focus as well as information focus. The sentence in (1a) provides an example of multiple focus that is not problematic for this idea. In this sentence, *stuntmen* represents identificational focus. It appears in the it-cleft that É. Kiss has proposed as the canonical realization of this kind of focus. The nuclear pitch accent on *suits* does not appear to represent identificational focus. Its meaning is not exhaustive in the context, in that the stuntmen were also sometimes not in the suits. It also fails to pass the proposed tests for exhaustiveness.

(20) *The speaker is discussing some of the difficulties involved in shooting technical scenes*

- (a) It was usually STUNTMEN that were actually in the SUITS and in the stunt HARNESES.
- (b) It was usually STUNTMEN that were actually in the SUITS.

In this case, (20b) is an entailment of (20a), indicating that the focus involving *suits* in (20b) is not exhaustive. The *No-too* test also fails; both cannot appear felicitously in this context, as (21) demonstrates.

(21) *The speaker is discussing some of the difficulties involved in shooting technical scenes*

It was usually STUNTMEN that were actually in the SUITS.

% No, they were sometimes in the stunt HARNESES, too.

³ See Chapter 2, examples (9) and (29) for prosodic boundaries and pitch tracking.

Thus, if the focus center on *suits* represents information focus, (1"a) supports É. Kiss's generalization that sentences with multiple foci contain minimally one identificational focus and maximally one information focus. The sentence with multiple focus constituents in (1"b) can also be understood to support this generalization, but unlike the example discussed in the previous sentence, it serves as a counterexample to the claim that identificational focus must be realized either through an it-cleft or the presence of a focus operator.

The sentence in (1"b) is necessarily a counterexample to one of É. Kiss's claims about identificational versus information focus. If the focus centers on *actors* and on *specific* both represent information focus, the sentence violates her generalization that sentences contain only one information focus. If either focus center represents identificational focus, the sentence contradicts her claim that identificational focus cannot be realized by pitch accent alone, since neither the pitch accent on *actors* nor that on *specific* appears in an it-cleft or accompanied by an appropriate focus operator.

Paraphrasing and other exhaustiveness tests suggest that the nuclear accent associated with *specific* does in fact represent exhaustive (identificational) focus. As (25) shows, the phrase *for very SPECIFIC scenes* can be felicitously placed in an it-cleft in this context ((25a) is the original utterance).

- (22) It was usually STUNTMEN that were actually in the SUITS.
- (a) We had ACTORS come down for very SPECIFIC scenes.
 - (b) It was for very SPECIFIC scenes that we had ACTORS come down

The example in (23) shows that the focus on *for very SPECIFIC scenes* is exhaustive, since (23b) is not a logical consequence of (23a) in this context.

- (23) It was usually STUNTMEN that were actually in the SUITS.
- (a) We had ACTORS come down for SPECIFIC AND GENERAL scenes.
 - (b) We had ACTORS come down for SPECIFIC scenes.

From (24), we see that the focus on *for very SPECIFIC scenes* also passes the *No-too* test for exhaustiveness.

- (24) It was usually STUNTMEN that were actually in the SUITS. We had ACTORS come down for very SPECIFIC scenes.

No, they came down for GENERAL scenes, too.

A final test is the felicitous insertion of *only*. É. Kiss proposes that *only*, like the it-cleft, is a marker of exhaustive identificational focus that is explicit in the syntax. The paraphrases in (25a)-(25c) show that *only* can be added to the original utterance without changing the force of its meaning.

- (25) It was usually stuntmen that were actually in the suits.
- (a) We had ACTORS come down (only) for very SPECIFIC scenes
 - (b) We had ACTORS (only) come down for very SPECIFIC scenes

- (c) We (only) had ACTORS come down for very SPECIFIC scenes

The fact that *only* associates with the focus on *for very SPECIFIC scenes* rather than with that on *actors*, even when *only* occurs higher in the sentence structure than *actors* does (as in (25c)) provides additional evidence that the focus on *for very SPECIFIC scenes* is exhaustive.

The data discussed in this section provides evidence that exhaustive (identificational) focus can in fact be realized by pitch accent alone, without the presence of an it-cleft or other explicit marker of focus.

4.5 SUMMARY

This chapter has treated data from naturally occurring speech that appear to be counter evidence to the idea that focus represents new information, or at least, only new information. I have argued that principles of default accentuation cannot adequately explain the appearance of pitch accent on a crucial example of an item already given in discourse. Nor can focus on this crucial example be explained by appealing to the marking of explicit contrast. The data can, however, be explained by the hypothesis that focus can signal the property of exhaustiveness. These data can thus be understood to provide evidence for two distinct types of focus, one associated with the non-presupposed nature of information in a discourse (information focus), and the other type, which can appear on items already given by the context, with exhaustiveness (so-called identificational focus). Furthermore, data from the corpus indicate that explicit markers (such as *only*) need not occur with exhaustive (identificational) focus; like the focus assumed to be associated with non-presupposed information, exhaustive focus can be realized through pitch accent alone.

Chapter 5: Reconsidering types of focus

Chapter 4 provided evidence supporting the idea that there are two types of focus with different semantic properties, identificational focus and information focus. Identificational focus has been argued by É. Kiss (1998) to apply to

a constituent bearing the following semantic-communicative role in the sentence: ... An *identificational focus* represents a subset of the contextually or situationally given elements for which the predicate phrase can potentially hold; it is identified as the *exhaustive* subset of this set for which the predicate phrase actually holds. (p. 245)

Information focus, on the other hand "merely marks the nonpresupposed nature of the information it carries. (É. Kiss 1998: p. 248)"

The semantic approaches that have been most successful in modeling the contribution of focus constituents to sentence meaning, such as the structured meaning approach (e.g., Stechow 1990, Krifka 1991, Jacobs 1991) or alternative semantics (Rooth 1985; see Chapter 2, section 2.4.3.2), do not distinguish two types of focus. They treat all focus as signaling the existence of alternatives to the item in focus — new entities in a discourse will inevitably have potential alternatives, but so will given entities that are being contrasted or otherwise selected from a list of other possible referents. One attractive characteristic of these models is that they provide a unified account for focus. This captures the idea that, in some crucial way, the pitch accents connected to presentation of new information and the pitch accents connected to contrast (for example) share a fundamental similarity.

É. Kiss (1998), on the other hand, joins others (Halliday 1967, Ladd 1980, Rochemont 1986, *inter alia*) in arguing that there are two types of focus and that these are fundamentally different. Narrow or identificational focus represents "a quantification-like operation," connected to exhaustive interpretation of the item in focus with regard to a set of alternatives, while broad or information focus "merely convey[s] nonpresupposed information." (É. Kiss 1998:245). É. Kiss argues that these two kinds of focus can be distinguished on the basis of the distinct semantic and syntactic properties associated with each type (see Chapter 2, section 2.2.4, also Chapter 4). She demonstrates that this view best accounts for data from Hungarian, which provides different syntactic structures for the two types of focus, and presents arguments for extending this analysis of focus to English.

The data discussed in Chapter 4 provides evidence that there is focus that does not represent new information; this fits with either the view that it represents alternatives (Rooth 1985, Krifka 1991, Stechow 1989, Jacobs 1991, etc), or the view that it can represent alternatives or new information (as in É. Kiss 1998). Adopting the view that identificational and information focus are fundamentally different requires sacrificing the unified account provided by the semantic frameworks that have thus far provided the best sentence-level semantic models of focus. The current chapter thus examines potential differences between identificational focus and information focus in light of data appearing in the speech corpus.

Section 5.1 addresses aspects of É. Kiss 's account of identificational focus that are problematic for examples from naturally occurring speech, particularly contrastive elements. Section 5.2 examines proposals for different subtypes of

identificational focus and suggests that the apparent differences that these proposals attempt to address are not due to properties of identificational focus, but are connected to differences in context and differences in the meaning of items that associate with focus. Finally, Section 5.3 reconsiders the role of information focus in discourse, and how this differs from identificational focus, proposing specific properties that distinguish the two types. This proposal presents an advantage over that in É. Kiss (1998) and in Bush and Tevdoradze (to appear) not only because it captures the facts for English more effectively, but also because it preserves a unified account for focus while still accounting for the differences observed between identificational and information focus.

5.1 IDENTIFICATIONAL FOCUS AND CONTRAST

É. Kiss connects identificational focus to contrastive focus, which has also often been distinguished, either explicitly or implicitly, from focus connected to the presentation of new information (e.g., Halliday 1967, Jackendoff 1972, Chafe 1976, Ladd 1980, Rochemont 1986, etc.). Given what she assumes about identificational and information focus, however, the connection É. Kiss makes between identificational focus and contrastive focus is problematic. Many examples of contrastive focus discussed in the literature and appearing in the corpus data do not share the characteristics of identificational focus as described in É. Kiss 1998.

5.1.1 *It*-clefts and contrast

Identificational focus, as represented by an *it*-cleft, can have a contrastive interpretation (Prince 1978, Rochemont 1986, É. Kiss 1998). An example from the speech corpus used as a source of data in this work supports this observation.

- (1) (a) It was usually STUNTMEN that were actually in the SUITS.
- (b) We had ACTORS come down for very SPECIFIC scenes,
- (c) so that they would be INCORPORATED into it

The focus constituent *stuntmen* appears in an *it*-cleft, and is therefore unambiguously identificational focus (for additional discussion of this example, see Chapter 4, section 4.4 and Chapter 3, section 3.4.1). This contrasts with the focus centered on *actors* in (1b). Rochemont (1986) argues that *it*-clefts of this type are always contrastive.

É. Kiss (1998; see also Prince 1978), on the other hand, argues that *it*-clefts — and identificational focus — need not be contrastive in English. An example from the corpus supports her view (see Chapter 3, section 3.4.1 for additional information about context and intonation).

- (2) (a) and I think it was probably Ed White's walk in SPACE
- (b) you know, during the GEMINI mission
- (c) that just totally hooked me on the ASTRONAUTS

The clefted constituent *Ed White's walk in space* does not contrast with anything in the context. The speaker does not explicitly mention other possible influences on his fascination with the space program. The focus constituent in the cleft here merely identifies the single most probable influence. These examples

from the corpus demonstrate that identificational focus can be contrastive, but need not be. They indicate that we cannot equate identificational focus with contrastive focus, since only some identificational focus constituents are contrastive.

This raises an important question about the relationship between contrastive items and identificational focus. Not all identificational focus constituents are contrastive; but are all contrastive items in focus identificational, in the sense that they express exhaustive identification over a set of contextually given elements? This is indeed what one might expect: when speakers set up contrasts in discourse, they explicitly define relevant sets of alternatives; when they focus an item in contrast, they select the single element of that set that makes the assertions of the sentence in which it is focused true.

Nevertheless, defining contrastive focus in general as a subset of identificational focus is problematic, given the properties attributed to identificational focus in É. Kiss (1998). Sections 5.1.2 to 5.1.6 will address these issues.

5.1.2 Contrastive accent

The first problem with connecting identificational focus and contrastive focus arises from É. Kiss's (1998) claim that identificational focus must be realized in English with an *it*-cleft or through the presence of an appropriate focus operator (like *only*). Nearly a century of literature on accent and focus provide dozens of examples of contrast indicated by pitch accent alone, and many also occur in the corpus used here.

- (3) Yoú may call it dárk blue, Í should say it was bláck.
(Coleman 1914, in Bolinger 1961)

- (4)¹ (a) We can't get a traíned beáver to gnáw on the wood.
(b) a stúffed beaver was even gonna cost a lot.
(c) and forgét about a robótic beaver

Clearly, the examples in (3) and (4) create sets of items in contrast: *I* versus *you*, *dark blue* versus *black*, *trained* versus *stuffed* versus *robotic* beavers. Insistence on the idea that identificational focus must be realized in an *it*-cleft or with a focus operator would mean that pitch accents in such contexts could not represent identificational focus; we would be forced to conclude that they were examples of information focus. This is not a very appealing conclusion, given the intuition that contrast involves alternatives, something É. Kiss associates with identificational focus, not information focus. Secondly, É. Kiss connects information focus with new information, and cases of contrastive focus have long been noted to represent exceptions to the idea that focus signals new information (Halliday 1967, Rochemont 1986, etc.).

Furthermore, concluding that the contrastive accents in (3) and (4) represent information focus leads to a second problem. É. Kiss claims that a sentence can have only one information focus, and each clause in (3) has two accented constituents (see also the sentence in (1b) for an example with two focus

¹ See chapter 3, section 3.3 for more information on intonation and context for this example from the corpus.

constituents from the corpus). If it is true that a sentence can have only one information focus, then at least one of two focus accents in a clause must represent identificational focus.

Discussion in Chapter 4 provides a solution to these problems. The discussion there demonstrated that that identificational focus, in so far as it is exhaustive, can be realized via pitch accent alone. If contrastive focus realized by pitch accent alone can be identificational, then multiple contrastive focus constituents do not present a problem, since a sentence can contain more than one identificational focus. Establishing that identificational focus can be realized through pitch accent alone allows for further investigation of the relationship between contrastive items and identificational focus.

5.1.3 Contrast and exhaustiveness

The corpus data already cited here contains an incidence of contrast that warrants a closer look, specifically *actors* in (1b) (repeated below).

- (1) (a) It was usually STUNTMEN that were actually in the SUITS.
- (b) We had ACTORS come down for very SPECIFIC scenes,
- (c) so that they would be INCORPORATED into it

Discussion in Chapter 4 demonstrated that the focus center on *specific* indicates identificational focus. First, the focus constituent *for very specific scenes* passes proposed tests for exhaustiveness. It can also be felicitously paraphrased in an *it*-cleft. Finally, a felicitous paraphrase with the word *only* shows that the meaning of *only* associates with the focus constituent *for very specific scenes*, not with *actors*. (See section 4.4).

Cursory evaluation might suggest that the accent on *actors* does not signal identificational focus. First of all, it does not pass the tests for exhaustiveness employed by É. Kiss (1998). The coordination test in (5) shows that (5b) is a logical consequence of (5a) in this context, a relationship that is not supposed to hold if the focus constituent in (5b) is exhaustive. In (6), a second test for exhaustiveness indicates that *no* and *too* cannot both appear felicitously in a continuation of the discourse, as they have been argued to do after exhaustive focus (É. Kiss 1998; see also Chapter 4, section 4.3.4).

- (5) It was usually STUNTMEN that were actually in the SUITS.
 - (a) We had STUNTMEN AND ACTORS come down for very SPECIFIC scenes.
 - (b) We had ACTORS come down for very SPECIFIC scenes.
- (6) It was usually STUNTMEN that were actually in the SUITS.
We had ACTORS come down for very SPECIFIC scenes.

% No, the STUNTMEN came down, too.

Thirdly, (7) shows that the focus centered on *actors* cannot be felicitously paraphrased in an *it*-cleft in the context provided. This paraphrase is not only

infelicitous, it results in a meaning that is different from the one the speaker intends — specifically that the stuntmen were in the suits (and did not come down for the specific scenes to which the speaker refers, which is false in the situation) and that the actors appeared for the specific scenes (and did not wear the suits). This paraphrase contrasts actors with stuntmen and being in the suits with coming down for specific scenes; the second contrast was not part of the original discourse.

(7) It was usually STUNTMEN that were actually in the SUITS.

% It was ACTORS who we had come down for very SPECIFIC scenes.

Taken together, these tests seem to suggest that the nuclear accent on the contrastive element *actors* does not represent exhaustive or identificational focus.

Yet *actors* also seems to belong to the set of alternatives containing *actors* and *stuntmen*. Intuitively, the accent on *actors* selects this alternative (exhaustively) as the one that makes the assertion of the sentence true. This intuition is supported by a wh-question and answer pair that reflects the meaning of the sentence in (1b).

(8) Of actors and stuntmen, who was it you had come down for very SPECIFIC scenes?

It was ACTORS.

The tests in (5)-(7) fail to indicate that the focus constituent *actors* is exhaustive (within the set containing *actors* and *stuntmen*) because these tests do not take into account the effect of the identificational focus on *for very specific scenes* on the sentence meaning.

Consider the informal semantic representations in (9).

(9) (a) For all x , x a person, and all y , y a scene, if we had x come down for y , then x was an actor and y was a specific scene.

(b) For all x , x a person, and all y , y a specific scene, if we had x come down *only* for y , then x was an actor.

Krifka (1991; see also Chapter 2, section 2.2.3) argues that the background of a sentence— what is not in the focus — helps restrict the domain of quantification of a sentence (see Chapter 2, section 2.2.3), and data from the corpus support this (see Chapter 3, section 3.6.2). The background for this sentence is *We had x come down for y* , where x and y represent the focus constituents of the sentence. Notice, though, that (9a) is not true in the discourse situation the speaker is describing. There were people (in the set of alternatives) who came down for scenes ("specific" or otherwise) who were not actors — namely the stuntmen, who presumably appeared in specific scenes as well as non-specific ones. On the other hand, (9b), which incorporates the exhaustiveness of focus on *for very specific scenes* into the restrictions of the conditional by addition of the word *only*, is true. It was actors, and not stuntmen, who came down only for specific scenes. The representations in (9) show that the identificational focus on *for very specific scenes* must be part of the background for the interpretation of the focus on *actors*: it must take scope over the focus on *actors* to result in the meaning the speaker intends.

The tests in (5)-(7) failed because they led to readings in which focus on *actors* took scope over the focus on *for specific scenes*.

Once we employ tests that explicitly capture the exhaustiveness of the focus on *for very specific scenes* (by addition of *only*), and force it to take scope over *actors*, the focus constituent *actors* also passes tests for exhaustiveness.

- (10) It was usually STUNTMEN that were actually in the SUITS.
- (a) We had STUNTMEN AND ACTORS come down for very SPECIFIC scenes only.
- (b) We had ACTORS come down for very SPECIFIC scenes only.

- (11) It was usually STUNTMEN that were actually in the SUITS.
We had ACTORS come down for very SPECIFIC scenes only.

No, the STUNTMEN came down for specific scenes only, too, just different specific scenes.

In the new tests, (10b) is no longer a logical consequence of (10a), and *no* and *too* both appear felicitously in the continuation in (11). The positive results here suggest that the focus constituent *actors* is exhaustive when the focus on *for specific scenes* is part of the restrictions on its interpretation. Even an *it*-cleft paraphrase is improved somewhat over that in (7) by the addition of *only*, although it is still not completely felicitous.

- (12) It was usually STUNTMEN that were actually in the SUITS.

? It was ACTORS who we had come down for very SPECIFIC scenes only.

The continued infelicitousness here likely has nothing to do with a lack of exhaustiveness for the focus *actors*. Note that unlike the paraphrase in (7), the paraphrase in (12) is at least true in the discourse situation. It is still infelicitous because it presupposes that someone came down for very specific scenes only, which cannot be presupposed in the discourse situation; this indicates that the use of this paraphrase as a test for identificational focus is limited to contexts in which the post-cleft material can be presupposed (Prince 1978).

Discussion of this example shows that the focus constituent *actors* does in fact appear to represent exhaustive identification over the alternative set including *actors* and *stuntmen*. Thus the sentence in (1b) has two identificational focus constituents, one that is not contrastive (*for very specific scenes*) and one that is. The identificational focus on *for very specific scenes* takes scope over the contrastive focus on *actors* in the meaning the speaker intends, but there is also another possible meaning for the sentence in which the focus on *actors* takes scope over *for very specific scenes*. This type of interaction also suggests that these focus constituents are identificational, since "entering into scope relations" is one of the characteristics É. Kiss (1998; see Chapter 2, section 2.2.4) attributes to identificational focus, but not to information focus.

5.1.4 Contrast with *also*, *too* and *even*

É. Kiss (1998) also claims that identificational focus cannot apply to *even* or *also* phrases. She argues this partly on the basis of the fact that these particles typically cannot appear in *it*-clefts.

- (13) It was ?also John/ *even John/ ?John, too that Mary invited to her birthday party.

If identificational focus is exhaustive identification over a contextually given set, it seems logical to conclude that these additive particles would not be felicitous with identificational focus. In the discussion thus far, exhaustive identificational focus has represented the single item of a set of alternatives that makes an assertion true. *Even* and *also* are appropriate in assertions that specify an additional item that makes an assertion true, and thus come with a presupposition that the assertion is also true of other alternatives. This results in a contradiction: exhaustiveness says there is a single alternative that makes the proposition true, while additive particles say that the proposition is true of more than one alternative. É. Kiss (1998) does not discuss *too* in this capacity, but the same logic applies. Like *even* and *also*, *too* is not entirely felicitous in an *it*-cleft.

- (14) It was ?John, too that Mary invited to her birthday party.

Yet the literature on focus and the speech corpus used here provide examples of contrastive focus that occur with *also*, *too* and *even*. Examples from the corpus appear below.

- (15) *A parole officer tells a story to help illustrate the effectiveness a program intended to reduce violent crime committed by youthful offenders:*
- (a) There was a young man by the name a Freddy CARDOZA
 - (b) who was caught with a BULLET.
 - (c) He was also caught passing a gun to a JUVENILE
 - (d) because the JUVENILE would get a lesser SENTENCE
- (16) *The speaker is discussing the outcome of his attempts to encourage his children to entertain themselves with a variety of activities*
- (a) I got kids who *read* like CRAZY,
 - (b) and play VIDEO games like crazy TOO.
- (17) *The creator of an animated television series is explaining the problems that arose during a failed attempt to produce a live-action TV spin-off.*
- (a) We can't get a *trained beaver* to gnaw on the WOOD.
 - (b) a STUFFED beaver was even gonna cost a lot,
 - (c) and forget about a ROBOTIC beaver.
 - (d) If it's a CARTOON, you can draw that BEAVER

In (15), *also* appears with *(caught) passing a gun to a juvenile*, which contrasts with *(caught) with a bullet*. In (16), *too* appears with *play video games*, which contrasts with *read*. In (17), *even* appears with *a stuffed beaver*, which contrasts with *trained, robotic* and, arguably, *cartoon* beavers.²

If contrastive focus is identificational, as intuition suggests, such examples present a problem, given the claim that *even* and *also* (and presumably *too*) are barred from occurring with identificational focus. Either this claim is problematic, or the idea that contrastive focus is identificational is problematic.

É. Kiss (1998; p. 252) suggests a way out of this quandary, at least for contexts including *also*. She notes that there are contexts in which *also* is felicitous in an *it*-cleft: "a cleft *also*-phrase appears to be acceptable precisely in a context where it can be understood to identify a member of a relevant set in addition to one or more members identified previously as such for which the predicate holds, with the rest still excluded." In such contexts, *also*-phrases can thus have a kind of exhaustiveness.

This observation appears to extend to examples of contrastive focus indicated solely by pitch accent. The situation É. Kiss describes for identificational focus in *it*-clefts applies to the example in (15) including *also* above. In the discourse, the focus constituent that appears with *also* in (15c), *passing a gun to a juvenile* has a previously identified alternative: *with a bullet*. The focus constituent *passing a gun to a juvenile* represents the subset of things that Freddy was *also* caught doing in the context. The focus, together with the alternative explicitly expressed in the discourse, can be considered to comprise the complete set of illegal things Freddy was caught doing in the situation described: they certainly comprise the complete set of illegal things relevant to the story the speaker is telling. Alternative illegal things he could have been caught doing, while not specified in the discourse, are excluded: the speaker does not need to tell his audience that Freddy was not caught cheating on his taxes or destroying evidence. The audience can infer this on the basis of interpretation of the focus on *passing a gun to a juvenile*. Thus, the item in focus represents a final addition to the subset of the set of alternatives *x* such that *Freddy was caught x*, excluding all remaining alternatives from this subset. The focus is thus connected to an exhaustive subset of the set of alternatives.

The example with *too* in (16b) is similar. Again, there is a previously identified alternative to *play video games* in the context, *read*. Again, the focus constituent *play video games* represents the set of things such that the speaker's kids do them like crazy, too. Furthermore, this together with the alternative explicitly provided in the context (*read*) can be considered the complete set of things the speaker's children do like crazy. Alternative things kids might do like crazy, while not specified in the context, are excluded, and thus an exclusive exhaustive interpretation also arises. Based on the interpretation of the focus on *play video games*, the audience can infer that the speaker's kids do not roller skate like crazy or play chess like crazy, either. The item in focus excludes any remaining alternatives from the set of *x* such that *they do x like crazy*. It can thus be considered exhaustive.

The example with *even* in (17b), like the other examples, occurs in a context where there is a previously identified alternative to *stuffed beaver*, namely *trained beaver* (these, in turn, are previously identified alternatives to *robotic beavers*).

² see Chapter 3, section 3.3 for more discussion of the focus in each of these examples and pitch tracks for (16), also section 3.1 for pitch tracking for (15), section 3.6. for pitch tracking for (17))

What the speaker conveys is that of all the specified (and possibly also unspecified) beaver types, the single kind of beaver he expects (or expects his audience to expect) not to be expensive is the stuffed kind. This leads to an exhaustive statement: there are no other kinds of beavers that cost a lot that the speaker considers less likely to cost a lot. Furthermore, the focus excludes from the set of elements x such that x *was gonna cost a lot* any members of the alternative set even less likely to be expensive than a stuffed beaver. That is, given the context for the example in (17), the hearer can infer that the kinds of beavers that are even less likely to be expensive than a stuffed beaver — say cartoon beavers and paper-machè beavers — are excluded from the set of x such that x *is gonna cost a lot*. Thus, a reconsideration of the facts allows the focus constituent associated with *even* to be classified as exhaustive, too.

The relevant circumstances discussed for each of these sentences is summarized in Table 5.1.

Table 5.1: Comparison of sentences containing additive particles

| <i>sentence</i> | He was also caught [passing a gun to a juvenile] _F . | ... and [play video games] _F like crazy, too. | [A stuffed beaver] _F was even gonna cost a lot. |
|--|--|--|---|
| Background | <i>He was caught x</i> | <i>(they) x like crazy</i> | <i>x was gonna cost a lot</i> |
| Alternatives | {with a bullet, passing a gun to a juvenile, destroying evidence, cheating on taxes ...} | {read, play video games, play chess, roller-skate, ...} | {a robotic beaver, a trained beaver, a stuffed beaver, a paper machè beaver, a cartoon beaver} |
| Additive particles | <i>also</i> | <i>too</i> | <i>even</i> |
| Focus subset | x such that <i>he was caught</i> $x = \{\text{passing a gun to a juvenile}\}$ | x such that <i>they x like crazy</i> $= \{\text{play video games}\}$ | x such that <i>x was gonna cost a lot</i> $= \{\text{a stuffed beaver}\}$ |
| Subset of excluded alternatives | x such that <i>he was not caught</i> $x = \{\text{destroying evidence, cheating on taxes...}\}$ | x such that <i>they do not x like crazy</i> $= \{\text{play chess, roller-skate...}\}$ | x such that <i>x was not gonna cost a lot</i> $= \{\text{a paper machè beaver, a cartoon beaver}\}$ |
| Exhaustive subset of included alternatives | x such that <i>he was caught</i> $x = \{\text{with a bullet, passing a gun to a juvenile}\}$ | x such that <i>they x like crazy</i> $= \{\text{read, play video games}\}$ | x such that <i>x was gonna cost a lot</i> $= \{\text{a robotic beaver, a trained beaver, a stuffed beaver}\}$ |

The subsets of excluded and included alternatives are derived from the focus set, the alternative set, and the propositions already established in the discourse. The examples discussed here ((15)-(17)) suggest that the exhaustiveness of the subset of included alternatives is an implicature derived from identificational focus rather than a property of the focus meaning. It appears to be an implicature because it can be canceled by a continuance, as the examples in (18) demonstrate.

- (18) (a) Freddy was caught with a BULLET. He was also caught passing a gun to a JUVENILE, and destroying EVIDENCE. (cf. (15))
- (b) I got kids who read like crazy and play VIDEO games like crazy, too. And they play CHESS like crazy, too. (cf. (16))
- (c) A STUFFED beaver was even gonna cost a lot — heck, even a paper MACHÈ beaver was gonna cost a lot. (cf. (17))
- (d) It was the STICK they wanted. They wanted my WALLET, too, but it was the stick that I refused to give them. (cf., Chapter 4, (14))

The example in (18d) indicates that exhaustiveness is an implicature even for sentences with *it*-clefts. This suggests that identificational focus identifies (non-exhaustively) the subset of alternatives for which the assertion of the sentence holds, and that exhaustiveness is an implicature that arises from this identification. In each of the examples in (18), the identificational focus of the continuance conveys a new implicature of exhaustiveness (which could then be canceled by further additions).

The summary of facts in Table 5.1 also suggests an explanation for the failure of proposed tests of exhaustiveness for sentences with additive particles. The understanding of the facts for sentences with additive particles represented in fits in with the view that the interaction of these with focus affects the implicatures of a sentence (Horn 1996). The subset of included alternatives for sentences with additive particles apparently results from implicature. While representing an exhaustive subset in and of itself, the subset of included alternatives invariably contains more than one element of the alternative set for sentences with additive particles. This is related to the meaning of the additive particles themselves. A summary of the same information for an *it*-cleft sentence or other sentence with identificational focus that does not contain an additive particle would presumably contain only one element of the alternative set.

Proposed tests for exhaustiveness may test against the elements in the included subset; this would address why it is that once the *No-too* test has been applied in a discourse, it cannot be applied again. This issue was raised in Chapter 4, with regard to the following example:

- (19) ... A group of four five kids came UP to me, late in the DAY.
They wanted the STICK / It was the STICK they wanted.
- (a) (No,) they wanted my WALLET, too
- (b) (%No,) they also wanted my JACKET..

This example suggests that once the included subset x such that *they wanted* x has more than one member (which it would after the sentence in (19a) has been entered into the discourse), the *No-too* test fails.

Whatever the reasons behind the failure of the tests for the focus in sentences with additive particles, the examples from the corpus indicate that focus in these sentences can in fact convey exhaustiveness. Like the identificational focus connected to *it*-clefts, the focus in sentences with *even*, *also* or *too* excludes other members of the alternative set from the subset of elements that satisfy the basic predicate of the sentence. The focus in these sentences can thus be classified as examples of identificational focus.

5.1.5 Forward-looking contrast

There are, as the corpus data shows and others have observed (e.g., Rooth 1992) also cases in which items with a pitch accent represent a forward-looking contrast. In the corpus data, some such items carry a nuclear pitch accent (see, for example, *stuntmen* in (1)), while others carry a secondary pitch accent. Two contexts in which items with a secondary pitch accent represent forward-looking contrast appear in (16a), *read*, and (17a) *trained beaver* (repeated below).

- (16) *The speaker is discussing the outcome of his attempts to encourage his children to entertain themselves with a variety of activities*
- (a) I got kids who *READ* like CRAZY,
 - (b) and play VIDEO games like crazy TOO.
- (17) *The creator of an animated television series is explaining the problems that arose during a failed attempt to produce a live-action TV spin-off.*
- (a) We can't get a *TRAINED BEAVER* to gnaw on the WOOD.
 - (b) a STUFFED beaver was even gonna cost a lot.

I have argued that contrastive elements in other examples were identificational focus. The items *trained beaver* and *read*, however, appear to be something different. First of all, as already noted, the pitch accents appearing on them do not serve as the nuclear pitch accents of their intonational phrases, but are secondary pitch accents. Secondly, the pitch accents are actually optional in these contexts, and so do not serve as focus centers: that is, they could be omitted or relocated to another stressed syllable within their intonation phrase or clause without affecting the felicitousness of the discourse. These facts differ from those for the accents on *video* in (16b) and *stuffed* in (17b): these items represent focus centers because they both bear obligatory pitch accents, ones which cannot be omitted or relocated without resulting in a change in the felicitousness of the discourse. Thirdly, the accented constituents *read* and *trained beaver* do not pass tests for focus constituency, although they fall within the focus constituents of their respective sentences.

- (20) [As a result of my experiment in parenting]
- (a) % I got kids and what they do like CRAZY is *read*.
 - (b) What I got is kids who read like CRAZY.
- (21) Fox said: Do you realize what it's gonna cost to get a beaver?
- (a) % What we can't get to gnaw on the wood is a trained beaver.
 - (b) % What we can't get is a trained beaver to gnaw on the wood.
 - (c) ? What we can't do is get a trained beaver to gnaw on the wood.
 - (d) What they also said was "we can't get a trained beaver to gnaw on the wood."

The focus constituent of (16a) appears to be *kids who read like crazy*, as indicated by the test in (20), while the test in (21) indicates that the focus constituent in (17a) is the entire sentence.

These facts suggest that the secondary pitch accents on *trained beaver* and *read* do not represent focus at all, identificational or otherwise. The meaning and context of the discourse does not require that they be highlighted, and they can not be felicitously placed (as the sole item) in the focus portion of a wh-cleft paraphrase. Further inquiry into the use of secondary accent in spoken discourse may reveal that secondary accent can also play a systematic role in the interpretation of a sentence within discourse. Perhaps secondary accents like these help prime hearers for interpretation of upcoming contrast.

5.1.6 Identificational focus in contrast

In section 5.1, I have argued that cases of contrastive focus are identificational focus. This claim has an important advantage over the idea that contrastive focus is information focus. It fits in with the long-standing generalization that contrastive focus differs from information focus (e.g., Halliday 1967, Ladd 1980, Rochemont 1986, etc.). It captures the intuition that contrast is associated with explicit alternatives in the discourse context (Jackendoff 1972, Rooth 1985, etc.), and fits with the data that show contrastive focus constituents can participate in scope interactions, a characteristic that É. Kiss claims for identificational focus.

I have demonstrated that contrastive focus constituents indicated by pitch accent alone (as opposed to *it*-clefts) pass tests for exhaustivity when they identify a unique element of an alternative set that makes the assertion of a sentence true (section 5.1.3). Contrastive focus constituents appearing with additive particles do not pass proposed tests for exhaustivity, but I have argued that they nevertheless appear to result in exhaustive identification of a subset of alternatives that make the assertion of the sentence true.

5.2 CATEGORIES OF IDENTIFICATIONAL FOCUS

Discussion in the previous section argued that contrastive focus can be considered a subset of identificational focus. It also demonstrated that identificational focus constituents represent identification of a single member of an alternative set, and that from this an exhaustive subset, which I have called the subset of included alternatives, can be derived. For some cases of identificational focus, the subset of included alternatives is equivalent to the subset connected to the focus (as for focus on *actors* in example (1b)). For sentences with additive particles, the subset of included alternatives contains the single element of the subset of the focus as well as additional elements of the alternative set.

Previous analyses have linked differences in the behavior of focus constituents to properties of the focus (É. Kiss 1998, Bush and Tevdoradze, to appear). I will argue that given the observations made here about contrastive focus, and identificational focus in general, the observed differences in identificational focus are better attributed to factors other than properties of the focus.

5.2.1 Deriving contrast

É. Kiss (1998) posits a [\pm contrastive] feature for identificational focus. She thus joins others in arguing that semantic contrast is tied to a property of the focus

(e.g., Chafe 1976, Taglicht 1982, Rochemont 1986). É. Kiss regards "an identificational focus [+contrastive] if it operates on a closed set of entities whose members are known to participants of the discourse;" [-contrastive] focus operates on an open set of alternatives.

A different view is that contrast is a derived property of identificational focus (see Bartels and Kingston 1996; also Sgall et al. 1986, Ladd 1980 for discussion about focus in general) and that a [\pm contrastive] feature is unnecessary. The corpus data support this view, at least for English. Identificational focus is tied to the "existence of a contextually given set of elements" (É. Kiss 1998). A contrastive interpretation results if and only if the members of this set are *explicitly* provided by the context. If the members of this set are not explicitly provided, but merely implied by the context, a contrastive interpretation does not arise. This incorporates the same intuitions as É. Kiss's [\pm contrastive] feature, but makes the claim that the contrastive interpretation results from properties of the *context*, rather than properties of the focus.

The generalization that contrastive focus arises only if alternatives are explicitly provided applies to every example of identificational focus occurring in the corpus data. Comparison of the example in (23) to the original text in (22) illustrates the difference context makes.

- (22) (a) and I TOOK the stick the next day, went out and skated on a POND
 (b) and a group of four five kids came UP to me late in the DAY
 (c) they wanted the STICK and I wouldn't GIVE it to them

The previous analysis of this example indicates that the focus center on *stick* represents focus that is exhaustive, and therefore identificational, but not contrastive (see section 4.3.3).

- (23) and I TOOK the stick the next day and went out and skated on a POND. A group of four five kids came UP to me late in the DAY.
 (a) At first I thought they wanted my WALLET, but actually
 (b) they wanted the STICK, and I wouldn't GIVE it to them

In the original discourse in (22), the exhaustive focus centered on *stick* does not receive a contrastive interpretation. Its alternatives are situationally determined and not explicitly given by the context. In the adapted discourse in (23), which contains an explicit alternative, a contrastive interpretation for the focus centered on *stick* arises. The change in context accounts for the difference; there is no need to posit a change in the type of focus as well, particularly when there is no apparent difference in realization between identificational focus interpreted as contrastive and that which is not. Certainly, it is the case that a speaker cannot use a so-called non-contrastive identificational focus in a context calling for contrast. This is not linked, however, to any resulting ungrammaticality, or even infelicitousness. It is simply that if the context calls for contrast, that is how the focus will be interpreted. While it is useful to distinguish contrastive focus from that which is not contrastive on an informal basis, it does not appear to be necessary to do so within grammar, at least not for English.

My claim is that contrast is invariably derivable from discourse, and thus not a basic property of a subtype of identificational focus. This conclusion relates to a number of issues that have already been discussed. In section 5.1.4, I argued that

contrastive items that associate with additive focus sensitive-particles represent examples of identificational focus; this would presumably be true for any contrastive item that interacts with any focus-sensitive operator (e.g., modals, quantifiers, etc). If the contrastive interpretation of these items is determined by context rather than a property of the focus itself, then there is no difference between the focus connected to contrastive items that interact with focus operators and the focus connected to non-contrastive items that interact with focus operators. An implication of this is that *any* focus that interacts with a focus-sensitive operator is identificational, whether it is contrastive or not. This fits in with existing semantic models of association with focus, which rely on the alternative sets that have been connected in É. Kiss 1998 with identificational focus; these have not typically distinguished between contrastive and non-contrastive cases.

Another related issue involves cases of forward-looking contrast. In section 5.1.5, I demonstrated that some cases of items that appeared to indicate forward-looking contrast were not really cases of focus at all. If [+contrastive] were a specific feature of focus, as É. Kiss (1998) and others have argued, this data would be problematic, since there is no focus connected to the forward-looking contrast items in (16a) and (17a). If contrast is a result of context rather than a property of focus, however, this data is not problematic.

5.2.2 Arriving at differences in identificational focus

É. Kiss (1998) argues for the special status of the focus in *it*-clefts on the basis of restrictions on what can appear in a cleft. Specifically, clefted focus constituents typically bar additive particles and proportional quantifiers, while focus constituents that are not clefted do not (see (24) from É. Kiss 1998).

- (24) (a) It was %EVERYBODY/ %even JOHN that Mary invited to her birthday party.
 (b) Mary invited EVERYBODY / even JOHN to her birthday party.

Bush and Tevdoradze (to appear) observe, as I did in Chapter 4, that the exhaustiveness É. Kiss claims for *it*-clefts also applies to certain focus constituents that are indicated by pitch accent alone. They reiterate É. Kiss 's observation that pitch accented focus constituents are not subject to the same restrictions as the clefted focus constituents (as illustrated in (24)), but argue that these nevertheless represent exhaustive/identificational focus. Furthermore, they claim that a clefted focus constituent comes with an existential presupposition that does not accompany exhaustive focus expressed by pitch accent alone (see (25) from Bush and Tevdoradze, to appear). This presupposition bars the occurrence of negative quantifiers in the cleft.

- (25) (a) It was %NOTHING that Mary bought.
 (b) Mary bought NOTHING.

The next section summarizes the account proposed by Bush and Tevdoradze to account for the observed differences. In section 5.2.2.2, I will claim that such an account is unnecessary. I will argue that the focus constituents in these different circumstances have the same basic characteristics, and that the observed differences

arise as a result of interaction between the focus, the context in which it appears and other elements that contribute to the interpretation of sentences.

5.2.2.1 *Narrow and broad identificational focus*

The facts summarized above led Bush and Tevdoradze (to appear) to conclude that there are two types of identificational focus, one corresponding to exhaustive focus expressed in a cleft and one to exhaustive focus expressed through pitch accent alone. They describe these as narrow identificational focus (which I will abbreviate NIdF) and broad identificational focus (which I will abbreviate BIdF), respectively. The difference they claim for these two types of focus is that in NIdF sentences, only the clefted item is in the focus phrase, while in BIdF sentences, the whole sentence is the focus phrase — thus the expression broad identificational focus. These differences are represented by the bracketing in (26) (from Bush and Tevdoradze, to appear). In both cases, *a hat* is the focus: what differs in NIdF and BIdF is the size of the focus phrase.

(26) What did Mary buy? ³

- (a) It's [[a HAT]_F]_{FP} that Mary bought.
- (b) [Mary bought [a HAT]_F]_{FP}.

According to Bush and Tevdoradze, the sentences in (26) have different types of identificational focus, but the same *information* focus, as indicated by the fact that either can serve as an answer to the question *What did Mary buy?* The information focus for both sentences is *a hat*.

Identificational focus, according to their analysis, "contributes a non-cancelable (conventional) exhaustiveness implicature." The narrow focus of the NIdF sentence in (26a) thus provides an exhaustive indication of what Mary bought (the set of *x* such that *Mary bought x*), with alternatives consisting of items of the same type, for example *a coat* or *a pair of shoes*, and it follows from sentence (26a) that Mary did not buy anything other than a hat. The broad focus of the BIdF sentence in (26b) provides an exhaustive indication of what is true (the set of *x* such that *x is true*), with alternatives also consisting of items of the same type, for example *Mary bought a coat* or *Mary bought a pair of shoes*. Thus, it follows that the other alternatives to the sentence in (26b) are not true.

Bush and Tevdoradze argue that the proposed difference in the breadth of focus accounts for the differences in what can appear with the two types of focus. First, they argue that proportional quantifiers are infelicitous in *it*-clefts due to a type mismatch. Following Heycock and Kroch (1999), they claim that cleft focus should be "a statement of equivalence at the level of *individuals*." (emphasis added) Since proportional quantifiers do not denote individuals, but sets of individuals, they are not felicitous in clefts like (27a) because expressions of two different semantic types are being equated, an individual (*what Mary bought*) and a set (*everything*) (from Bush and Tevdoradze, to appear).

³ Note that they make a distinction between focus and focus phrase that I have not assumed anywhere in this work. I have treated items with obligatory pitch accents (usually nuclear pitch accents) as *focus centers*, and have called the focus domains that these define *focus constituents*.

- (27) (a) It was %[[EVERYTHING]_F]_{FP} that Mary bought.
 (b) [Mary bought [EVERYTHING]_F]_{FP}.

In the BIdF sentence in (27b), there is no type mismatch because there is no statement of equivalence, so the appearance of a proportional quantifier is felicitous.

Bush and Tevdoradze argue that *also* cannot appear in cleft focus because of a contradiction that arises between the conventional exhaustiveness implicature of the cleft and the existential presupposition of *also*. Informally, the exhaustiveness of (28a) — that Mary didn't buy anything other than a hat — contradicts the existential presupposition of *also* — that Mary bought something other than a hat.

- (28) (a) It was %[also [a HAT]_F]_{FP} that Mary bought.
 (b) [Mary also bought [a HAT]_F]_{FP}.

They claim that exhaustive focus is felicitous with *also* in (28b) because the same contradiction does not arise in the BIdF sentence. The conventional exhaustiveness implicature of the sentence in (28b) is different from that of (28a) — Mary didn't also buy anything other than a hat. This is not incompatible with the existential presupposition of *also* — Mary bought something other than a hat. Thus, *also* is compatible with BIdF, even though it is not compatible with NIdF.

They also argue that the breadth of the exhaustive focus accounts for the difference between the sentence in (25a) and (25b) (repeated below).

- (25) (a) It was %[NOTHING]_{FP} that Mary bought.
 (b) [Mary bought [NOTHING]_F]_{FP}.

In order for the cleft sentence in (25a) to be felicitous, the background, *Mary bought x*, must be presupposed. This is the source, Bush and Tevdoradze argue, of the existential presupposition that comes with an *it*-cleft. The BIdF sentence in (25b), however, representing the focus on the whole sentence, does not carry the same presupposition — its background (*x is true*) merely presupposes that something is true.

The account of Bush and Tevdoradze (to appear) posits a different domain for focus in the two types they distinguish: the clefted constituent for the sentences that É. Kiss argues contain exhaustive focus, and the sentence for the additional cases that they have identified. They provide, however, no explanation as to the source of these differences. Why one type should be connected with focus over the entire sentence and the other to focus over a narrow constituent is a question left unanswered in their account.

I have already argued that a feature-based distinction between [+contrastive] and [-contrastive] identificational focus is unnecessary. Implicit in the account provided by Bush and Tevdoradze is a similar kind of distinction, narrow versus broad. In the Bush and Tevdoradze account the pitch accented constituent is the focus of both NIdF and BIdF sentences (see, for example, (26), in which *a hat* is the focus). NIdF and BIdF differ in regard to the *focus phrases* derived from each type, so that the focus phrase of NIdF always includes *only* the clefted constituent and the focus phrase of BIdF is *always* the sentence (i.e., it cannot be, for example, a verb phrase alone). This difference in behavior of the focus (like *a hat* in (26)) could be captured with a feature, for arguments sake, [_±narrow]. This would be a more

useful feature than [\pm contrastive], given the fact that different items are claimed to occur with NIdF and BIdF, but there would be no motivation for it other than these differences. I am going to argue instead that the focus types that Bush and Tevdoradze have identified as narrow and broad identificational focus are not as fundamentally different as their account suggests. The differences between them do not need to be attributed to a difference in domain, but fall out from the observations that I have already made about sentences containing identificational focus.

5.2.2.2 A single type of identificational focus

É. Kiss (1998) defines identificational focus as connected to "a subset of the set of contextually or situationally given elements for which a predicate phrase can potentially hold; it is identified as the exhaustive subset of this set for which the predicate phrase actually holds." I have argued that an exhaustive subset, the subset of included alternatives, can be derived from subset connected to the sentence focus. We have seen that in some cases, the subset of included alternatives contains a single element: these cases include *it*-cleft sentences, as well as some sentences in which focus is indicated by pitch accent alone (see, for example, (1b) above; also (22c)). In other cases, specifically the cases involving additive particles, the subset of included alternatives may contain more than one element. Both kinds of cases lead to exhaustive identification of a subset of the alternative set; they differ only in regard to the number of elements this subset contains.

An informal representation of these two cases appears in (29). Both the sentence *It was a COAT that he bought* and the sentence *He even bought a COAT* have the same focus constituent: namely, *a coat*. This results in the same focus subset, since the single element of this is always the item in focus. The sentences also have the same background, *he bought x*. Because the sentences have the same background and focus and, here, the same context, the alternative set for the focus for each sentence will also be the same. The sentences differ only in the meaning of the focus operators they contain: the *it*-cleft and *even*.

In the case of the cleft focus sentence, the derived subset of included alternatives that satisfy the assertion *John bought x* includes only the element of the focus, *a coat*. In the case of the sentence including *even*, the derived subset of included alternatives contains the element of the focus, as well as all the elements of the alternative set that John would be more likely to buy than a coat: here, *a sweater, long-johns* and *a hat*.

(29) John finally went shopping for winter clothes ...

| | A | B |
|----------------|--|--|
| | It was [a COAT] _F that he bought. | He even bought [a COAT] _F . |
| Focus | <i>a coat</i> | |
| Background | <i>John bought y</i> | |
| Alternatives | {a sweater, long-johns, a hat, a coat, a snowsuit, ... } | |
| Focus operator | <i>It</i> -cleft | <i>even</i> |
| Focus subset | <i>y</i> such that <i>John bought y</i> holds = {a coat} | |

| | | |
|--|--|--|
| Subset of excluded alternatives | {a hat, a sweater, long-johns, a snowsuit, ... } | {a snowsuit, ... } |
| Exhaustive subset of included alternatives y such that <i>John bought y</i> | {a coat} | {a sweater, long-johns, a hat, a coat} |

How to get from the focus, its background and the alternative set to the exhaustive subset of included alternatives (x such that *John bought x*) is a matter for formal representation that I will not pursue here. . What should be evident from the information presented in (29) is that the only meaningful elements that differ in the representation of the two sentences are the cleft and *even*. This suggests that differences in the meanings of these two sentences do not come from properties of the focus, but from other meaningful elements of the sentence that interact with focus: here, specifically the cleft and particle *even*. The *focus subset* is a result of the meaning of identificational focus. The *subsets of excluded* and *included alternatives* are derived through interaction of the focus meaning with the meaning of an *it*-cleft or a focus particle (via implicature, as suggested earlier, see section 5.1.4).

Given this representation of the facts and an assumption about the meaning of *it*-clefts, the differences in what can appear felicitously in clefts and with identificational focus marked by pitch accent fall out. Any focus is identificational if it is connected with a subset that satisfies the assertion of the sentence. We need only stipulate one fact about the meaning of a cleft, and the observed differences between cleft focus and that marked with pitch accent alone fall away: specifically, that the subset of included alternatives derived from the focus through implicature consists of exactly one element of the alternative set (see included alternatives in (29)).

Bush and Tevdoradze argued that the problem with quantifiers and clefts is one of type mismatch: specifically, that a proportional quantifier denotes a set and the cleft requires that something of the semantic type of individual appear in it. This is not entirely accurate.

First of all, cardinal quantifiers are entirely felicitous in *it*-clefts, and these presumably do not denote individuals.

(30) How many hats did John buy?

It was NO/TWO/A DOZEN/AT LEAST THREE hats that he bought.

The element in cleft focus can be a quantifier, or a semantic object of any type, as long as it is *syntactically* compatible with the cleft (thus it must be syntactically nominal; verbal constituents are barred). Presumably, alternatives to the item in focus determined by the context for (30) are all cardinal quantifiers, since they will need to answer "how many": *no, two, a dozen, at least three hats*, all do this. Note that *no hats* is felicitous in the cleft in this context, despite the existential presupposition claimed by Bush and Tevdoradze (see example (25a)). The quantifier *no hats* can be an element of the alternative set here, because the context dictates alternatives that answer the question *how many?* not the question *what?* Since it can be an element of the alternative set, it can also be the single element of the included subset derived from the focus.

It is also possible to construct examples in which proportional quantifiers are felicitous in an *it*-cleft. Most of these will be felicitous in a situation where there is a contrast between the quantifier in the cleft and another quantifier in the context.

- (31) Most of the students are upset about the situation
- (a) and it's AT LEAST HALF/ MOST / ALL OF THEM who have been complaining.
 - (b) but it's AT LEAST HALF / MOST / ALL OF THE FACULTY who have been complaining.

The quantifiers work in the cleft in (31) because the context provides an alternative set consisting of quantifiers. The included subset derived from the identificational focus and the meaning of the cleft still contains a single item of the alternative set — it's just that the single element is a quantifier in this case.

The fact that cleft focus is infelicitous with proportional quantifiers in the typical case arises because in the typical case, a proportional quantifier will not be compatible with the other elements of the set of alternatives to the item in focus. In the typical context, a cleft like that in (32) would answer the question *What did John buy?* so the expected, default alternatives to the item in focus would be elements of the semantic type individual.

- (32) (a) It was % MOST OF THE HATS /% NOTHING that John bought.
- (b) John bought MOST OF THE HATS/ NOTHING.

The infelicitousness of *most of the hats* and *nothing* is due to a type mismatch, but the mismatch is between the item in focus and the other members of its alternative set (as shown in the alternatives listed in (33)).

- (33) John finally went shopping for winter clothes ...

| | A | B |
|--|--|---|
| | ? It was [most of the hats] _F that he bought. | ? He even bought [most of the hats] _F . |
| Focus | <i>most of the hats</i> | |
| Background | <i>John bought y</i> | |
| Alternatives | { most of the hats, a sweater, long-johns, a hat, a coat, a snowsuit ... } | |
| Focus operator | <i>It</i> -cleft | <i>even</i> |
| Focus subset | <i>y</i> such that <i>John bought y</i> holds = { most of the hats } | |
| Subset of excluded alternatives | { a hat, a sweater, long-johns, a snowsuit ... } | { a hat, a sweater, long-johns, a snowsuit ... } |
| Exhaustive subset of included alternatives | { most of the hats } | { most of the hats } |

The presentation in (33B) predicts that a similar problem should arise for a sentence like *John even bought most of the hats*, because it too, has a conflict between the semantic type of the focus and that of the alternatives. In fact, a similar problem does occur: it is infelicitous in this context, as its oddness attests (compare to the felicitous sequence in (29B)). As for an *it*-cleft sentence with a proportional quantifier, the sentence with *even* in (33B), with the focus constituent as indicated, would only be felicitous in a context where the alternatives to the item in focus consisted of other quantifiers, as in (34a).

- (34) Did John buy a few of the hats? I'd say so!
 He even bought [most of the hats]_{FP}.

Proportional quantifiers are felicitous in identificational focus — whether this is associated with a cleft or not — if the alternatives to the focus constituent are also quantifiers. In order to be felicitous, any identificational focus must be compatible with its explicit or implicit alternatives. Thus an identificational focus center must signal focus on the minimal constituent compatible with these alternatives; if it does not do so, an infelicitous sentence results.

A second problem included in the representation in (33B) is also due to the mismatch between the type of the item in focus and its alternatives. *Even* is felicitous when the basic assertion that applies to the focused item also applies to another alternative — when it can add to the subset of included alternatives the focused element as well as at least one other alternative. In this case, it is difficult to determine a set of more likely items *x* such that *John bought x* holds: we're comparing quantifiers to individuals. As a result, there is only one element in the subset of included alternatives, something that is incompatible with the meaning of *even*, and should lead to infelicitousness.

This description captures the fact that the felicitousness of quantifiers in *it*-clefts — and identificational focus in general — is context-dependent. It does this by attributing problems in felicitousness to a mismatch in the alternative set. Context is what determines the contents of the alternative set, just as context is what determines the felicitousness of constituents in identificational focus.

I claimed that an aspect of the meaning of an *it*-cleft is that that the subset of included alternatives derived from its focus consists of exactly one element of the alternative set. The meaning of additive particles, on the other hand, require that more than one element be included in the subset of included alternatives derived from identificational focus. Additive particles are thus infelicitous in clefts because a conflict between these requirements arises. This is represented in (35).

- (35) John went shopping for clothes ...

It was even [a coat]_F that John bought.

| | | |
|-----------------|---|-------------|
| Focus | <i>a coat</i> | |
| Background | <i>John bought x</i> | |
| Alternatives | { a sweater, long-johns, a hat, a coat, a snowsuit, ... } | |
| Focus operators | <i>It</i> -cleft | <i>even</i> |
| Focus subset | { a coat } | |

| | |
|--|---|
| Subset of excluded alternatives | { a sweater, long-johns, a hat, ... } vs. { a snowsuit, ... } |
| Exhaustive subset of included alternatives <i>y</i> such that <i>John bought y</i> | { a coat } vs. { a sweater, long-johns, a hat, a coat } |

The requirements of *even* and the cleft lead to the generation of two different subsets of included alternatives. This conflict cannot be resolved, and the sentence cannot be interpreted.

This analysis captures an intuition that the facts about what can appear felicitously in cleft focus has more to do with the meaning of the cleft and its interaction with the meaning of other focus-sensitive items than with special properties of the focus associated with the cleft.

I have argued that it is unnecessary to posit different types of identificational focus: there is only one kind of identificational focus, in English at least. The apparent differences previously observed disappear when the context (and its expression through alternatives to focus) and the meanings of other elements of the sentence are taken into account. Proportional quantifiers can be felicitous in identificational focus, when the alternatives to the item in focus are also quantifiers. If there are no potential quantifier alternatives, then proportional quantifiers are odd in identificational focus — regardless of whether this focus is realized in a cleft or by pitch accent alone. The infelicity of *it*-clefts with additive particles can be explained by appealing to the ways the meaning of clefts and particles interact with focus; it is unnecessary to posit different types of focus to account for their incompatibility.

5.3 IDENTIFICATIONAL AND INFORMATION FOCUS

5.3.1 Properties of identificational focus

The discussion here has maintained some of the assumptions behind the definition of identificational focus supplied by É. Kiss 1998, but has also argued against other assumptions about identificational focus, on the basis of the appearance of focus that conveys exhaustiveness in contrastive and non-contrastive contexts in the corpus.

É. Kiss argues that identificational focus identifies the exhaustive subset of the alternatives for which a predicate holds; I have argued that identificational focus represents the subset of alternatives for which a predicate holds, and that exhaustiveness arises from this identification. É. Kiss argues that identificational focus is realized in English either in an *it*-cleft or associated with a focus particle like *only*; I have argued that identificational focus can be realized in English by pitch accent alone. É. Kiss also argues that there are restrictions on the types of constituents that can function as an identificational focus. There are syntactic restrictions on what can appear in an *it*-cleft, but I have argued that otherwise all kinds of constituents are felicitous in identificational focus, as long as context supplies the right kind of alternatives for these constituents: this will include focus constituents of any kind — individual words, noun phrases, quantifiers, verb

phrases, clauses.⁴ The identificational focus marked only by pitch accent is just as sensitive to alternatives supplied by the context as the identificational focus marked by a cleft. É. Kiss and Bush and Tevdoradze (to appear) claim that the incompatibility of additive particles and *it*-clefts is related to properties of identificational focus; I have attributed the incompatibility of these to the meanings of the particles and the meaning contributed by the cleft itself (even É. Kiss observes that this incompatibility can be overridden in certain contexts). É. Kiss also argues that identificational focus can be [+contrastive] or [-contrastive], while I argued that a contrastive interpretation of identificational focus is a result of explicit mention of alternatives in the context.

Nevertheless, in my discussion, I have maintained the basic notion that identificational focus represents identification of a subset of situationally or contextually determined elements for which the assertion of a sentence holds, and have held that an implicature of exhaustiveness arises. I have also maintained the following properties that É. Kiss proposes for identificational focus.

- Identificational focus participates in scope relations in a clause.
- Identificational focus can be iterated in a clause.

In fact, rejection of the notion that identificational focus must be realized either in an *it*-cleft or associated with *only* has been in part based on maintaining these two characteristics for identificational focus. Additionally, I have added the following properties:

- Focus operators associate with identificational focus.
- Identificational focus extends from a focus center to the minimal constituent compatible with its alternatives.⁵

These four properties are all connected to the defining assumption that identificational focus represents a "subset of the set of contextually or situationally given elements" that make up an alternative set.

5.3.2 Properties of information focus

The discussion here has also maintained the assumption that identificational focus is distinct from information focus, which has been argued to be connected to the presentation of new information. As a distinct phenomenon, information focus would thus be expected to have characteristics distinct from those of identificational focus.

Information is typically considered to be propositional — to relate to the assertion of a sentence. Prince (1981) proposed that a focus constituent is what makes the assertion of a sentence true, while the sentence itself adds new information to the discourse. I suggest that identificational focus is connected to the subset of what makes the assertion of a sentence true, and that information focus is connected to the addition of a new proposition to a discourse. I will assume, as É.

⁴ An implication of this is that the size of the focus constituent, whether it is *narrow* or *broad*, does not effect whether it can be identificational. É. Kiss relates identificational focus to narrow focus and information focus to broad focus.

⁵ Cf. the claim in É. Kiss 1998 that "identificational focus is always co-extensive with an XP available for operator movement."

Kiss (1998), Sgall et al. (1986) and many others have assumed, that all sentences contain information focus, because most sentences add new propositions to a discourse. I will also assume, as É. Kiss does, that not all sentences contain identificational focus, because not all sentences make assertions that result in an implicature of exhaustiveness within a contextually defined set of alternatives.

In order to examine the differences between these proposed types of focus, consider again example (1), which contains three clauses and five focus centers.

- (1) *The producer of a television miniseries on the U.S. space program is discussing technical aspects of the production.*
- (a) It was usually STUNTMEN that were actually in the SUITS.
 - (b) We had ACTORS come down for very SPECIFIC scenes,
 - (c) so that they would be INCORPORATED into it

The excerpt in (1c) is the simplest case to consider, since it involves only one focus center, on *incorporated*. The complete clause *they would be incorporated into it* is the smallest one that can appear in the post-cleft focused portion of a wh-cleft sentence.

- (36) It was usually STUNTMEN that were actually in the SUITS. We had ACTORS come down for very SPECIFIC scenes.
- (a) % What they would be is incorporated into it.
 - (b) % What they would do is be incorporated into it.
 - (c) Why we would do that was so that they would be incorporated into it.

This indicates that this clause is the focus constituent connected to the focus center on *incorporated*.

Note that this constituent is also the smallest constituent in (1c) that has any potential alternatives in this situation. Situationally relevant alternatives would be other reasons for having the actors come down for specific scenes. Other reasons might include keeping the actors from getting bored, letting them watch what was going on, making sure that they were not injured during the filming of stunt sequences, and so on. None of these reasons are excluded by the speaker's utterance *so that they could be incorporated into it*. This cannot be understood as an exhaustive statement of the reasons that actors came down for specific scenes; it can only be understood as one of the reasons. It does not exclude any of these alternatives; in fact, the only alternative it can be understood to exclude is *they couldn't be incorporated into it*. The focus is, therefore, not exhaustive, and the focus constituent cannot be understood to convey an implicature of exhaustiveness. In this respect, it is different from the examples of identificational focus that we have discussed so far.

The sentence in (1a) has two focus centers. The focus center on *stuntmen* in (1a) marks an identificational focus; it occurs in an *it*-cleft. This focus answers the question *Who was actually usually in the suits?* and can be felicitously paraphrased in context in the focus portion of a wh-cleft sentence as in (37a). The focus center on *suits*, however, has different characteristics. It cannot be understood as the answer to the question *What actually were the stuntmen usually in?* and thus does not represent identification of what the stuntmen typically were in (situationally

defined alternatives being the other things stuntmen might wear on the set of a miniseries). It cannot be felicitously paraphrased with a wh-cleft sentence that focuses only *the suits* ((37b)). In fact, the only felicitous wh-paraphrase in which *suits* can appear in the post-cleft focused portion is one in which the entire sentence appears there, as in (37c).

- (37) *The producer of a television miniseries on the U.S. space program is discussing technical aspects of the production.*
- (a) The guys who were actually usually in the suits were STUNTMEN.
 - (b) % What the stuntmen actually usually were in was the SUITS.
 - (c) What the situation was was that the stuntmen usually were actually in the suits.

These paraphrases suggest that the focus center on *suits* thus represents focus on the complete proposition *Stuntmen were actually in the suits*. Potential alternatives here would simply be any proposition that might be true in the situation. *Stuntmen were actually in the suits* certainly cannot be interpreted as an exhaustive statement of what is true. Again, the only alternative to the proposition that can be excluded in this context is *Stuntmen were not actually in the suits*. The focus constituent cannot be understood to convey an implicature of exhaustiveness. In this respect, it is like the focus constituent indicated by the focus center on incorporated in (1c).

The focus constituents represented by the focus centers on *incorporated* (1c) and on *suits* (1a) appear to correspond to complete propositions. Like the identificational focus constituents discussed previously, these constituents can be understood to have potential alternatives in the discourse. Unlike identificational focus, however, the focus on these constituents excludes only one alternative: the negation of the proposition that the clauses add to the context. The focus centered on *incorporated* or *suits* thus does not convey an implicature of exhaustiveness. In this respect, then, these focus constituents differ from those discussed previously as identificational focus. A natural conclusion, given the proposal that there are two kinds of focus put forth in É. Kiss (1998), is that they represent something else: information focus.

The focus constituents in these cases can be understood to have implied alternatives in the discourse, and yet the focus does not result in the exclusion of these alternatives. Why not? One possibility is that they express a different kind of relationship. Identificational focus expresses a relationship between the item in focus and the assertion of a clause: an identificational focus constituent is an alternative that makes the assertion of the clause true, and the implicature arises that remaining alternatives are excluded from making the assertion true. Information focus, on the other hand, can be understood to express a relationship between the constituent in focus — in both the examples discussed thus far, a constituent that conveys a complete proposition — and the discourse. Perhaps an information focus constituent is an alternative that makes the *discourse* true and coherent, and the implicature arises that remaining alternatives are simply not relevant.

The alternatives for information focus, like the alternatives for identificational focus, are determined by context, and like the alternatives for identificational focus, we might expect that they be compatible with the background to the focus as well. The background for the focus constituent *they would be*

incorporated into it (as in (1c)), however, cannot come from within the clause, as it does for identificational focus, because the domain of the focus is an entire clause. Rather, the background for the focus is in the discourse, as the question felicitously answered by the focus constituent in indicates: *Why did we have actors come down for specific scenes?*

The relationships between the focus constituent *they would be incorporated into it* ((1c)), its background and alternatives are represented in (38).

(38) We had actors come down for very specific scenes ...

... so that [they would be incorporated into it]_F.

| | |
|---------------------------------|--|
| Information Focus | <i>they would be incorporated into it</i> |
| Background | ... so that y |
| Alternatives | { they could be incorporated into it, they could watch what was going on, they wouldn't get bored, they wouldn't get hurt during shooting, ... } |
| Focus subset | { they could be incorporated into it } |
| Subset of excluded alternatives | { they could watch what was going on, they wouldn't get bored, they wouldn't get hurt during shooting, ... } |
| Relevant alternatives | { they could be incorporated into it } |

The sentence in (1c) contains no identificational focus constituent; its only focus is information focus. The background in (38) supplies a discourse relation that the information focus must satisfy: specifically the *purpose* of having actors come down for specific scenes. My proposal is that the background for any information focus will express a discourse relation, and that felicitous information focus will satisfy the requirements of that relation. We might also expect it to include information about discourse topic and other factors that affect the felicitousness of utterances in discourse (thereby perhaps also constraining the list of alternatives), which information focus would also have to satisfy to be felicitous. Thus, the background of the information focus constituent of (1a) might be represented by something like the question *What the situation on the miniseries shoot was*.

Information focus, like identificational focus, excludes alternatives (see subset of excluded alternatives in (38)). However, the exclusion of alternatives does not lead to the implicature that these alternatives are not true in the context, but rather only to an implicature that they are not *relevant*, that they do not satisfy the requirements of the background/discourse relation. One might describe this as a kind of exhaustive relevance.

Identificational focus functions within a sentence: the implicatures that arise from it thus have to do with the meaning of sentences. Information focus functions with a discourse: the implicatures that arise from it have to do with the coherence of discourse.

Information focus also relates to what has been identified as presentational focus (e.g., Rochemont 1986). Presentational focus typically adds to the discourse the proposition that an individual exists. Consider the following two excerpts from the corpus:

- (39) *A parole officer begins a story to help illustrate the effectiveness of a program intended to reduce violent crime committed by youthful offenders. He begins:*

There was a young man by the name a Freddy CARDOZA⁶

- (40) *The creator of an animated television series explains that he had written a scene in which —*

This BEAVER was gnawing away at the foundation of Krusty's HOUSE⁷

The example in (39) is the typical example of presentational focus. The focus of this sentence can be understood to answer the question *Who existed?* This question represents the minimal background of a sentence — in this context, the sentence cannot be felicitously paraphrased with a *wh*-cleft (see Chapter 3, section 3.1). The sentence adds to the context the proposition that a young man named Freddy Cardoza existed; again, this cannot be understood as an exhaustive answer to the question — naturally, other individuals existed as well. Like the focus centered on *incorporated* in (1c), the focus centered on *Cardoza* represents information focus rather than identificational focus.

In discussion in Chapter 3, I also concluded that *beaver* in (40) could be understood to represent presentational focus. It serves as the location of nuclear accent of an intonation phrase consisting of *this beaver was*. I concluded that this focus center represented presentational focus because the only felicitous *wh*-paraphrase possible in the context requires *this beaver* be set apart from the rest of the sentence in a *there*-construction; it cannot be placed felicitously in the focus portion of a *wh*-paraphrase itself (41b).

- (41) (a) (In the scene) there was this BEAVER
and what it was doing was gnawing away at the foundation of
Krusty's HOUSE.
(b) % What was gnawing away at the foundation of Krusty's HOUSE was
this BEAVER.

As presentational/information focus, *this beaver* answers the question *What existed (in the scene of the story the speaker wrote)?* This is the background to the information focus constituent *this beaver*. The focus thus signals the addition to the context of the proposition that a beaver existed. Even though the focus constituent is a noun phrase, it is here compatible with a proposition, specifically the proposition that a beaver exists. This means that there are *two* information focus constituents in this sentence: one with a focus center on *beaver*, and the second with a focus center on *house*. Each corresponds to a different proposition: the first to the proposition that a beaver existed, and the second to the proposition that it was gnawing away at the foundation of Krusty's house (which also does not convey an implicature that the beaver did nothing other than gnaw at the foundation of Krusty's house).

⁶ See example (1) in Chapter 3 for context and pitch track information.

⁷ See example (12) in Chapter 3 for context and pitch track information.

Based on this discussion, information focus can be understood as focus that signals the addition of a new proposition to the discourse, given the background the discourse provides. Information focus is thus quite literally new information, not merely new material, although it is presumably realized by having the pitch accent that signals it occur on new material whenever possible. It corresponds to the maximal syntactic constituent containing a focus center and compatible with a single proposition. This may typically be a clause, but could also be a smaller constituent, if the smaller constituent comprises a domain that is compatible with a proposition (given the background provided by the discourse), as was the case for the noun phrase *this beaver* and the verb phrase *was gnawing away at the foundation of Krusty's house* in (40). Like identificational focus, then, information focus can be realized over a narrow or broad constituent.

Information focus plays a role in the construction of discourse, but it does not play a role in deriving the meaning of sentences. Since it corresponds to a proposition, it cannot also play a role in deriving the proposition. Identificational focus, on the other hand, does play a role in sentence meaning. It interacts with focus particles and can determine domains of quantification, affecting which specific propositions get added to the discourse.

A few characteristics are unique to information focus:

- A clause must have information focus.
- Information focus extends from a focus center to the maximal syntactic constituent compatible with a single proposition.

Unlike identificational focus, information focus presumably cannot take scope within a sentence or otherwise interact with focus-sensitive items. While any sentence can have more than one identificational focus constituent, a sentence can have more than one information focus only if it contains more than one proposition: there should be exactly one information focus per proposition. The differences between identificational and information focus arise because information focus is restricted to constituents compatible with propositions, and identificational focus is not.

5.3.3 Nuclear accent, identificational and information focus

The sentence in (17b) contains only one focus center, and this has also been argued to represent identificational focus.

- (17) (a) We can't get a trained beaver to gnaw on the WOOD.
 (b) A STUFFED beaver was even gonna cost a lot.

The sentence in (1b) has two focus centers that have earlier been identified as signaling identificational focus (*actors*, *specific*). How do these data fit with the proposal that information focus is required in a sentence?

Consider the two possible felicitous paraphrases for (17b) containing the focus center *stuffed*:

- (42) (a) What was even gonna cost a lot was a STUFFED beaver.
 (b) What was the case was that a STUFFED beaver was even gonna cost a lot.

The post-cleft material in the paraphrase in (42a) corresponds to the *identificational focus* of the sentence, while the post-cleft material in the paraphrase in (42b) corresponds to the *information focus* of the sentence. As with the cases discussed earlier, the information focus represents a proposition that is being added to the discourse. It answers the question *what is true*: the discourse relation it satisfies is an assertion — this question is its background. Again, potential alternatives would be other propositions that might be true in the situation, and again the sentence cannot be interpreted as an exhaustive statement of what is true.

What happens here is that the single pitch accent of the sentence, appearing on *stuffed*, serves as the focus center for *both* kinds of focus of the sentence. As the focus center of the identificational focus constituent *a stuffed beaver*, it corresponds to focus on the *smallest* constituent for which there are alternatives in the situation. As the focus center of the informational focus constituent *a stuffed beaver was even gonna cost a lot*, it corresponds to focus on the *largest* constituent that syntax and the context allow.

The circumstances for the clause in (1b) can be understood in a similar fashion. This clause has two focus centers, both of which have already been identified as indicating identificational focus (see Chapter 4, section 4.4 for discussion of *for specific scenes* and section 5.1.3 for discussion of *actors*). There are three wh-cleft paraphrases that are possible in context for this sentence: (43a) and (43b) correspond to paraphrases that put the identificational focus constituents in the focus portion of the wh-cleft sentence.

- (43) It was usually STUNTMEN that were actually in the SUITS.
- (a) When we had ACTORS come down was for very SPECIFIC scenes.
 - (b) Who we had come down just for very SPECIFIC scenes was ACTORS.
 - (c) % What we had was ACTORS come down for very SPECIFIC scenes.
 - (d) What we did was we had ACTORS come down for very SPECIFIC scenes.

The post-cleft material in the paraphrase in (43d) is what represents the information focus of the sentence. Again, this cannot be interpreted as an exhaustive statement of what the speaker and his film crew did in the situation — clearly, they did many things, of which this was only one. As with the previous sentences discussed, this constituent essentially corresponds to a complete proposition, this one answering the question *What did we do?*: *we had actors come down for specific scenes*. This is the maximal constituent containing the focus center *specific* that is also compatible with a single proposition. The focus center on *specific*, like that on *stuffed* in (17b), simultaneously signals identificational focus (on *for very specific scenes*) and information focus (on *we had actors come down for very specific scenes*).

This understanding of the relationship between information focus, identificational focus and focus centers marked by pitch accent provides an explanation for an example from the corpus that presented a problem in Chapter 3 (see section 3.6.1). This excerpt appeared earlier in the current chapter as (16b) (repeated below).

- (16) (a) I got kids who read like CRAZY
 (b) and play VIDEO games like crazy TOO.

The utterance in (16b) was problematic because nuclear pitch accent falls on *too*, as it would in any utterance, since *too* is always pitch accented and typically occurs at the end of an intonation phrase. Focus centers are items that bear an obligatory pitch accent; nuclear accents are always phonologically obligatory in their intonation phrases and furthermore, *too* always carries nuclear pitch accent. The accent on *too* thus must be treated as a focus center whenever it occurs.

There is also an obligatory secondary accent in the intonational phrase on *video*. In this context, the accent on *video* cannot be deleted or relocated, and was thus also treated as a focus center. The focus center on *video* has been argued to signal identificational focus on the constituent *play video games*, since it answers (exhaustively by implicature) the question *What else do they do like crazy?*

The information focus/identificational focus distinction provides a natural explanation for the pitch accent on *too*, not only here, but in any utterance in which it appears. It signals information focus on the complete utterance *and play video games like crazy too*, which adds to the discourse the proposition that the speaker's kids also play video games like crazy.

The fact that both types of focus are marked by obligatory pitch accent (typically but not always nuclear pitch accent) — and in many cases, the same pitch accent, also provides one reason for the intuition that there is some fundamental similarity between information and identificational focus. I have argued here that in many cases, a focus center can represent both kinds of focus simultaneously. A sentence like (44) has been noted to be ambiguous with regard to their focus structure because it can be understood as an response to either (44a) or (44b) (from Ladd 1996).

- (44) He painted the SHED.
 (a) What did John do today? (Ladd's *broad focus*)
 (b) Did John paint the garage? (Ladd's *narrow focus*)

An implication of the discussion here is that the "focus ambiguity" noted for such sentences is not about whether the focus center on *shed* represents broad focus or narrow focus. Rather, it is about whether this focus center represents *only* information focus or *both* identificational and information focus. In the context of (44a), it represents only information focus. It adds the proposition that John painted the shed today, and conveys the implicature that this is the only relevant thing John did. It does not convey the implicature that this is the only thing he did (or even the only thing he painted). In the context of (44b), the focus center on *shed* represents both identificational and information focus. In addition to adding the propositions that John painted the shed today and conveying the implicature that this is the only relevant thing John did (as it did in the context of (44a)), it conveys the implicature that John did not paint anything else.

5.4 SUMMARY

In light of data appearing in the speech corpus, the discussion in this chapter has reconsidered the notions of information and identificational focus. The discussion in the current chapter added to the arguments made in Chapter 4 that

items in identificational focus, in so far as it represents the exhaustive subset of items that satisfy the assertion of a sentence, can be marked with pitch accent alone. I argued that one situation in which identificational focus could be signaled by pitch accent alone was the case of contrast, although I also argued that not all pitch accented items in contrast actually represent focus. I argued that contrast in English results from context, and need not be considered a property of identificational focus. Discussion in section 5.2 concluded that other apparent differences in types of identificational focus are also not due to properties of the focus, but to differences in context and differences in the meaning of items that associate with focus.

In section 5.3, I proposed that information focus can also be understood to have alternatives. Information focus, however, contributes to the construction of coherent discourse, while identificational focus contributes to the interpretation of sentences. Information focus always represents the addition of a relevant new proposition to the discourse; an implication of this is that the addition of any new proposition will be connected to the appearance of a focus center. Section 5.3 also looked at the ways in which information focus differs from identificational focus, proposing specific properties that distinguish these two types.

The two types of focus are similar in that they can both be understood to be connected to the existence of potential alternatives. Both kinds of focus can be considered to identify an alternative from this set, but for information focus, the focus and its alternatives must be propositional, which results in characteristics for information focus that are different from those of identificational focus. The characteristics proposed for each type of focus are summarized in Table 5.2.

Table 5.2: Characteristics of information and identificational focus

| INFORMATION FOCUS | IDENTIFICATIONAL FOCUS |
|--|--|
| (7) Propositional: focus and alternatives must correspond to propositions | (7) Not propositional: focus and alternatives need not correspond to propositions (although they can) |
| (8) Required in a sentence | (8) Not required in a sentence |
| (9) Results in an implicature of 'exhaustive relevancy' for the focus | (9) Results in an implicature of exhaustiveness for the focus |
| (10) Exactly one information focus per proposition | (10) Clause can contain from 0 to many identificational focus constituents |
| (11) Extends from a focus center to the maximal constituent compatible with a single proposition | (11) Extends from a focus center to the minimal constituent compatible with potential alternatives |
| (12) Plays a role in discourse coherence | (12) Plays a role in sentence meaning: interacts with clause-mate operators |

The two types are also connected to each other, through the fact that the appearance of a focus center, in the form of an obligatory pitch accent, can signal either information or identificational focus. In sentences with only one focus center and an identificational focus constituent, in fact, the focus center must signal both information and identificational focus simultaneously.

Chapter 6: Context, focus, accent: an experiment

This investigation employs an experiment to support the methods and observations of the corpus study in Chapter 3. It confirms the existence of a connection between focus and nuclear pitch accent, rather than pitch accent in general, additionally verifying that focus is not a requirement for the appearance of pitch accent. The experimental data also indicate that both focus structure and phonological factors influence patterns of accentuation. The results thus add to support provided by the corpus study for the view that focus and pitch accent are distinct phenomena.

The experimental results also provide evidence that broad VP and narrow NP and PP focus have different phonological realizations. Sentences produced in contexts dictating three different focus structures, verb phrase, noun phrase and prepositional phrase focus, resulted in different patterns of prominence, as reflected by the assignment of both nuclear pitch accent and secondary (non-nuclear) pitch accent.

Section 6.1 briefly reviews the background for this experiment, identifying how these relate to ideas treated in previous chapters, and posing the questions to be investigated. Section 6.2 describes the experiment, and section 6.3 outlines specific predictions. Section 6.4 presents the results of statistical analysis of the experimental data; section 6.5 addresses some implications of these results.

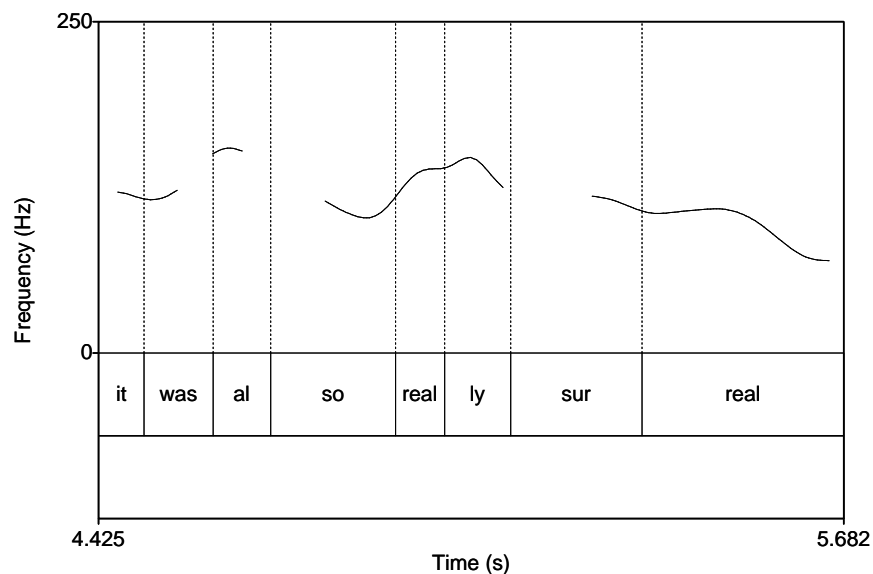
6.1 BACKGROUND

The experiment presented here has two goals. First, it investigates the relationship between focus and pitch accent. Second, it investigates possible phonological differences in the realization of focus in different context conditions.

Much of the literature on intonation has not drawn a clear distinction between the semantic phenomenon of focus and the phonetic-phonological phenomenon of pitch accent. Some approaches to intonation (eg., Gussenhoven 1983, Selkirk 1984, Rochemont 1986, Lambrecht 1994, *inter alia*) have essentially equated the presence of pitch accent with focus. Ladd (1996) calls this view the radical focus-to-accent (FTA) perspective. Ladd argues that this perspective is misguided, and that the assignment of pitch accent in languages like English, while strongly influenced by semantic and syntactic factors, is at bottom a phonological matter.

Data from the corpus used in this work support Ladd's contention that pitch accent and focus cannot be directly equated. It is easy to find examples where pitch accents occur, even outside of what is a focus constituent. In (1), a pitch accent occurs on the stressed syllable of *also*, while the wh-cleft paraphrase test for focus (1'b) reveals that the focus constituent is *really surreal*. The pitch accent on *also* falls outside this constituent.

(1) It was álso reálly surreál

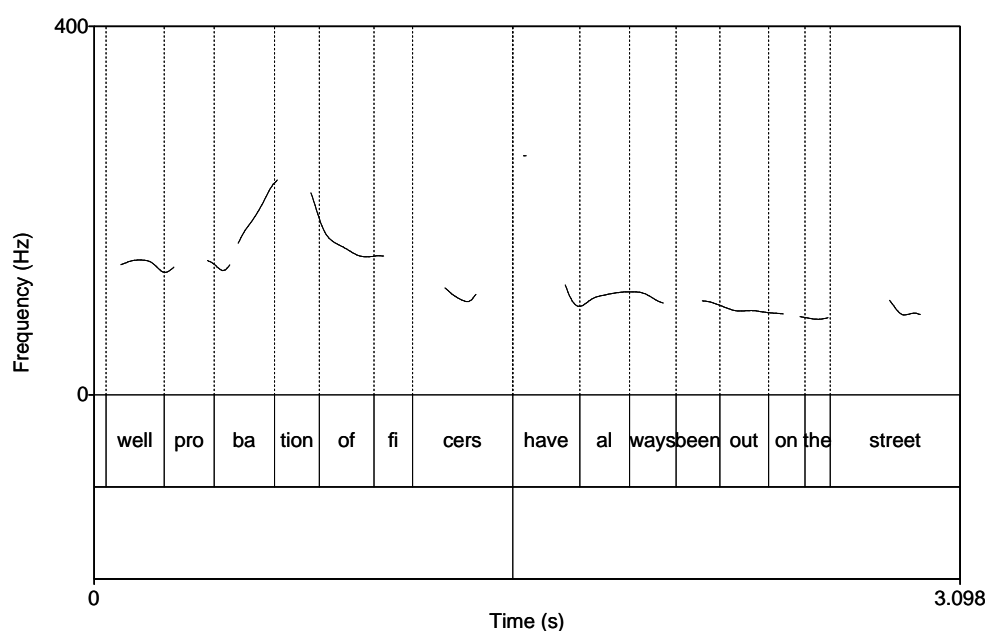


(1') Everybody thinks oh, Ozzie and Harriet — It's like this sort of symbol for blandness. And it was kind of corny and bland.

- (a) It was also really surreal.
- (b) What it also was was really surreal.

Data from the corpus thus suggest that it cannot be accurately said that pitch accents always signal focus. A more accurate statement might be that *nuclear* pitch accent, the final pitch accent of an intonation phrase, signals focus. Even here, it is not clear that this relationship is straightforward. The corpus provides example of intonation phrases, containing their own nuclear accents, to which it is difficult to assign any focus structure at all, based on paraphrasing in the discourse. The discourse segment in (2) contains an intonation phrase with a single pitch accent: *well probátion officers*. Apparently, the nuclear accent on *probation* does not signal focus. Tests for focus in (2') indicate that the focus constituent of the sentence is *out on the street*, and that in this context *probation officers* cannot be felicitously included in the focus constituent of the sentence (see Chapter 3, section 3.6.2 for further discussion of this example).

(2) well probátion officers // have álways been out on the street () //



(2') *The speaker, a probation officer, has been asked to talk about what a new program that he helped create in response to gang activity was supposed to accomplish. He begins:*

- (a) Probation officers have always been out on the street.
- (b) Where probation officers have always been is out on the street.
- (c) % Who have always been out on the street are probation officers.
- (d) % Who's always been where? Probation officers have always been out on the street

Thus, the corpus data suggests that while there is a strong relationship between pitch accent and semantic focus, these concepts still need to be distinguished. The first goal of the experiment presented here is to support this conclusion in conditions where controlled comparisons of focus contexts can be made.

The second goal relates to proposals that there are differences in the realization of narrow and broad focus, with narrow NP and PP focus represented by PP and NP focus and broad focus by VP focus. A recent proposal has suggested that narrow NP and PP focus can be equated with identificational focus and broad focus with information focus. The discussion in Chapter 5 indicates that both identificational and information focus can be realized as large or small syntactic constituents. Thus *broad* and *narrow* in the current chapter refer to the *size* of the focus constituent rather than to any discourse semantic function (although to guarantee narrow NP and PP focus in the experimental materials, the narrow NP and PP focus constituents typically contrast explicitly with another concept, while the broad VP focus constituents may not).

The experiment outlined here considers a number of questions about accentuation and focus in different focus conditions.

- (3) Is the location of nuclear accent associated with focus conditions?

This tests something assumed in the analyses of data in the corpus presented in Chapters 3 through 5. Following Pierrehumbert (1980) and Beckman and Pierrehumbert (1986), discussion of the corpus data assumed that focus centers of sentences were the words associated with nuclear pitch accents. If this assumption is correct, the location of nuclear pitch accent should be connected to the location of [+focus] constituents in a sentence. A positive result will validate the approach to the data taken in the previous chapters of this work.

- (4) Do [-focus] items receive pitch accents?

This question addresses the assumption of the radical FTA perspective that pitch accent always signals focus. If the radical FTA approach is correct, the only items receiving pitch accent should be [+focus] items. The corpus data indicates that [-focus] items do indeed receive pitch accent, and even nuclear pitch accent in some situations. Testing this question in an experiment allows for statistical verification of these observations in conditions where focus structure can be controlled.

A second group of questions treats some possibilities for phonological differences between broad VP focus, narrow NP focus and narrow PP focus that might distinguish between them. The experiment here considers the basic issue of phonological prominence. It has sometimes been claimed that the stress involved in narrow contrastive focus can be "stronger" or more emphatic than that in broad focus (cf. Rochemont 1986). This leads to the question in (5).

- (5) Are items in narrow NP or PP focus more prominent than the same items in broad VP focus?
- (a) Are items signaling narrow NP or PP focus more often the location of nuclear pitch accent than the same items in broad VP focus?
- (b) Are items in narrow NP or PP focus longer than the same items in broad VP focus?

Eady, Cooper, Klouda, Mueller and Lotts (1986) investigated acoustic differences for narrow and broad focus. Their study found that in narrow NP and PP focus, speakers produced higher pitch peaks and longer word durations, and that in broad focus constituents there was "widespread durational increase" without additional heightening of pitch. The present effort, however, does not attempt to duplicate their work. Contexts for elicitation in their experiment consisted of wh-questions only, so they provided no context for contrastive interpretation of focus constituents. This type of context is provided in the present study, which required subjects to choose and produce a sentence that continued a discourse most coherently. Furthermore, because theirs was an investigation of acoustic differences between syllables in different conditions, Eady et al. did not consider the roles of nuclear and secondary (non-nuclear) accent in distinguishing focus type, which the present study does.

It has been argued that the “prominence of a particular word... is brought about by the occurrence of pitch movement on the lexically stressed syllable of the word.” (Ladd 1996; also ‘t Hart, et al. 1990; Bolinger 1967). The final pitch accent or nuclear accent of an intonation phrase is typically perceived as the most prominent, but there has thus far been no phonetic evidence to suggest that this prominence is derived from acoustic properties (Ladd 1996; also Bolinger 1986, ‘t Hart et al. 1990, Terken 1991). Thus, if a greater degree of prominence is associated with narrow NP and PP focus items than the same items in broad VP focus, this will likely be because they are more often the sites of nuclear pitch accent. The experiment also attempts to determine if the acoustic findings of lengthening documented in Eady et al (1986) could be replicated.

The question in (5a) is closely related to the hypothesis underlying the question in (3); indeed, it considers the same data from a different perspective. If data were to support the hypothesis that narrow NP and PP focus items are more often the location of nuclear pitch accent than the same items in broad VP focus, then the hypothesis underlying (3) would also be supported, since the location of nuclear accent would be associated with focus condition. Note, however, that data could support the hypothesis of (3) without supporting (5a). Data could indicate an association between the location of nuclear pitch accent and focus conditions, but not indicate that items in narrow NP and PP focus are more frequently the location of nuclear pitch accent than matched items in broad VP focus.

Another question that the experiment considers is:

- (6) Do items within broad VP focus constituents reflect a greater degree of prominence than the same items in narrow NP and PP focus conditions, where they are not part of the sentence focus?
 - (a) Are sentences with broad VP focus constituents associated with the presence of more pitch accent locations than sentences with narrow NP and PP focus constituents?
 - (b) Are items in broad VP focus longer than the same items in occurring in narrow NP and PP focus conditions, where they are not part of the sentence focus?

The hypothesis that broad focus results in a degree of prominence on more words within the focus construction fits with theories (like Kiss 1998, Hajicova & Sgall 1987, etc.) that view broad focus as related to the presentation of new information. In this view, all the content words are important (if not equally so) to the message, in that they put new information into the common ground of the discourse. Thus, it might be expected that these words would receive a greater degree of prominence than in an environment where they do not occur in focus. Again, any prominence would come primarily from the presence of pitch accent, and secondarily through lengthening. The measure of duration is included again in an attempt to replicate the findings of Eady et al (1986).

The proposed experiment is designed to investigate the questions in (3)-(6) about the relationship between pitch accent and focus, and potential differences in the realization of narrow and broad VP focus. Experimental data does not have the spontaneity of data from the corpus, but it allows for comparisons that cannot be made in the uncontrolled context of a spontaneous speech corpus.

6.2 EXPERIMENT DESCRIPTION

Subjects produced 18 test sentences in three different contexts apiece, for a total of 54 sentences per subject. These utterances were recorded and digitized. Segmentation and pitch analysis of the utterances were performed so that the appropriate comparisons could be made for addressing the questions proposed in section 6.1.

6.2.1 Materials

Test sentences were controlled for syntactic and metrical structure to allow for easier comparison of final measures. There were three contexts for each test sentence, which were systematically varied to generate three different focus structures, two narrow NP and PP focus and one broad VP focus. The appendix in section 6.7 contains the experimental materials.

6.2.1.1 Controlling syntax

The eighteen test sentences all share the same syntactic structure, and the constituents of the sentences were controlled for type. Grammatical subjects are always pronominal, verbs always transitive, objects always indefinite noun phrases, and noun phrases within sentence final always definite noun phrases. All the sentences can be analyzed as consisting of surface structure in (7a). An example appears in (7b).

- (7) (a) $[_{IP} [_{DP} \textit{pronoun}] [[_{VP} [_V \textit{trans-verb}}] [_{DP} \textit{indefinite}] [_{PP} P [_{DP} \textit{definite}]]]]]$
- (b) $[_{IP} [_{DP} \textit{He}] [[_{VP} [_V \textit{stole}}] [_{DP} \textit{a costly old statue}] [_{PP} \textit{from} [_{DP} \textit{the ballroom}]]]]]$

Twelve of the eighteen sentences also contain one of the focus particles *even*, *only* or *also* in pre-verbal position. The surface structure of these sentences is represented in (8).

- (8) (a) $[_{IP} [_{DP} \textit{pronoun}] [_{focus\ particle} [_{VP} [_V \textit{transitive-verb}}] [_{DP} \textit{indefinite}] [_{PP} P [_{DP} \textit{definite}]]]]]$
- (b) $[_{IP} [_{DP} \textit{They}] [only [_{VP} [_V \textit{moved}}] [_{DP} \textit{a heavy old bureau}] [_{PP} \textit{up} [_{DP} \textit{the stairway}]]]]]$

There are four test sentences containing each of the three focus particles. The addition of a focus particle does not alter the surface structure of the verb phrase, and thus does not disrupt the uniformity across test sentences of the structure of the verb phrase. It allows, however, for the generalization of experimental results across sentences displaying association with focus as well as those without a focus particle. The presence of a focus particle also guarantees that there will be a lexically stressed syllable outside the verb phrase. This means that even in a broad VP focus condition, there will be some accentable material outside the focus constituent.

6.2.1.2 Controlling metrical structure

The test sentences also share the same basic metrical structure. This is represented in (9), where "x" indicates the strong element of a prosodic unit.

(9) Basic metrical structure of test sentences

| | | | | | | | | | | | |
|----|-------------|---|-------------|----|-------------|--------------|-----|------|-----|--------------|------|
| | | | X | | | X | | | | X | |
| | x | | x | | x | x | | x | | x | |
| He | stole | a | cost | ly | old | sta | tue | from | the | ball | room |
| | <i>verb</i> | | <i>adj1</i> | | <i>adj2</i> | <i>noun1</i> | | | | <i>noun2</i> | |

The twelve test sentences that include one of the focus particles *even*, *only* and *also* in the pre-verbal position contain an additional foot before the verb, as in (10).

(10) Metrical structure of test sentences with focus particles

| | | | | | | | | | | | | | |
|------|-----------------|----|-------------|---|-------------|----|-------------|--------------|------|----|-----|--------------|-----|
| | X | | | | X | | | | | X | | | |
| | x | | x | | x | | x | | x | | x | | |
| They | on | ly | moved | a | hea | vy | old | bu | reau | up | the | stair | way |
| | <i>foc part</i> | | <i>verb</i> | | <i>adj1</i> | | <i>adj2</i> | <i>noun1</i> | | | | <i>noun2</i> | |

The basic metrical structure of the verb phrase is not altered by the inclusion of focus particles, and thus the uniformity of the verb phrase across test sentences is not disrupted.

If the sentences were to be pitch accented entirely on the basis of rhythmic constraints, pitch accents might be expected to occur on the stressed syllable of the prepositional object (noun 2) by the nuclear stress rule (see Chapter 2, section 2.1). Accents might also occur on some of the other strong metrical units in the sentence, particularly those with an extra level of rhythmic prominence (as indicated by the second level of x's) in this metrical structure: the focus particle (if present), adjective 1 and the direct object (noun 1).

6.2.1.3 Controlling context

The test sentences described above were each placed in three different contexts. Two of these contexts provide the test sentence with context conditions for what has been called narrow focus and another for broad focus. One of the narrow focus contexts puts only the direct object in focus, while the rest of the sentence is not in focus. This is the NP focus condition. A second context provided the test sentence with context conditions for focus on the entire VP; this was the VP or broad focus condition. The final context puts the sentence final PP in focus, leaving the rest of the sentence outside the focus phrase. The portions of the NP and PP focus condition sentences that are not in focus provide a basis of comparison for the focused portions for sentences produced in the other focus conditions.

Certain factors have to be controlled in order to guarantee that the use of definite and indefinite noun phrases in the test sentences is equally felicitous in all three contexts. All the contexts are uniform as background for the test sentences, in that in each case (1) the referent of the subject pronoun of the test sentence is also a subject in the preceding context; (2) the specific referent of the indefinite object

noun phrase is always new; and (3) the referent of the prepositional object is always given or inferable.

In order to generate the three different focus structures, there are also consistent differences between the three contexts. In the NP focus context (context 1), the prepositional object is always explicitly given in the context, while in contexts 2 and 3, it is merely inferable; there was also always one alternative to the focused noun phrase in the context, so as to guarantee both an exhaustive and contrastive interpretation. In the PP focus context (context 3), while the referent of the direct object is new (allowing it to be felicitously expressed as an indefinite), its kind is always given; again, to insure that the focused PP received an exhaustive and contrastive interpretation, there was always an alternative to it in the context. shows the three contexts for one of the test sentences and the expected focus structure for each context condition. It also summarizes the discourse status of the referents in the test sentences for each context.

The contexts provided for each focus condition are also controlled so that they do not differ substantially in length.

Table 6.3: Summary of contextual information for experimental items

| | Context 1: NP focus | Context 2: VP focus | Context 3: PP focus |
|-----------|---|---|---|
| Context | Mrs. Baxter's yard isn't as beautiful as it usually is in the spring. She has been complaining that a squirrel has been digging up her flower garden, but based on his own observations, her son thinks that she's blaming the wrong gray animal. | Mr. Baxter usually has problems with birds picking the seeds he plants out of the ground. This year, all his vegetables came up beautifully. He was completely mystified about the difference. Then, he discovered what' s been keeping the birds away. | Mrs. Baxter suspected that someone in the neighborhood had abandoned a cat. She mentioned to her son that she had seen a scrawny gray kitten climbing into the garbage can. He hadn't seen a kitten by the garbage can, but he had the same suspicions. |
| Focus | He saw [a scrawny gray kitten] _{FP} in the garden | He [saw a scrawny gray kitten in the garden] _{FP} | He saw a scrawny gray kitten [in the garden] _{FP} |
| Subject | given referent <i>pronoun</i> | given referent <i>pronoun</i> | given referent <i>pronoun</i> |
| Object | new referent (focus) <i>indefinite</i> | new referent <i>indefinite</i> | new referent, given kind <i>indefinite</i> |
| PP object | given referent <i>definite</i> | inferable referent <i>definite</i> | inferable referent (focus) <i>definite</i> |

6.2.2 Format and Presentation

The 18 test sentences were presented on 5 X 8-inch index cards in each of the three different context conditions, for a total of 54 experimental sentences.

Two distractor items also appeared on the cards; these additional items were intended to force participants to read and understand the text before they read aloud the test sentence. Without options to choose from, participants might be tempted to read aloud the single sentence without making contact with the meaning it conveys. The hope was that the presence of distractors would make it more likely that the prosodic character of the read utterance would reflect the context provided.

The distractors also served to disguise the nature of the experiment. The two distractor items, which while thematically related to the context, did not complete the discourse in a coherent fashion; the test sentence, on the other hand, did. In recording sessions, subjects were asked to choose the sentence that best completed the text and read this aloud. The "correct" (test) sentence appeared randomly as the first, second or third choice, although where it appeared on the list of choices was held constant across all three contexts. That is, if the test sentence was the first choice in the VP focus context, then it was also the first choice in the PP and NP contexts. This was done in order to control for any possible effects that the test sentence's position in the list of choices might have on the subjects' performance or preferences.

The experimental materials were divided into three sets of 18 cards, each including an equal number (six) of randomly chosen test sentences in all three focus contexts.

6.2.3 Procedures

6.2.3.1 Subjects

Volunteers were recruited from introductory linguistics classes held at the University of Texas at Austin to serve as subjects. They were given extra credit in these classes upon completion of their participation in the experiment. All volunteers were native speakers of American English. Thirteen volunteers completed participation in the experiment (seven women and six men, mean age 20.4 years).

The data provided by four individual participants (two women, two men, mean age 18.7 years) were excluded from analysis. Playback of the recording sessions revealed that these participants selected a distractor sentence to read aloud, rather than the experimental sentence, more than five times out of 54 sentences, or greater than 10% of the time. This was taken to indicate that the experimental situation substantially affected these participants' performance on the task and called into question the value of their remaining responses. The remaining nine participants, on average, read a distractor item only twice out of 54 sentences, or 3.7% of the time.

Three female and three male speakers (mean age, 20.6 years) were randomly selected from these remaining participants. Recordings of the sessions in which they participated were digitized for analysis.

6.2.3.2 Sessions

Each volunteer participated in three separate recording sessions, which ranged from between 10 and 20 minutes in length, depending on the participant. The

three sets of experimental materials were presented in three separate recording sessions to prevent subjects from seeing the same test sentence more than once in a recording session. The order of the sets was randomly distributed across the three sessions.

For recruitment and retention purposes, two sessions were scheduled for the same day, with a 15-minute break between; it was felt this time period was long enough to prevent subjects from being influenced by the earlier session when they saw a sentence they had seen earlier in a different context. The third session was scheduled five to ten days after the two-session appointment, depending on subject availability.

Volunteers were told that they were participating in an experiment on the processing of texts, and that their verbal responses to questions would be recorded and timed. At the beginning of the first session, they were given an information card and a consent form to complete.

Tape recording ran the full duration of a session. During each session, volunteers were presented with twenty-two 5 X 8-inch index cards upon which appeared a written context of between three and five lines of text and three choices for completing the discourse (as described above in section 6.2.2). The first four of these were practice cards, intended to familiarize participants with the task before recording of the data began. The remaining 18 were experimental cards presented in random order. Volunteers were instructed to read the contexts silently to themselves, to select the sentence that provided the best continuation of the text and to read this sentence out loud.

6.2.3.3 Measurements

The collected recordings were digitized, excluding practice sentences, distractor sentences, and periods of silence between subjects' reading of the test sentences. This yielded a set of 316 digitized utterances (6 subjects X 3 contexts X 18 sentences = 324; eight distractor responses were discarded), and 100 sets of sentences in all three focus conditions (6 subjects X 18 sets = 108, less eight incomplete sets). These were segmented by syllable, and the duration of the verb phrase and duration of the syllables in the verb phrase were measured in milliseconds. These numbers recorded for each sentence for statistical comparison.

Pitch analysis was also performed on each digitized utterance. This allowed for determining which syllables received pitch accents so that comparisons could be drawn about the location of pitch accent in each context. Each syllable that was a potential pitch accent target in the sentence was coded as accented or not accented. A syllable was considered a potential pitch accent target if it was (1) a syllable that is stressed in a word and (2) that syllable position of the sentence was accented at least once by at least half of the subjects. The first requirement excluded all lexically unstressed syllables. The second requirement excluded the pronouns (*he/she*), determiners (*the/a(n)*) and prepositions of the test sentences, since no speakers ever accented these during the experiment. Thus, there were five or six potential pitch accent sites per test sentence, depending on whether it included a focus particle or not. These included the stressed syllable of any focus particle, the verb, the stressed syllables of the first and second adjectives, and the stressed syllables of the first and second noun. These are represented in (11).

(11) Potential sites for pitch accent *

| | | | | | | | | | | | | | |
|------|--------------|---------|------|-------|---------|--|---------|----|----------|-----|--|----|-----------------------|
| | (*) | | * | | * | | * | * | | | | * | |
| They | | (on ly) | | moved | a | | hea | vy | | old | | bu | reau up the stair way |
| | (focus part) | | verb | | adj (1) | | adj (2) | | noun (1) | | | | noun (2) |

The actual location of pitch accent was recorded for each of the experimental items.

6.3 EXPERIMENTAL PREDICTIONS

Specific predictions can be made for each of the initial questions addressed by the experiment.

(3) *Is the location of nuclear accent associated with focus conditions?*

The idea that the location of nuclear pitch accent will be associated with focus conditions is an important assumption in the approach taken in analyzing the corpus data. The specific prediction was that nuclear pitch accent would typically be located on the prepositional object (noun 2) in the PP focus condition and on the direct object (noun 1) in the NP focus condition. The site of nuclear accent was expected to split in the VP focus condition: there are five accentable syllables in the scope of the VP focus. If nuclear accent were to show a stronger tendency to fall on a particular syllable than on the other accentable syllables of the utterance, this would indicate that the site is constrained in some way. For example, for the sentences in this experiment, Selkirk 1984 and Gussenhoven 1983 predict that accents will occur on both noun 1 and noun 2 in the VP focus condition, which means nuclear pitch accent would occur on the prepositional object, since an accent here would be the last one of its intonation phrase.

(4) *Do [-focus] items receive pitch accents?*

If accents were always related to focus, as in radical FTA approaches, then we would expect to find roughly equal numbers of [-focus] pitch accented syllables in all conditions, and these numbers should, furthermore, be very small. The data from the corpus, however, does not support a radical FTA view. Thus, the prediction here was that a significant percentage of [-focus] accentable items would receive pitch accent. If phonological constraints factor into the location of pitch accent, we should find a smaller number of [-focus] pitch accented syllables in the VP condition than in the NP or PP conditions, since it has a smaller number of accentable syllables outside the scope of focus.

(5a) *Are items in narrow NP and PP focus more often the location of nuclear pitch accent than the same items in broad VP focus?*

This question treats with the issue of greater prominence for items in narrow NP and PP focus than same items in broad VP focus. If prominence is linked to the location of nuclear pitch accent, we should find that nuclear accent occurs on the prepositional object (noun 2) more often in the PP condition than in the VP condition, and that nuclear accent occurs more often on the direct object (noun 1) in the NP condition than in the VP condition.

- (5b) *Are items in narrow NP and PP focus longer than the same items in broad VP focus?*

This question also relates to the issue of greater prominence of items in narrow NP and PP focus than same items in broad VP focus. If prominence can be linked to duration of syllables, we should find that [+focus] syllables in narrow NP and PP focus conditions (noun 1 in the NP condition, noun 2 in the PP condition) are longer in duration than the same syllable in broad VP focus conditions.

- (6a) *Are sentences with broad VP focus constituents associated with the presence of more pitch accent locations than sentences with narrow NP and PP focus constituents?*

This question deals with the issue of prominence of items in broad focus. As has already been mentioned, a broad VP focus constituent in the experimental data contains more accentable material than a narrow NP and PP focus constituent. If phonological factors play a role in determining what gets accented in a sentence, as has been predicted, there should inevitably be more [+focus] pitch accented items within the scope of broad VP focus than within the scope of narrow NP and PP focus. This is a relatively vacuous prediction, however, with regard to distinguishing types of focus, since it depends on the length of the focus constituent rather than the type of focus constituent (narrow vs. broad VP).

There are two predictions here that involve the type of focus. One prediction is that there will be more pitch accented syllables overall in the VP focus condition sentences than in the NP or PP conditions. While it is expected that [-focus] material will be accented for phonological reasons, it is also expected that the same items in the [+focus] VP condition may in general be accented more often because they are part of a focus constituent. It is also possible that particular [+focus] syllables will be accented more often in the VP condition than in the NP or PP condition, suggesting that the accentuation of these syllables is associated with VP focus.

- (6b) *Are items in broad VP focus longer than the same items in occurring in narrow NP and PP focus conditions, where they are not part of the sentence focus?*

This is again an issue of the prominence of syllables in broad VP focus relative to [-focus] syllables produced in narrow NP and PP focus conditions. The prediction is that some [+focus] syllables from the VP condition will be longer than the [-focus] syllables produced in narrow NP and PP focus conditions.

6.4 RESULTS

6.4.1 Location of nuclear pitch accents

There were strong significant effects for the placement of nuclear pitch accent across all three focus conditions (see question (3)). In all cases, nuclear pitch accent was taken to be the final accent of the intonation phrase (following Pierrehumbert 1980, Beckman and Pierrehumbert 1986).

Nuclear accent was associated with the direct object noun (Noun 1) in 99 out of the 316 sentences used in the analysis, or 31.6% of the time. Sixty-five of these

sentences were produced in the NP focus condition, 28 in the VP focus condition, and 6 in the PP focus condition. Nuclear accent was associated with the prepositional object noun (Noun 2) in 213 sentences, or 67.4%. Of these, 97 were produced in the PP focus condition, 75 in the VP focus condition, and 41 in the NP focus condition.¹ A χ^2 association tests reveal that the differences between these frequencies are significant for all conditions. This information is summarized in Table 6.4 and Figure 6.5.

Table 6.4: Location of nuclear (final) pitch accents

| | Totals ² N | NOUN(1) n % | | NOUN(2) n % | | p (χ^2) |
|----------------|--------------------------|---------------------|-------------------|---------------------|-------------------|--|
| All conditions | 316 | 99 | 31.3% | 213 | 67.4% | $p < \mathbf{0.0001}$ (association) |
| NP condition | 107 | 65 | 60.7% [+focus] | 41 | 38.3% [-focus] | |
| VP condition | 106 | 28 | 26.4% [+focus] | 75 | 70.8% [+focus] | |
| PP condition | 103 | 6 | 5.8% [-focus] | 97 | 94.2% [+focus] | |

These results are as predicted. The experimental subjects displayed a significant tendency to associate nuclear accent with the stressed syllable of the noun in the narrow NP and PP focus constituent: noun 1 (60.7%) in the NP condition and noun 2 in the PP condition (94.2%). Subjects also displayed a significant tendency to associate nuclear accent with noun 2 in the VP condition, but, as expected, this tendency was less strong than in the PP condition (70.8% as compared to 94.2%). Thus, the site of nuclear pitch accent shows a significant association with the three experimental focus conditions, as determined by a χ^2 association test. This supports the hypothesis in (3) and validates the approach taken in analysis of the data from the corpus.

While the significant trends are in line with expectations, what is surprising is that these trends are not more robust in the NP condition. While speakers placed the nuclear accent on the head of the [+focus] noun phrase almost 61% of the time, in 39% of the sentences, they placed it elsewhere. In the PP focus condition, we find that the head of the [+focus] noun phrase serves as the site of nuclear accent 94% of the time, and that speakers only placed nuclear accent elsewhere 6% of the time. One might expect to find similar proportions for the location of nuclear accent in both narrow NP and PP focus conditions. What we find instead is that the noun in the [+focus] NP is significantly less likely to be the site of nuclear accent in the NP condition than it is in the PP condition ($p < 0.0001$). We will revisit this issue in section 6.5.

¹ In four cases, final accent did not appear on either of the nouns in the verb phrase; 3 of these were VP condition cases (accent on verb, and on each of the two adjectives), and one was an NP condition case (accent on first adjective).

² See footnote 1

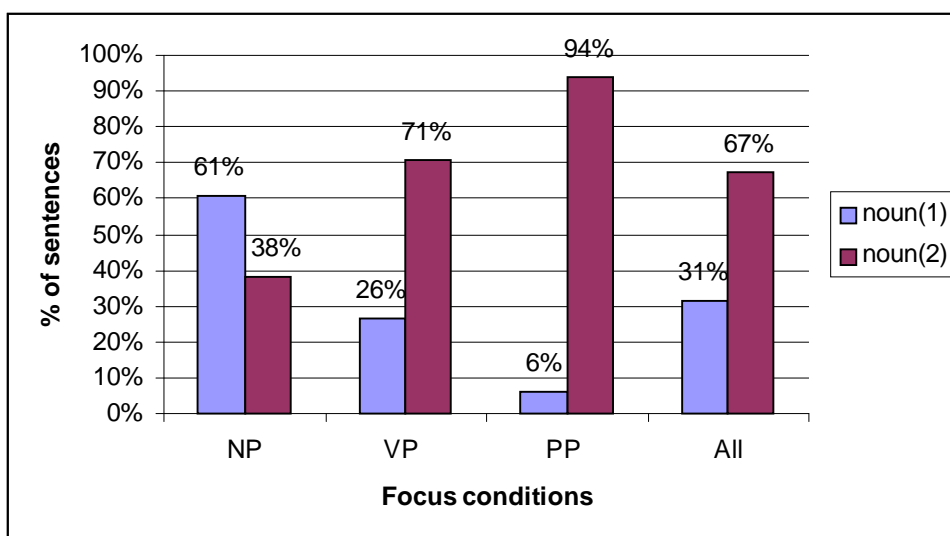


Figure 6.5: Location of nuclear (final) pitch accent

The data in Figure 6.5 also test the hypothesis of the question in (5a), which concerned the role that nuclear pitch accent plays in lending greater relative prominence to items in narrow NP and PP focus as compared to broad VP focus. Specifically, it was predicted that the prepositional object (noun 1) would serve as the site of nuclear accent more often in the PP condition than in the VP condition, and that the direct object (noun 2), would serve as the site of nuclear accent more often in the NP condition than in the VP condition. These predictions are borne out by the data. Noun 1 is the site of nuclear accent 94.2% of the time in the PP condition, versus 70.8% in the VP condition. Noun 2 is the site of nuclear accent 60.8% of the time in the NP condition and 28.2% of the time in the VP condition. These results are significant by χ^2 .

6.4.2 Pitch accent out of focus

Most of the sentences produced in this experiment contained more than one pitch accented syllable. In the 316 sentences analyzed, there were 732 pitch accents recorded, with an average of 2.32 accents per sentence. These 316 sentences contained 1790 accentable syllables, as determined by the criteria described in section 6.2.3.3. Thus, 40.4% of the syllables that were potential locations for pitch accents appearing in the experimental data actually received a pitch accent.

The hypothesis underlying the question in (4) is that syllables that are not in a focus constituent can receive pitch accent. Of 732 pitch accented syllables in the experimental data, 480 (65.6%) occur within a focus constituent, while 252 (34.4%) do not.

Table 6.6: Occurrence of pitch accent on [+focus] and [-focus] syllables

| | [+focus] pitch accents | | [-focus] pitch accents | | <i>total</i> |
|--------------|------------------------|-------|------------------------|-------|--------------|
| All | 480 | 65.6% | 252 | 34.4% | 732 |
| NP condition | 164 | 69.2% | 73 | 30.8% | 237 |
| VP condition | 219 | 88.3% | 29 | 11.7% | 248 |
| PP condition | 97 | 39.3% | 150 | 60.7% | 247 |

As expected, the number of pitch accents that appear on syllables in focus constituents is associated with the focus condition. This association is directly related to the amount of material in the focus constituent that can be accented. In the PP condition, for example, we find the largest proportion of pitch accents outside a focus constituent, because the PP condition sentences have only one accentable syllable (the stressed syllable of the prepositional object) within the focus constituent. In the VP condition, we find the smallest proportion of pitch accents outside a focus constituent.

The numbers in Table 6.6 show that pitch accents need not occur in the scope of a focus constituent. In the experimental data, 11.8% to 60.2% of pitch accents occur outside a focus constituent, depending on the size of the focus constituent. The data also provides examples of nuclear pitch accents that do not occur within a focus constituent. In the NP condition, context put the prepositional object outside (after) the focused noun phrase. Nevertheless, 38% of the time, the noun in the prepositional phrase received an accent; because this was the final accent of the intonation phrase — the prepositional object containing the final accentable syllable of the sentence — it was counted as nuclear accent (see Table 6.4 and Figure 6.5). These represent 5.6% of the accents occurring in the experimental data.

These data indicate that a significant proportion of pitch accents are not associated with a focus constituent.

6.4.3 Comparing focus conditions

As the data presented in Table 6.4 and Figure 6.5 might suggest, important differences between the focus conditions do not depend on the distinction of narrow vs. broad focus as much as on the distinction of NP vs. VP vs. PP focus. The broad VP condition does indeed display a different tendency in the location of nuclear pitch accent from those of the NP and PP conditions. The greatest difference, however, occurs between the two narrow conditions, with the tendencies of the VP condition falling somewhere between these. It is for this reason that most of the results to be presented below make comparisons across all three categories. Only in section 6.4.3.1, which presents the results of a comparison between the mean duration of syllables in broad focus and narrow focus conditions and the results of a comparison between the mean duration of syllables in broad focus and those that are not in focus, are two category comparisons made. Comparisons regarding the location of secondary accent and the number of accents are performed across all three conditions.

6.4.3.1 Syllable duration

The experiment also allows for the testing of two hypotheses about the duration of stressed syllables in focus. The first is that [+focus] items in narrow NP and PP focus will be longer in duration than matched items in broad VP focus (see question (5b)); the second is that [+focus] items in broad focus will be longer in duration than matched items that are not in focus (see question (6b)).

The stressed syllables of nouns that served as the head of the focus phrase in the NP focus condition (Noun 1, [+focus]) and the stressed syllables of nouns that served as the head of the noun phrase in the PP focus condition (Noun 2, [+focus]) were compared to the stressed syllable of matched nouns from the VP focus condition.

Table 6.7: Mean duration of stressed syllables: narrow vs. broad focus

| | NARROW | BROAD | <i>paired t-test</i> |
|-----------------------------|--------------------|--------------------|----------------------|
| <i>mean duration (msec)</i> | 231.69 [+focus] | 231.98 [+focus] | NS (p=.94) |

The mean duration of the pitch-accented syllables in narrow focus was virtually the same as that for the same syllables in broad focus. A paired t-test testing the hypothesis that VP focus might be associated with a lesser degree of prominence than in narrow NP and PP focus conditions, reflected through shorter duration of stressed syllables, did not produce significant results. These results are presented in Table 6.7.

A second paired t-test was performed to address the second hypothesis, that broad focus items might be longer in duration than matched items that were not in focus. The stressed syllables of direct objects (Noun 1) in the PP condition and the stressed syllables of prepositional objects (Noun 2) in the NP condition were compared with the stressed syllables of the matched items in the broad VP condition. The results of this test appear in Table 6.8.

Table 6.8: Mean duration of stressed syllables: broad focus vs. [-focus]

| | BROAD [+FOCUS] | [- FOCUS] | <i>paired t-test</i> |
|-----------------------------|----------------|-----------|----------------------|
| <i>Mean duration (msec)</i> | 231.99 | 227.02 | NS (p=0.22) |

Discussion of these results appears in section 6.5.

6.4.3.2 Location of all pitch accents

Of the pitch accents occurring in the experimental data, 43.2% (316 of 732) are nuclear pitch accents, the location of which appears to be associated with focus (see section 6.4.1). As we have already seen, 34.4% of all the pitch accents in the experimental data occur outside the scope of focus (this includes the 5.6% of nuclear accents that occur after an NP narrow NP and PP focus constituent). Another 28.0%

of pitch accents (205 of 732) are secondary accents that occur within a focus constituent. The question in (6a) concerns the role secondary pitch accents might play in distinguishing between broad and narrow NP and PP focus.

Analysis of the location of all accents was performed on the 210 sentences produced in the experiment that include focus particles (6 subjects X 12 sentences X 3 conditions = 216, less 6 distractor items). Sentences without focus particles are excluded from this analysis because the absence of a focus particle means that these sentences contain one less metrical foot and fewer potential locations for pitch accent.

The distribution of nuclear pitch accents for these sentences appears in Figure 6.9. This distribution is not significantly different from the distribution observed in section 6.4.1. The direct object noun (Noun 1) is again the most likely location for nuclear accent in the NP focus condition, while the prepositional object (Noun 2) is the most likely location for nuclear accent in the PP focus condition. The prepositional object is also the most likely location for nuclear accent in the VP focus condition, although this tendency is not as strong as in the PP focus condition. A χ^2 association test shows that these trends continue to be statistically significant for the entire distribution as well as between categories; all *p*-values are less than 0.0001.

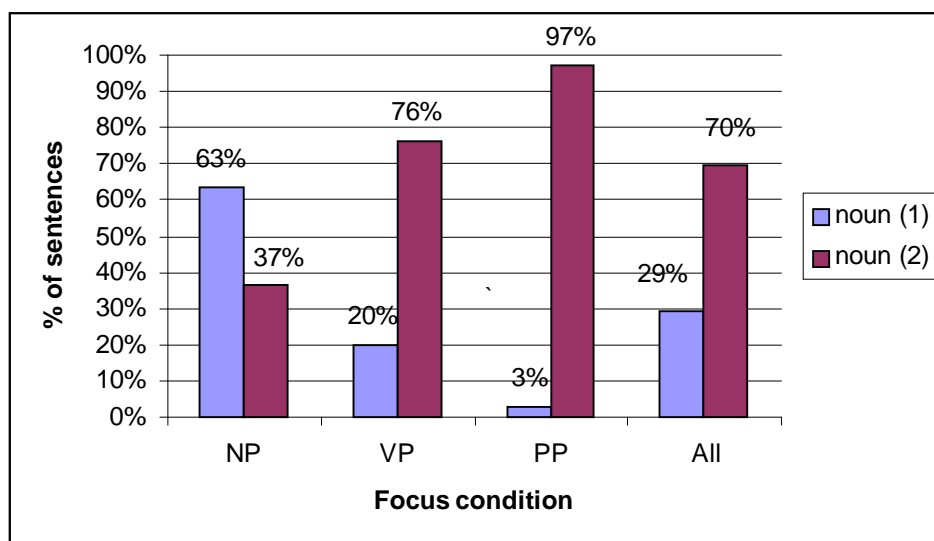


Figure 6.9: Location of nuclear pitch accents in sentences containing focus particles (cf. Figure 6.5)³

It may also be the case that the location of accent in general — not just nuclear accent — could be affected by the focus conditions. χ^2 tests show that some tendencies in accent location are significant across all three experimental focus conditions. In order to address the question raised in (6a), the frequency of occurrence of pitch accent on the [+focus] syllables of the VP conditions was compared to the frequency of occurrence of pitch accent on the same syllables from contexts in which they were not in focus. Thus, the frequency of pitch accent on the

³ In the VP condition, nuclear accents also occurred once on the verb, and once on each of the adjectives in sentences containing focus particles (see also footnote 1), thus the totals in Figure 6.9 for all the conditions and the VP condition do not equal 100%.

verb in the VP condition was compared to the frequency of accent on the verb in both the NP and PP conditions. Adjective 2 was so rarely accented that statistical generalizations could not be made, and so it was not included in the comparison.

Although verbs were only accented in 8.6% of sentences, two thirds of these were produced in the VP focus condition. This represents 16.8% of the sentences produced in the VP focus condition; only 2.8% of the sentences produced in the NP focus and 5.9% of the sentences produced in the PP focus condition had pitch accents on the verb. These differences were significant by χ^2 association across all three conditions ($p = 0.01$)

Table 6.10: Occurrence of all pitch accents

| | Focus particle | Verb | adj(1) | adj(2) | noun(1) | noun(2) |
|--|-------------------|-------------------------|-------------------------|-----------------------|-------------------------|-------------------------|
| All <i>n</i> = 210 | 90 42.9% | 18 8.6% | 103 49.0% | 9 4.3% | 157 74.8% | 146 69.5% |
| χ^2 association: <i>p</i> < 0.0001 | | | | | | |
| NP condition <i>n</i> = 71 | 29 40.8% | 2 2.8% | 39 54.9% [+focus] | 1 1.4% [+focus] | 68 95.8% [+focus] | 26 36.6% |
| VP condition <i>n</i> = 71 | 29 40.8% | 12 16.9% [+focus] | 30 42.3% [+focus] | 5 7.0% [+focus] | 48 67.6% [+focus] | 54 76.1% [+focus] |
| PP condition <i>n</i> = 68 | 32 47.1% | 4 5.9% | 34 50.0% | 3 4.4% | 41 60.3% | 66 97.1% [+focus] |
| χ^2 association | NS | <i>p</i> = 0.01 | NS | NS | <i>p</i> = 0.04 | <i>p</i> < 0.0001 |

Also significant by χ^2 are the differences in frequency of pitch accent on noun 2 across all three conditions ($p < 0.0001$). In the PP condition, noun 2 got a pitch accent 97.1% of the time, and in the VP condition, noun 2 got a pitch accent 76.1% of the time. Noun 2 got a pitch accent only 36.6% of the time in the NP condition (where it appeared after the focus constituent).

The direct object was most likely to be accented in the NP focus condition (95.8%). It was accented more frequently in the VP focus condition (67.6%) than in the PP condition (60.6%), where it did not occur within the scope of focus. These differences were also significant by χ^2 association ($p = 0.04$).

See Table 6.10, Figure 6.11 and Figure 6.12 for presentation of this information.

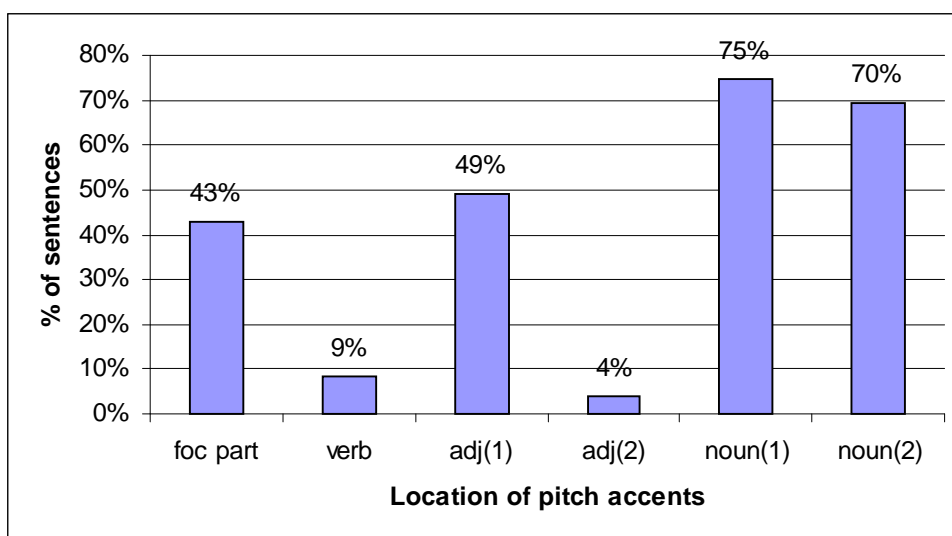


Figure 6.11: Occurrence of pitch accent by location (all conditions)⁴

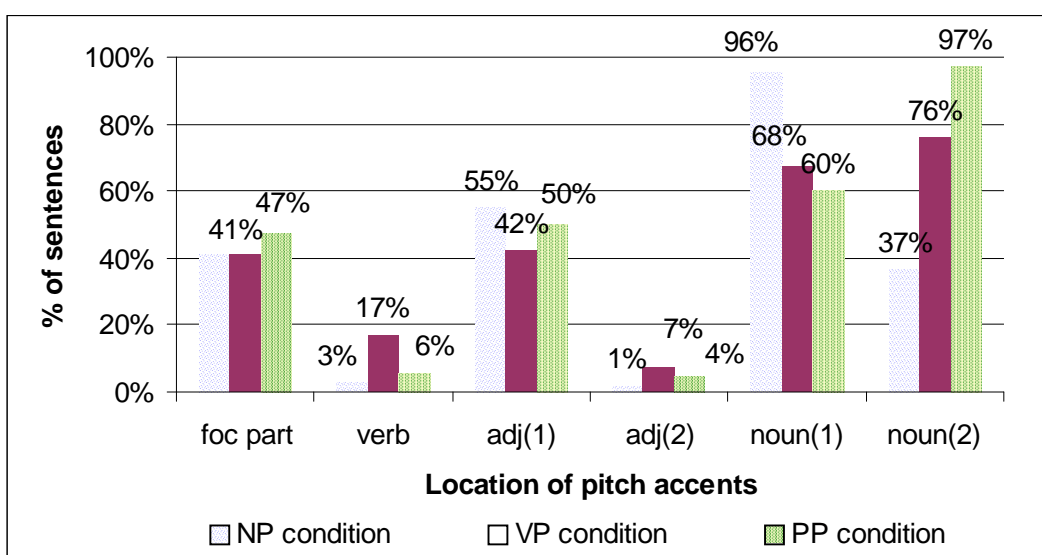


Figure 6.12: Occurrence of pitch accent by location (focus conditions)

6.4.3.3 Pitch accents per sentence

Another prediction tested by this experiment that concerns the occurrence of pitch accent is the number of pitch accents per sentence (see question (6a)). In all three focus conditions, the number of pitch accents per sentence ranged from one to four, and the mode was two accents per sentence. It was predicted that speakers might produce more pitch accents in the broad VP focus condition because more of the accentable material fell within the scope of focus. This was expected because in

⁴ Note that the syllables that are most likely to receive pitch accents correspond to those syllables with greater rhythmic prominence in (10): the focus particle, adjective 1, noun 1 and noun 2.

order for a pitch accent on the direct object to serve as a nuclear pitch accent, it must be the final pitch accent in the intonation phrase.

A χ^2 association test performed on the frequency distribution for the number of pitch accents per sentence in all conditions indicated that there is an association between the number of pitch accents likely to occur in the sentence and the focus condition under which it was produced ($p < 0.003$). The focus condition most likely to result in a sentence with only one accent was the NP condition, that most likely to result in a sentence with two accents was the PP condition, and that most likely to result in a sentence with three accents was the broad VP focus condition. Four-accent sentences were most often produced in the PP condition, but these were too infrequent to provide meaningful results.

In the VP condition, 13.2% of the sentences had one pitch accent, 43.4% had two accents and 39.6% had three accents. In the NP condition, 26.2% of the sentences had only one accent, while 38.3% had two, and 30.8% had three. In the PP condition, 9.7% of sentences had one pitch accent, 53.4% had two, and 24.3% had three. This information is summarized in Table 6.13 and Figure 6.14.

Table 6.13: Frequency distribution of pitch accents per sentence

| | 1 | 2 | 3 | 4 ⁵ |
|---|-------------|--------------|--------------|----------------|
| All conditions $n = 316$ $\chi^2 : p = 0.003$ | 52 16.5% | 142 44.9% | 100 31.6% | 22 7.0% |
| VP condition (broad) $n = 106$ | 14 13.2% | 46 43.4% | 42 39.6% | 4 3.8% |
| NP condition (narrow) $n = 107$ | 28 26.2% | 41 38.3% | 33 30.8% | 5 4.7% |
| PP condition (narrow) $n = 103$ | 10 9.7% | 55 53.4% | 25 24.3% | 13 12.6% |

⁵ Sentences with four syllables were excluded from statistical analysis because expected values were too low to be used in calculation of χ^2 .

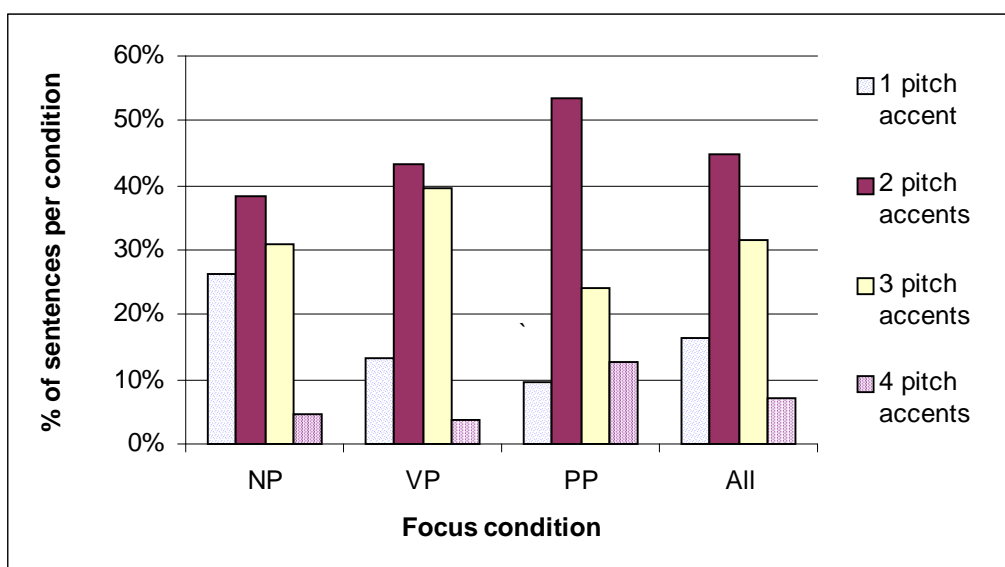


Figure 6.14: Frequency distribution of number of pitch accents per sentence

6.4.3.4 Accentuation of focus particles

Although the experiment was not specifically designed to test the occurrence of pitch accent on focus particles, this is nevertheless something that can be tested with the experimental data. This issue is of interest because it was noted in discussion of focus sensitive contexts in the corpus data that focus particles, as well as other lexical items that occur in focus-sensitive contexts (e.g., *usually*, *always*, etc.) were frequently the sites of secondary pitch accent.

The experimental data show that these items are accented almost equally frequently in all three focus conditions (see Table 6.10 and Figure 6.12), suggesting that accentuation of these items is not associated with focus conditions. In 42.9% of the sentences with focus particles, the stressed syllable of the particle received a pitch accent (40.8% in both the NP and VP conditions and 47.1% in the PP condition). Section 6.4.2 established that 40.4% of accentable syllables in the experimental data received a pitch accent. The frequency of accent on the stressed syllable of focus particles, then, is essentially the same as the frequency of accent on accentable syllables in general. This might suggest that accentuation on focus particles is driven primarily through phonology, occurring to satisfy a preference for rhythm in the units of prominence in the sentence.

There does, however, seem to be another factor. If we compare the frequency of pitch accent occurrence across focus *particles* rather than across focus *conditions*, statistically significant differences emerge (see Table 6.14).

Table 6.15: Occurrence of pitch accent on focus particles

| Focus Particle | Accented | Focus condition | | Accented |
|-----------------------|------------------|-----------------|---------------|------------|
| ALSO <i>n</i> = 69 | 42 (60.9%) | NP | <i>n</i> = 24 | 11 (45.8%) |
| | | PP | <i>n</i> = 21 | 15 (71.4%) |
| | | VP | <i>n</i> = 24 | 16 (66.7%) |
| EVEN <i>n</i> = 71 | 25 (35.2%) | NP | <i>n</i> = 24 | 9 (37.5%) |
| | | PP | <i>n</i> = 24 | 10 (41.7%) |
| | | VP | <i>n</i> = 23 | 6 (26.1%) |
| ONLY <i>n</i> = 70 | 22 (31.2%) | NP | <i>n</i> = 23 | 9 (39.1%) |
| | | PP | <i>n</i> = 24 | 6 (25%) |
| | | VP | <i>n</i> = 24 | 7 (29.2%) |
| χ^2 | <i>p</i> = 0.015 | NS | | |

The focus particle *also* is significantly more likely to be accented — 60.9% of the time — than either *even* or *only*. We cannot determine whether this tendency is due to some difference in the nature of the particles themselves or to some difference in the contexts in which each of the particles was used, since the experiment was not controlled to test for these factors. Nevertheless, the fact that one is more likely to be accented suggests that the accentability of these items is not determined solely on the basis of rhythmic constraints, and likely depends on other factors.

6.4.4 Summary of results

Statistical analysis of the experimental data provided support for a number of the hypotheses tested. In regard to the questions posed about the relationship between focus and pitch accent (see (3) and (4)), we have seen that the location of nuclear accent appears to be associated with focus conditions (section 6.4.1), and that [-focus] items can receive pitch accent (section 6.4.2). In regard to the questions about possible phonological differences between focus conditions, we found that items in narrow NP and PP focus were more prominent than matched items in broad VP focus (see question (5)), in that they were more likely to receive nuclear pitch accent (section 6.4.1). Despite this, they were not significantly longer in duration than matched items in broad focus (section 6.4.3.1), nor were syllables in broad focus significantly longer than matched items which did not appear in a focus constituent. Thus, the current experiment did not replicate the results of Eady et al.

We also found that certain syllables of broad focus constituents were more likely to get pitch accents than the same syllables of sentences produced in narrow NP and PP focus conditions (see question (6) and section 6.4.3.2); these included verbs and prepositional objects. Despite the extra prominence these broad focus syllables received through pitch accent, they were not significantly longer in duration than matched items in the [-focus] narrow NP and PP focus conditions (section 6.4.3.1). The broad VP focus sentences also contained significantly more pitch accented syllables on average than sentences with narrow NP and PP focus on the direct object (NP focus), but they did not contain more than sentences produced

in the PP condition. When the frequency distribution for the number of pitch accents per sentence in the VP condition was compared to that in the NP and PP conditions, however, a significant effect was revealed (section 6.4.3.3) across all three conditions.

The experimental data also revealed some significant but unanticipated trends. One was that the direct object (noun 1), the head of the NP in focus in the NP condition, was significantly less likely to receive nuclear pitch accent than the prepositional object (noun 2) was in the PP focus condition (section 6.4.1). Another was that the presence of pitch accent on focus particles, which is not associated with focus condition, shows an association with the type of focus particle (section 6.4.3.4)

6.5 DISCUSSION

The experiment presented here explores two sets of issues. The first set concerns the relationship between accent and focus, and the second set concerns some possibilities for differences in the phonological realization of broad VP and narrow NP and PP focus.

The results concerning the first set of issues are in line with the predictions made at the outset on the basis of the occurrence of pitch accent and focus in the corpus data. The location of nuclear pitch accent is associated with focus conditions, but pitch accent need not signal focus in all circumstances. This result validates the approach taken in discussion of the corpus data, where nuclear accent, rather than pitch accent in general, was taken to signal focus. It also calls into question so-called radical FTA approaches, which equate the presence of pitch accent with focus. It thus supports Ladd's (1996) claim that factors other than focus play into the assignment of pitch accent. These factors are presumably largely phonological. The fact that the locations of multiple pitch accents in the experimental sentences correspond so neatly to the locations of the strongest metrical positions of the test sentences strengthens this possibility (compare (9)/(10) and Figure 6.11).

The role of phonological factors may also serve to explain in part the unanticipated occurrence of nuclear pitch accent on prepositional objects in sentences with narrow NP and PP focus on the direct object. This occurred in 38.3% of sentences produced in the narrow NP focus condition.

One explanation is that there was a problem with the materials — that despite all efforts, the focus structure was not adequately controlled for some of the items to keep the prepositional phrase from falling into the scope of focus. While all of the 18 test sentences can be analyzed as having the syntactic structure appearing in (7)/(8), 9 of them can also be analyzed with a different structure. This alternative structure treats the prepositional phrase syntactically not as an adjunct to the verb but as an adjunct to the noun. These sentences are thus structurally ambiguous, although this ambiguity makes no difference in the meaning of the sentence. The alternative structure is represented in (12) (cf. (8))

- (12) (a) $[_{IP}[_{DP} \textit{pronoun}] [_{VP}[_{focus \ particle} [_{V} \textit{transitive-verb}]] [_{DP} \textit{indefinite} [_{NP} \textit{AdjP noun} [_{PP} P [_{DP} \textit{definite}]]]]]]]]$
- (b) $[_{IP}[_{DP} \textit{She}] [_{VP} \textit{also} [_{V} \textit{got}]] [_{DP} a [_{NP} \textit{very nice letter} [_{PP} \textit{from} [_{DP} \textit{her father}]]]]]]]]$

Context made the structure in (12) unlikely. In the NP condition context, the question that the sentence *She also got a very nice letter from her father* answers is *What else did she get from her father?*, which is most congruent with the structure in (8). It does not answer the question *What else did she get?*, which would be most congruent with the structure in (12). Nevertheless, it is possible that speakers treated these sentences differently because of the potential ambiguity in structure.

This does not appear to have been the case, however. The 41 NP condition sentences in which speakers placed nuclear accent on the [-focus] prepositional object represent a complete cross section of the NP condition experimental items; each of these items appears in this subset, on average, 2.7 times; none appears more than four times. Thus, nuclear accent was equally likely to appear on the prepositional object in all the 18 experimental items.

Another possibility might be that the percentage of nuclear accented prepositional objects in the NP condition was influenced by an atypical tendency of one or two speakers. This also does not appear to be the case. All six of the participants placed nuclear accent on the prepositional object in the NP focus condition at least three times (on average, 6.8 times out of 18, or of course, 38.3% of the time). There were no significant differences in their tendencies to do so.

Ruling out skewing of the data due to problems with specific experimental items or specific speakers makes a phonological explanation more likely. We have already seen that it is possible for speakers to put nuclear accent on either the direct object or the prepositional object in the VP condition, where both of these nouns are in the scope of focus. However, the participants in the experiment were more likely to put it on the prepositional object (71% vs. 26% of the time). This suggests that the prepositional object is somehow a more optimal location for nuclear pitch accent than the direct object is. This is the intuition that the nuclear stress rule attempted to capture: main sentence stress falls as far to the right as possible. This tendency may have been operating in at least a proportion of the 38.3% of NP condition sentences that have nuclear pitch accent on the prepositional object rather than the direct object. The phonological requirement that nuclear pitch accent appear as close to the end of the intonation phrase as possible may be overriding a semantic requirement that nuclear pitch accent align with focus in these sentences. In the 60.7% of NP condition sentences in which nuclear pitch accent appears on the direct object, the semantic requirement may be overriding the phonological one. What additional factors might cause a phonological requirement to take precedence over a semantic requirement in over a third of the sentences produced in the NP focus condition remains an open question.

It is possible that in some of these cases, speakers uttered the sentence as two intonation phrases, one with nuclear accent on the direct object and a second with nuclear accent on the prepositional object. The first nuclear accent, then, would be obeying both phonological and semantic requirements, since nuclear accent is aligned both with a [+focus] item and with the final stressed syllable of the intonation phrase. Since the entire prepositional phrase is [-focus] in this condition, it would presumably not be subject to semantic requirements that align nuclear pitch accent with a focus. This appears to be a scenario operating in the productions of at least one speaker, who uttered four of the NP condition sentences that he produced as two intonation phrases. This was clearly not the preferred mode (even for this speaker) in the data. Perhaps a phonological constraint that minimizes the number of intonation phrases accounts for this fact.

The experiment also confirmed most of the predictions made regarding potential differences between focus conditions. One of these was that items in narrow NP and PP focus would be more prominent than the same items in broad VP focus. The findings for location of nuclear accent were positive in that stressed syllables of words in narrow NP and PP focus conditions were more likely to receive nuclear pitch accent than the same syllables in the VP focus condition. Nuclear pitch accent occurred on matched items 61.7% of the time in the NP condition versus 26.4% in the VP condition, and 94.2% of the time in the PP condition versus 70.8% in the VP condition.

There was no significant difference in the duration of the stressed syllable of the [+focus] nouns in the narrow NP and PP versus broad VP condition, and thus the current experiment did not duplicate the results of Eady et al (1986).

A second set of questions related to the difference between broad VP and narrow NP and PP focus considered the prominence of [+focus] items in broad focus in comparison to items from narrow NP and PP focus conditions that were not within the scope of focus. The findings involving secondary pitch accent also revealed some significant trends here. Some stressed syllables of the VP focus constituent were significantly more likely to receive a pitch accent than comparable syllables in the narrow NP or PP focus conditions. Specifically, verbs produced in the VP condition were more likely to receive secondary pitch accent than the verbs produced in either of the narrow conditions. It was also the case that direct object nouns were more likely to be accented in the broad VP condition than in the narrow PP condition, where the direct object noun was not in focus (67.6% vs. 60.3%), and that prepositional object nouns were more likely to be accented in the broad VP condition than in the narrow NP condition, where the prepositional object was not in focus. A portion of the significance here, however, is likely due to the location of nuclear accent rather than secondary accent. That is, nuclear accent can appear on either noun in the broad VP condition (with a tendency to occur more frequently on the final noun), while the location of nuclear accent is more constrained in the narrow conditions.

Again, there were no significant differences in syllable duration between the broad and narrow conditions, supporting the view that lengthening plays a role secondary to pitch accent in the marking of syllable prominence. Eady et al.'s (1986) results for broad focus, which showed "widespread durational increases" were thus not replicated in the data from this experiment.

The experimental data also revealed that sentences produced in the VP condition had significantly more pitch accented syllables than matched sentences produced in the NP condition. This is to be expected if the interaction of semantic and phonological requirements leads to the location of nuclear pitch accent on the direct object of the sentences produced in the NP focus condition. In the NP condition, there is [-focus] material after the focused item which cannot be pitch accented without affecting the position of nuclear accent. Accenting this material in the NP condition would result in an utterance in which nuclear accent and focus are not aligned (as discussed above, such utterances occur). Pitch accent can appear on this material in the VP condition, however, without resulting in misalignment — the prepositional object is a potential site of nuclear accent for this focus condition. The VP condition thus has more locations for pitch accent, resulting in more accents on average than in the NP condition.

Analysis of the frequency distribution for the number of accents per sentence reveals a significant association for focus condition, with the VP condition sentences

the ones most likely to contain three accents. The results here suggest that the broader scope of the focus constituent in the VP condition allows for a larger number of [+focus] pitch-accented syllables. This would result in a greater degree of prominence for [+focus] material occurring within a broad focus constituent than in material in other focus conditions, which occur outside the scope of focus. These results support the idea that there are differences in the prominence of elements in narrow and broad focus constituents, as realized by the presence of secondary as well as nuclear pitch accent.

The data produced here suggest that phonological considerations are important in the generation of intonation in both narrow and broad focus conditions. Future work should attempt to address the interaction between the requirements of focus and the requirements of phonology and other components of grammar that may operate in the assignment of pitch accent. Experimental data indicates that situations occur in speech where the different requirements of phonology and focus are in conflict; an important and interesting question is the way in which such conflicts are resolved. The phonological framework of optimality theory already incorporates the notion of competing constraints, and some new proposals adapt this framework for semantics (e.g., Hendriks and de Hoop, *in press*, Krifka to appear). Other grammatical considerations may also play a role in the assignment of pitch accent. The conflicts inherent in the assignment of pitch accent seem well-suited for treatment by a constraint-based approach like optimality theory.

Work will also need to be done to determine whether the differences between broad VP and narrow NP and PP focus found here hold up for sentences with different syntactic structures and focus constituents of different lengths, and, if possible, in more spontaneously-produced speech.

Another issue that calls for further investigation is the appearance of pitch accent on focus particles. The experimental data show that the occurrence of accent on focus particles (which always fall outside the focus constituent in the experimental data) is not related to focus condition. The data available for analysis indicate that there may be differences in the accentability of focus particles, since *also* is more likely to serve as the site of secondary pitch accent than *even* or *only*. This was not an issue the experiment was designed to address, but could be investigated in an experimental situation where focus structure and context are held constant and focus-sensitive lexical items varied.

6.6 SUMMARY

This investigation validates the approach taken in the corpus by verifying the relationship between focus and nuclear pitch accent, and by determining that the occurrence of pitch accent need not be connected to focus. The experimental data also indicate that patterns of accentuation are influenced by both semantic and phonological factors. The experimental data thus provide support for the view that focus and pitch accent need to be distinguished.

The experimental results did not confirm previous acoustic findings for differences between narrow and broad focus. However, they did provide evidence for the proposal that broad VP and narrow NP and PP focus represent three distinct phonological phenomena. The different types of focus constituents were associated with different patterns of prominence, as reflected by the assignment of nuclear and secondary pitch accents.

6.7 APPENDIX OF EXPERIMENTAL ITEMS

6.7.1 NP Focus Items

Mrs. Baxter's yard isn't as beautiful as it usually is in the spring. She has been complaining that squirrels have been digging up her flower garden, but her son thinks that she's blaming the wrong gray animal.

- A. He saw a scrawny gray kitten in the garden. (item)
- B. He is always complaining about something.
- C. He did not have to water the flower garden.

Our boss is completely obsessed with the latest technology. He always wants the fanciest, newest equipment for the office, even when we don't need it. Last month, the office got a fancy new phone system, which we're all still getting used to. What's the latest acquisition?

- A. He bought a fancy new printer for the office. (item)
- B. He went out of town on a long business trip.
- C. We have to make do with current equipment.

The Rutherton family was delighted with their new butler. He presided over their household with sophistication, and managed their parties with cultured finesse, keeping a watchful eye on everything in the ballroom. Little did they know that he had an unknown number of aliases and had, from his previous unsuspecting employers, successfully stolen dozens of priceless artworks. The Ruthertons were similarly victimized.

- A. He left an enormous empty suitcase in the ballroom.
- B. He stole a priceless old painting from the ballroom. (item)
- C. He provided them with several letters of reference.

We visited a charming house recently. It had dozens of unusual architectural features, and an interesting round motif. The floors were covered with unusual round tiles. It had a charming round window in the foyer, which was shaped like a semicircle.

- A. It only had a charming round doorway in the foyer.
- B. It had an excellent stereo system in the living room.
- C. It also had a charming round doorway in the foyer. (item)

Carl was notorious at work for his rude behavior, but was tolerated because he was so brilliant. He routinely made trouble in staff meetings. He rolled his eyes at the things people said. He interrupted when others were speaking, and made rude remarks, both out loud and under his breath. At the latest staff meeting, Carl got very annoyed at something and went beyond making rude comments.

- A. He gave a sincere apology to the entire staff.
- B. He made excuses for the quality of his work.
- C. He made a very rude gesture in the meeting. (item)

Sandra's housemate asked her to toss a dirty sheet down the stairs so that she could wash it. "It's in the closet," she said, "the green one, on the floor." Sandra looked in the closet, but she didn't find a dirty green sheet, or any sheet actually.

- A. She only found a dirty green towel in the closet. (item)
- B. She also found a sweater that had been missing.
- C. She only made one long distance telephone call.

Ever since Carla moved to the East Coast, she has to celebrate her birthday without her family. Every year for her birthday, her father has sent her a very nice present. This year there was an additional bonus.

- A. She only got a birthday card from her father.
- B. She also got a very nice letter from her father. (item)
- C. She then took a lonely drive in the countryside.

The movers thought that we were going to have to move all the big boxes and heavy pieces of furniture up the stairway of the new house. Then, they discovered that the house had a back entrance on the second level. Fortunately, the back doorway, though narrow, could accommodate almost all the heavy boxes and furniture.

- A. They had to move everything through the front door.
- B. They even moved some heavy boxes up the stairway. (item)
- C. They only moved a heavy old bureau up the stairway.

Claire's first apartment was only one room. She furnished it mostly with things that she had gotten from her sister. There was a little table and a comfy old rocking chair.

- A. She also got a comfy old sofa from her sister. (item)
- B. She even got some groceries from her sister.
- C. She then called the leasing agent about a key.

Amanda found that she couldn't get much work done on her subway commute. The noise and the crowds prevented her from concentrating. She tried for weeks to read a couple of interesting work-related articles, but the environment was too distracting. She finally switched to lighter interesting material.

- A. It became more tedious as the days went by.
- B. She read an interesting novel on the subway. (item)
- C. She only missed her subway stop a few times.

John went to a yard sale where a lot of high quality electronic equipment was being sold inexpensively. John saw that the stereo equipment for sale was especially good.

- A. He thought everything there was worthless junk.
- B. He wishes that he also had to move to Europe.
- C. He bought a very good tape deck at the yard sale. (item)

Janet recently redecorated the living room. She really likes Victorian style décor. She hung some old-fashioned wallpaper and bought a high-backed Victorian sofa with a huge white lace doily over the back. To match it, she made some lacy white curtains.

- A. She even made a lacy white pillow for the sofa. (item)
- B. She called her sister up immediately to tell her.
- C. She even had enough room for an antique desk.

Mark left work early because he had been feeling sick. He had been dizzy and feverish, his whole body ached, and he had had a really bad sore throat. He thought he might call in sick the next morning, but it turned out he didn't have to.

- A. He felt much worse than he had yesterday evening.
- B. He only had a really bad headache in the morning. (item)
- C. He even had a really bad sore throat in the morning.

Kate's little brother came in from playing outside and told her that there was a little green praying mantis on the terrace. Kate went outside to see it.

- A. She only saw a tiny green lizard on the terrace. (item)
- B. She heard the telephone ringing in the kitchen.
- C. She even saw some people walking to the pool.

Lane was always losing things in the weight room. She'd accidentally leave something behind, and never find it again. She once lost her wallet there – someone took it, apparently. Once she left her favorite shoes behind.

- A. She only left something in the weight room once.
- B. She also lost a favorite T-shirt in the weight room. (item)
- C. She found the noise in the weight room distracting.

Julia's little girl had developed an interest in woodworking and was becoming a skilled carpenter. So that she could see some of the things her daughter made when she looked up from her work, Julia liked to put them in her study. Her daughter felt encouraged to make all sorts of beautiful things for Julia.

- A. She only painted the study with one coat of paint.
- B. She argued with her mother about using the car.
- C. She even made a beautiful bookshelf for her study. (item)

Lyle showed up at a meeting with his mother's lawyers late and dressed completely inappropriately. He wore a pair of dirty old running shoes and tattered jeans.

- A. He even made a positive impression at the meeting.
- B. He even wore a dirty old sweatshirt to the meeting. (item)
- C. He only wore a pair of white socks to the meeting.

Another pedestrian bumped into Linda on the street and knocked her to the ground. Linda got up and went on her way, but she realized later that she had been injured when she fell. In the evening, she found that she had a really bad bruise on her hip and a sore knee.

- A. She only got a minor wrist fracture when she fell.
- B. She knew that she was in better shape than before.
- C. She even had a really bad backache in the evening. (item)

6.7.2 PP focus items

Mrs. Baxter suspected that someone had moved out of the neighborhood and abandoned a cat. She mentioned to her son that she had seen a scrawny gray kitten climbing into the garbage can. Although he hadn't seen a kitten by the garbage can, her son had the same suspicions.

- A. He saw a scrawny gray kitten in the garden. (item)
- B. He said that he did not take out the garbage.
- C. He is always complaining about something.

Our boss loves new technology, but he's also a little tight with money. Last month he saw a color laser printer that prints photo quality graphics really quickly. He really wanted one, but decided he couldn't afford to buy one for his personal use at home. So what did he do?

- A. He bought a fancy new printer for the office. (item)
- B. He went out of town on a long business trip.
- C. We have to make do with current equipment.

The Rutherton mansion was broken into while the family was on vacation. The housekeeper was out for the day, and when she came home, she discovered that a window was broken and the alarm deactivated. The family had recently added a famous statue to the collection in their library, and the housekeeper was worried that this had been the burglar's target. It wasn't, though. In fact, the burglar didn't touch a single statue in their library.

- A. He left a huge empty suitcase in their .
- B. He stole a costly old statue from their ballroom. (item)
- C. He provided them with five letters of reference.

We visited a charming house recently. It had dozens of unusual architectural features, and an interesting round motif. The floors were covered with unusual round tiles. It had a round doorway in the living room, which was shaped like a semicircle.

- A. It only had a charming round doorway in the foyer.
- B. It had an excellent stereo system in the living room.
- C. It also had a charming round doorway in the foyer. (item)

Carl has gotten into some trouble at work. He has a quick temper, and has been known to get into arguments with people, during which he ends up making a rude remark or the occasional rude gesture. It's bad enough to make rude gestures at your co-workers during a break around the watercooler, but now he's really gone too far. Recently, when the director had gathered the staff to explain a new policy, Carl got very annoyed at something.

- A. He made a sincere apology to the entire staff.
- B. He made excuses for the quality of his work.

- C. He made a very rude gesture in the meeting. (item)

Sandra's housemate asked her to toss a dirty towel down the stairs so that she could wash it. "It's in the bathroom," she said, "the green one, on the floor." Sandra looked in the bathroom, but she didn't find any towels.

- A. She only found a dirty green towel in the closet. (item)
B. She also found a sweater that had been missing.
C. She only made one long distance telephone call.

Ever since Carla moved to the East Coast, she has to celebrate her birthday without her family. Every year for her birthday, her parents have sent her a very nice present, with a letter from her mother. This year there was an additional bonus.

- A. She only got a birthday card from her father.
B. She also got a very nice letter from her father. (item)
C. She then took a lonely drive in the countryside.

When Jim bought some new furniture, he hired movers to move the heavy old furniture up into the attic and bring the new furniture in. The movers got all the new pieces of furniture safely to their assigned locations, but there was one piece of old furniture they couldn't manage to get all the way into the attic.

- A. They had to move everything through the front door.
B. They even moved some heavy boxes up the stairway.
C. They only moved a heavy old bureau up the stairway. (item)

Claire's first apartment was only one room. She furnished it mostly with things that she had gotten from her parents. There was a little table and a worn but comfortable sofa.

- A. She also got a comfy old sofa from her sister. (item)
B. She even got some groceries from her sister.
C. She then called the leasing agent about a key.

Amanda had been looking forward to a long weekend at the beach. She was planning to lie under an umbrella on the sand and read an entertaining novel for three days. There was an emergency at work, and she had to work most of the weekend instead. She was disappointed about not being able to enjoy a novel in the sunshine on the beach, but tried to make the best of it.

- A. It became more tedious as the days went by.
B. She read an interesting novel on the subway. (item)
C. She only missed her subway stop a few times.

John was driving home one day when he passed a yard sale and decided to stop. He had been looking to upgrade his stereo system, but he hadn't been able to buy the tape deck he wanted in the store. He was glad he stopped.

- A. He thought everything there was worthless junk.

- B. He wishes that he also had to move to Europe.
- C. He bought a very good tape deck at the yard sale. (item)

Janet recently received some white lacy fabric from a friend. She liked to sew, so she used it to redecorate. It turned out to be quite a lot of fabric. She made a huge bedspread, some curtains and a few lacy pillows for the bed.

- A. She even made a lacy white pillow for the sofa. (item)
- B. She called her sister up immediately to tell her.
- C. She even had enough room for an antique desk.

After a night of celebration with some friends, Mark woke up feeling lousy. He thought he might have to spend the entire Saturday recovering. He felt a little queasy and a little shaky, but the worst thing was his pounding headache. Fortunately, he felt much better by lunch time.

- A. He felt much worse than he had yesterday evening.
- B. He only had a really bad headache in the morning. (item)
- C. He even had a really bad sore throat in the morning.

Kate's little brother came and told her that there was a little green lizard on the windowsill, about to come into the house. Kate went to look.

- A. She only saw a tiny green lizard on the terrace. (item)
- B. She heard the telephone ringing in the kitchen.
- C. She even saw some people walking to the pool.

Lane lost four of her favorite T-shirts in a short time period. She let a friend borrow one, and later, couldn't remember who had it to ask for it back. Another T-shirt vanished when Lane was at the laundromat. She lost another one at the beach.

- A. She only left clothing under the boardwalk once.
- B. She also lost a favorite T-shirt in the weight room. (item)
- C. She found the noise in the laundromat distracting.

Julia had found some wood discarded at a construction site, and took it home in her truck so that she could use it to make some bookshelves for her house. It turned out to be quite a lot of wood. She made a couple of small bookshelves for the kitchen and the hallway.

- A. She only painted the shelf with one coat of paint.
- B. She argued with her mother about using the car.
- C. She even made a beautiful bookshelf for her study. (item)

Lyle was rushing to work to finish preparing for an important meeting with his boss. When he was waiting to cross the street in front of his office, a taxi splashed him with mud, and his suit was completely covered. He changed into the clothes he'd brought to wear at the gym after work. He had to sit in his office and work in gym clothes all day long.

- A. He even made a positive impression at the meeting.

- B. He even wore a dirty old sweatshirt to the meeting. (item)
- C. He only wore a pair of white socks to the meeting.

Linda thought she was in pretty good shape for her age, but after she helped her younger brother move to a new apartment, she changed her mind. She was utterly worn out. She woke up the next morning with a really sore back. She ached all afternoon.

- A. She only got a minor wrist fracture when she fell.
- B. She knew that she was in better shape than before.
- C. She even had a really bad backache in the evening. (item)

6.7.3 VP focus items

Mr. Baxter usually has problems with birds picking the seeds he plants out of the ground. This year, all his vegetables came up beautifully. He was completely mystified about the difference. Then, he discovered what's been keeping the birds away.

- A. He saw a scrawny gray kitten in the garden. (item)
- B. He is always complaining about something.
- C. He did not have to water the flower garden.

Our boss is really tight with money. He makes us account for nearly every piece of paper we use, and we all have to work with antiquated computers that don't have enough memory. Last week, though, he surprised us all.

- A. He bought a fancy new printer for the office. (item)
- B. He went out of town on a long business trip.
- C. We have to make do with current equipment.

The Ruthertons were delighted with their elegant new butler. He presided over their household with sophistication, and managed their parties with cultured finesse, keeping a watchful eye on everything that went on. They were very concerned about his safety when he did not return after a day off. Their concern turned quickly to dismay when they discovered why he had not come home.

- A. He left a huge empty suitcase in their ballroom.
- B. He stole a costly old statue from their ballroom. (item)
- C. He provided them with five letters of reference.

We visited an interesting house recently. It had a number of unusual architectural features, including a built-in greenhouse. There was a domed window and walled terrace that was like a courtyard.

- A. It only had a charming round doorway in the foyer.
- B. It had an excellent stereo system in the living room.
- C. It also had a charming round doorway in the foyer. (item)

Carl was recently fired for his bad behavior at work. He had routinely caused trouble at the office, displaying a general disrespect for his coworkers. He was only tolerated because his work was so excellent. Recently, however, when the director had gathered the staff to explain a new policy, Carl got very annoyed at something and went too far.

- A. He made a sincere apology to the entire staff.
- B. He made excuses for the quality of his work.
- C. He made a very rude gesture in the meeting. (item)

Sandra and her housemate were working together on the household chores. Her housemate asked Sandra to toss the laundry down the stairs so that it could be put in the washing machine. There wasn't much that needed washing.

- A. She only found a dirty green towel in the closet. (item)
- B. She also found a sweater that had been missing.
- C. She only made one long distance telephone call.

Carla recently moved to the East Coast and hasn't made many friends yet. She misses her family, too. She sometimes feels a little blue over the weekend, but this Saturday she's feeling a bit happier. For one, one of her neighbors invited her for dinner.

- A. She only got a birthday card from her father.
- B. She also got a very nice letter from her father. (item)
- C. She then took a lonely drive in the countryside.

Jim and his brother had been sitting in the living room all afternoon, exhausted, barely able to drag themselves out of their recliners to "get a snack or a drink. "We must be getting old," Jim thought. He didn't think they'd done enough to wear themselves out so completely.

- A. They had to move everything through the front door.
- B. They even moved some heavy boxes up the stairway. (item)
- C. They only moved a heavy old bureau up the stairway.

Claire's first apartment was only one room. She furnished it mostly with things she didn't have to pay any money for. She found a perfectly good table that someone had thrown out.

- A. She also got a comfy old sofa from her sister. (item)
- B. She even got some groceries from her sister.
- C. She then called the leasing agent about a key.

Amanda had an exciting new job that she really liked and had come with a significant raise. The one drawback was that it was all the way across town, and required a long commute on public transportation. She quickly found a way to make her long commute less tedious.

- A. It became more tedious as the days went by.
- B. She read an interesting novel on the subway. (item)
- C. She only missed her subway stop a few times.

John's neighbors are moving to Europe and have to sell or give away most of their possessions. John feels a little sorry for them. He thinks that it would be hard to part with so much nice stuff.

- A. He thought everything there was worthless junk.

- B. He wishes that he also had to move to Europe.
- C. He bought a very good tape deck at the yard sale. (item)

Janet was decorating her first apartment, but she didn't have much money. She managed nevertheless to make the apartment quite attractive. She took a living room suite handed down from her sister, and recovered the furniture herself. She put up curtains that matched.

- A. She even made a lacy white pillow for the sofa. (item)
- B. She called her sister up immediately to tell her.
- C. She even had enough room for an antique desk.

Mark was in a high-speed car accident on his way home one night. Although his car was completely totaled, he walked away from the accident, and suffered hardly any ill effects from it.

- A. He felt much worse than he had yesterday evening.
- B. He only had a really bad headache in the morning. (item)
- C. He even had a really bad sore throat in the morning.

Kate looked out the window of the quiet restaurant. It was so hot outside that nothing seemed to be moving. Everyone was inside, out of the heat.

- A. She only saw a tiny green lizard on the terrace. (item)
- B. She heard the telephone ringing in the kitchen.
- C. She even saw some people walking to the pool.

Lane was having a bad day at the gym. She forgot the combination to her lock. When she wasn't looking, someone took her place in line for the stair climber. Later, she dropped a dumbbell and bruised her foot.

- A. She only left something in the weight room once.
- B. She also lost a favorite T-shirt in the weight room. (item)
- C. She found the noise in the weight room distracting.

Julia wanted her mother to give her permission to stay for a week at the beach with some friends, so she really worked to get on her mother's good side. She did all her chores without being asked, and did extra things for her mother, too. She ironed all her work clothes, for example.

- A. She only painted the study with one coat of paint.
- B. She argued with her mother about using the car.
- C. She even made a beautiful bookshelf for her study. (item)

Lyle's mother arranged an interview for him with her lawyer's office. She wanted him to work there over the summer. Lyle did not want to work there, however, and did what he could to prevent the office from offering him a job.

- A. He even made a positive impression at the meeting.

- B. He even wore a dirty old sweatshirt to the meeting. (item)
- C. He only wore a pair of white socks to the meeting.

Linda thought she was in good shape, but after she had spent the afternoon helping her brother move to a new apartment, she changed her mind. She was utterly worn out. "I must be getting old," she thought.

- A. She only got a minor wrist fracture when she fell.
- B. She knew that she was in better shape than before.
- C. She even had a really bad backache in the evening. (item)

Chapter 7: Conclusions

This work has provided evidence that focus is a discourse semantic phenomenon and pitch accent is a phonological one. Evidence for this distinction has come both from study of a speech corpus (Chapter 3) and from experimental results (Chapter 6). While the nuclear accents of a sentence typically do signal focus, there are exceptions; furthermore, while secondary accents can signal focus, they do not typically do so. Both the corpus and experimental data suggest that secondary accent may also serve a communicative function even when it does not signal focus in a sentence. This is an issue that should be explored in future work on discourse processing and the interaction of phonology and semantics. The location of nuclear accent within focus constituents in the data also supported the observation that location of accent is sensitive to given information (Ladd 1980), an assumption that underlies recent proposals for accentuation that incorporate the violable constraints of optimality theory (Schwarzchild 1999, Krifka to appear).

The speech corpus proves to be a rich source of data (Chapter 3). Many of the observations about focus based on constructed examples are supported by the corpus, but clear counterexamples to some of these observations also occur. Previous observations about *it*- and *wh*-clefts were borne out by their occurrences in the corpus, but they occurred only rarely. The most common syntactic structure claimed to have special focus properties was the presentational *there* construction, and the occurrence of these also supported existing observations (Chapter 3, section 3.4). The data also provided support for observations regarding the focus-sensitivity of different contexts (section 3.6), indicating that the interaction of focus with additive focus-sensitive particles affect the presuppositions of sentences, while the interaction of focus with focus operators affect the truth conditions of sentences. The occurrence of secondary pitch accent on focus operators like *also* and *always* raises the question as to possible communicative function of secondary pitch accent in spoken discourse.

The location of secondary pitch accent on *wh*-questions in the data also is interesting in light of proposals that claim that the fronted *wh*-constituent of such questions serves as their focus — a better understanding of the role of secondary pitch accent in discourse may help us better understand this issue.

The corpus data also indicates that secondary accent can serve as a marker of contrast. Examples from the corpus indicate that the concepts of contrastive focus and contrastive accent may need to be distinguished from each other, since contrastive accent did not always represent focus by the definitions and tests employed in analysis of the corpus (Chapter 3, 3.3, also Chapter 5). The corpus thus provided data that is problematic for views that equate contrastive accent with focus.

The corpus also provided examples that were problematic for claims regarding the connection between new discourse status and focus (Chapter 4). The corpus data shows that elements given in the discourse can be pitch accented and serve as focus centers. These cannot always be treated as "contrastive focus" exceptions. The existence of such examples, and the properties of the focus connected to them, provide support for the idea that focus does not simply represent new information.

Data from the *also* corpus do not support all the properties attributed to identificational and information focus under existing proposals (É. Kiss 1998;

Chapter 4, Chapter 5). A proposal developed on the basis of these observations relates the both observed kinds of focus to the existence of alternatives (Chapter 5). Information focus, however, contributes to the construction of coherent discourse, while identificational focus contributes to the interpretation of sentences. The differences in the behavior of these two observed kinds of focus can be attributed to the different levels on which they function.. The two types are also connected to each other, through the fact that the appearance of a focus center, in the form of an obligatory pitch accent, can signal either information or identificational focus, or even both simultaneously. Future work will have to be done to work out the formal details of this proposal and test its viability against other types of data. The proposal is appealing because it preserves a unified account of focus that nevertheless integrates the observations and approaches of discourse-oriented, focus-oriented and formal semantic perspectives on focus.

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Vita

Jocelyn Ballantyne Cohan was born in New York, New York on July 5, 1965, the daughter of Jeannette Slagter and Edward Ballantyne. She graduated from Irvington High School in Irvington New York in 1983. She entered the University of North Carolina at Chapel Hill in August 1983, and received a B.A. in Classics (Latin) and English with Honors in Classics in 1989. She began graduate work at the University of North Carolina in 1990 as a student in the post-baccalaureate teacher certification program. She worked as high school teacher in Graham, North Carolina from 1991 to 1994. In the fall of 1994, she entered the University of Texas at Austin to pursue a Ph.D. in Linguistics. During her time at the University of Texas at Austin, she held positions as a Teaching Assistant and Assistant Instructor, and as editorial assistant to the editor-in-chief of *Linguistics & Philosophy*. She began her dissertation research in 1998.

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