Chapter 1

Introduction

Intonation is important, especially when it is cold.
Eugene Ormandy

This book is about the effect of intonation on meaning. Consider the many ways in which to say *This book is even sold at Wal-Mart*. Different pronunciations of the sentence convey different emotions, e.g. excitement, disappointment, anger. The imaginative reader can perhaps imagine vocalizations suggesting sarcasm, or even horror. Furthermore, the pronunciation of *This book is even sold at Wal-Mart* not only affects emotional attitudes, but also affects what the speaker asserts, and what the speaker presupposes.[1] Two possible renditions are presented in (1.1). We represent the word carrying the greatest prosodic prominence of a sentence with capital letters.

(1.1) a. This book is even sold at WAL-Mart.
b. This book is even SOLD at Wal-Mart.

Among other things, the speaker of (1.1a) could convey that this book is sold at another outlet besides Wal-Mart and that Wal-Mart is a relatively unexpected place for the book to be sold. In contrast, the speaker of (1.1b) could be indicating that while it is clear that this book will be stocked at Wal-Mart, it is surprising that it would be sold there. The main source of the interpretational difference between (1.1a) and (1.1b) is *even*, a FOCUS SENSITIVE expression.

Different ways of pronouncing *This book is even sold at Wal-Mart* also affect the range of contexts in which the sentence can be used felicitously, as illustrated in (1.2). The disparaging rejoinder in (1.2c) cannot contrast with the statement in (1.2a), whereas (1.2b) can. We use the "#" symbol to indicate infelicity.

[1] That pronunciation affects meaning was observed by Paul (1888: 312ff.). In the particular case at hand, it could be argued that the assertion is unchanged for the two variant productions, although the presupposition changes. In many other examples we will consider, e.g. (1.3) and (1.4), both presupposed and asserted content are affected.

(1.2) a. This book is sold on Amazon.
b. So what? This book is even sold at WAL-Mart.
c. #So what? This book is even SOLD at Wal-Mart.

Prosody clearly affects the sense of an utterance in many different and amazing ways. How can we get a grip on such a varied phenomenon?

In this book we are primarily concerned with just one key topic in the study of the interaction of prosody and meaning, FOCUS SENSITIVITY, as effected by *even* in (1.1).[2] We will devote considerable attention to two important subclasses of focus sensitive expressions: exclusives (e.g., *only*) and adverbs of quantification (e.g., *always*).

Consider the examples in (1.3). In a situation where Kim serves Pat and Sandy Johnnie Walker whiskey, but serves nobody anything else, (1.3a) is true while (1.3b) is false.

(1.3) a. Kim only serves Sandy JOHNnie WALker.
'Kim serves Sandy nothing but Johnnie Walker.'
b. Kim only serves SANDY Johnnie Walker.
'Kim serves nobody but Sandy Johnnie Walker.'

The culprit in (1.3a) and (1.3b) is the exclusive *only*. We see a similar sort of interaction with adverbs of quantification such as *always*. Examples (1.4a) and (1.4b) have different truth conditions, just like (1.3a) and (1.3b).

(1.4) a. Kim always serves Sandy JOHNnie WALker.
'Whenever Kim serves Sandy something it's Johnnie Walker.'
b. Kim always serves SANDY Johnnie Walker.
'Whenever Kim serves Johnnie Walker to someone, it's Sandy.'

As will become clear as we give more background on existing literature, most analysts tacitly assume that the class of focus sensitive expressions is monolithic, and they refer to a single mechanism, so-called ASSOCIATION WITH FOCUS, to explain the meaning difference between (1.3a) and (1.3b), and between (1.4a) and (1.4b).

We think it a mistake to assume that a single mechanism is at work. In this book we will show that the class of focus sensitive expressions, or at least the class of expressions which have been termed focus sensitive in the past, is not at all uniform. Further, we will show how the type of focus sensitivity manifested by a particular expression is related to its meaning.

[2] Fischer (1968) and Kuroda (1965) are important early references on focus sensitivity. Fischer's paper (a term paper for one of Chomsky's courses and cited by Jackendoff 1972 and Chomsky 1972) is, as far as we know, the first paper in the generative tradition to observe that the interpretation of *only* and *even* is linked to focus (what Fischer calls 'contrastive stress').

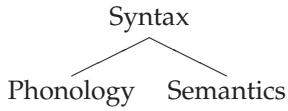

Figure 1.1 Generic depiction of core grammar architecture

The phenomenon of focus sensitivity has repercussions not only for semantics and pragmatics, but also for how and where SUPRASEGMENTAL information is encoded in the grammar, and in particular the intonational tunes which mark focus.[3] Many standard contemporary approaches to grammar separate phonology and semantics into components that cannot exchange information directly, as in Figure 1.1, so that any effect of intonation on meaning must be mediated by syntax.[4]

Consequently, many authors from Halliday (1967) and Chomsky (1972) on have concluded that there are syntactic features and transformations which encode prosodic prominence. Chomsky (1977), for example, suggested that all focused phrases move outside their base position in syntax. Related ideas are present in more recent Minimalist work such as Kayne (1998). Many other authors also postulate some syntactic effect of prosodic prominence, though they might use features, transformations, or syntactic derivations in quite a different way; see e.g. Rooth (1985, 1992) von Stechow (1985/1989), Krifka (1992b, 2006), and Steedman (2000).

What all these accounts have in common is that they accept the premise that there is a grammatical interface between focus and meaning. Indeed, most accounts of this sort posit a combination of interfaces allowing information transfer first from phonology to syntax and then from syntax to semantics. Yet some authors have argued that the interaction between focus and meaning is not mediated syntactically at all; see e.g. Dryer (1994), Kadmon (2001), Martí (2003), Roberts (1996), Schwarzschild (1997), Vallduví (1990), and Williams (1997). These authors have suggested that many effects of focus on meaning are pragmatic.

Let us examine a little more closely how the phenomenon we will study here bears on the nature of grammatical interfaces, since this is an issue of potential interest across several linguistic subfields. In traditional architectures, interfaces between modules are presumed to be tightly constrained: we may think of interfaces metaphorically as narrow channels through which only certain types

[3] *Suprasegmental* features are so called because they are spread out across multiple segments (basic sound units), or even across multiple words.

[4] The architecture assumed in the Minimalist Program, e.g. Chomsky (2000), diverges from that in prior work, as does much of the terminology. It remains the case that the phonological processes at PF (PHONETIC FORM) and the meaning-related processes at LF (LOGICAL FORM) do not exchange information directly. Furthermore, if we take SYNTAX to refer collectively to all the processes occurring between the LEXICON and LF (rather than to a distinct level of representation), the architecture assumed by Minimalists can still be taken as a special case of that in Figure 1.1.

of information may pass. Specifically, it is common to think of the function of the syntax/phonology interface primarily in terms of segmental information, the information that determines which morphemes are present and how those morphemes are grouped. The place of suprasegmental information in a modular grammar is unclear and rarely discussed.

Pragmatic theories of focus could be seen as part of an enterprise of keeping the interfaces between phonology, morphosyntax, and semantics as narrowly circumscribed as possible. These pragmatic theories lean on extragrammatical mechanisms to make up the shortfall, much as in the model of Grice (1975).[5] If the interpretive effects of focus could be explained pragmatically, then the phenomenon of focus would provide us with little insight into how suprasegmental information is represented at the morphosyntax/phonology and semantics/morphosyntax interfaces. But if there is a grammatical, conventionalized connection between focus and meaning, then that places minimal constraints on the suprasegmental information that must be represented at the morphosyntax/phonology interface. It also places a lower limit on what information must be passed between syntax and semantics.

If the relationship between focus sensitive expressions and their associated focus is conventionalized as part of the meaning of those expressions, then compositional interpretation must have access to focus at some representational level. But if the purely pragmatic accounts of focus sensitivity are right, then natural language semantics needs no special component for focus. Thus people have proposed wildly different models of focus and focus sensitivity. In the coming chapters, we will try to show where the truth lies.

A Look Ahead

As we will see in Chapter 3, the set of expressions that apparently manifest focus sensitivity is a veritable Noah's ark:[6]

exclusives: *only*, *just*, *merely*, . . . ;
non-scalar additives: *too*, *also*, . . . ;
scalar additives: *even*;
particularizers: *in particular*, *for example*, . . . ;
intensives: *really*, *totally*, . . . ;
quantificational adverbs: *always*, *usually*, . . . ;
determiners: *many*, *most*, . . . ;
sentential connectives: *because*, *since*, . . . ;
counterfactuals: *if it were* . . . ;

[5] But note that it is controversial to what extent pragmatics may itself be conventionalized and possibly grammaticized – see e.g. Levinson (2000) for discussion.

[6] For prior discussion of the focus sensitivity of most of these expression types, see e.g. Kadmon (2001), Rooth (1996a) and Hajiĉová et al. (1998).

emotives: *regret*, *be glad*, . . . ;
superlatives: *-est*;
negation: *not*, *no*, . . . ; and
generics: *Mice eat CHEESE*.

As can be seen in this list, the menagerie of focus sensitive expressions includes both open and closed class items, and it includes both bound morphemes and independent lexical items. There are nouns, verbs, adverbs, and adjectives. Faced with the astonishing range of expressions that have been labeled *focus sensitive*, it is unclear whether there are limits. First, can just any expression be focus sensitive? And, second, is focus sensitivity really a homogeneous phenomenon at all?

Certainly, from a methodological point of view, one would prefer to explain all the observed effects of focus in terms of a unitary mechanism. But wishful thinking is not enough – the question of whether focus sensitivity results from one mechanism or many is surely an empirical one. Yet there has been a dearth of empirical work systematically comparing focus sensitivity across different expression types. A primary goal of this book is to show how data on focus sensitivity can be marshaled so as to enable such comparisons, and thence to derive conclusions about how focus sensitivity functions.

In case you cannot stand the suspense, here is a sneak preview. In answer to the first question, of whether just any expression can be focus sensitive, we argue that there are strict limits. In particular, there is only a narrow range of expression types, those with certain discourse functions, for which focus sensitivity can be conventionalized as part of the expression's lexical meaning. And in answer to the second question, of whether focus sensitivity really is a homogeneous phenomenon, it turns out that all focus sensitive expressions are not equal: there are multiple mechanisms at work. In Chapter 3, we present a new account of focus sensitivity, the QFC theory, which involves a three-way distinction between different effects of focus: QUASI ASSOCIATION, a special type of pragmatic inference; FREE ASSOCIATION, the resolution of a free variable; and CONVENTIONAL ASSOCIATION, a grammatical dependency on the current question under discussion. Yet we will also argue that these three effects of focus can be described in terms of a common core.

Thus, while we depart from, for example, Rooth (1985), Partee (1991), Krifka (1993a), von Fintel (1994), and Roberts (1996) in that we explicitly suggest differences across types of expressions that manifest focus sensitivity, we also build heavily on these predecessors' work. We will suggest that while some expressions are grammatically constrained to be focus sensitive, others are not. And yet we will argue, like all of those just cited, that focus itself can and should be interpreted quite uniformly, for example using Rooth's Alternative Semantics, to be discussed in gory detail in Chapters 2 and 4.

Chapter 2 provides background for the rest of the book. We begin by introducing the notion of focus and discuss the role it plays in information structure. Many of the claims about focus sensitivity that we attack in this book were

made for English. For that reason, in Chapter 2 we spend some time examining the way in which information structure is marked through intonation in English, including aspects of intonational phonology and focus projection. The chapter ends with an overview of the semantic and pragmatic framework we adopt in this book and an outline of our account of focus sensitive expressions. Chapter 3 describes in detail the range of natural language expressions that appear to be focus sensitive and relates them to our three-way QFC classification of focus sensitivity.

Chapters 4 and 5 present semantic and pragmatic approaches to focus interpretation respectively. Though they primarily serve a preparatory function for the material in Chapters 6–10, they are also the most technically demanding chapters in the book. Our discussions of theoretical issues arising in prior work are more detailed and extensive than those to be found in any comparable work in this area, and will demand both logical acumen (first order logic and some lambda calculus) and significant graduate level training in formal semantics. However, some of the more technical subsections can safely be skipped, at least by those readers who are prepared to trust our formal claims, without overly compromising the broader argument of the book.

Taking as their primary object of study quantificational adverbs and exclusives, Chapters 6–8 explore a range of phenomena and diagnostics that demonstrate that the class of focus sensitive expressions is not monolithic. At a theoretical level, Chapters 6–8 adopt a simple events-based model drawn from Chapters 4 and 5, and in using this model we intentionally compromise the core meanings of exclusives and quantificational adverbs in order to bring out their semantic similarities. This is, we freely admit, a didactic trick. For it is by setting up the meanings of these expression types to be as similar as possible that we are able most effectively to highlight the differences that we are interested in, i.e. differences in their focus sensitivity.

Chapters 9 and 10 do away with our thin pretense that quantificational adverbs and exclusives are functionally similar, concentrating on the semantics and pragmatics of exclusives. We study in detail the large and controversy-laden literature in this area, take out of it what we need, and fashion a new proposal. This proposal puts the discourse function of exclusives at the heart of their meaning, and, we hope, explains both how and why exclusives manifest focus sensitivity. Finally, in Chapter 11, we consider the big picture, taking another look at our Noah's Ark of focus sensitive expressions, and seeing how what we have learned about exclusives and quantificational adverbs transfers to other expression types.